HOWMET AEROSPACE

SF20, SF20N and SF20-200-12 series

BobTail® Installation Tools
Instruction Manual



SF20 model shown here.
Actual model may vary.

Table of Contents

EC/UKCA Declaration of Conformity	2
Safety Instructions	3 - 4
Description	4
Tool Specifications	4 - 5
Sticker Locations	5
Spare Parts and Accessories	5
Principle of Operation	6
Preparation for Use	6
Hydraulic Couplings	7
Tool-to-Powerig® Setup	7
Pressure Settings	7
Operating Instructions	8
Assembly of NPTF Threaded Components	8
Maintenance	9
Nose Assembly Installation and Removal	10 - 11
Tool Disassembly Procedure	12
Tool Assembly Procedure	12
Component Drawings	12 - 13
Troubleshooting	14
Warranties	15
Howmet Support Locations	16

HUCK
HUCK IS FOREVER™

Makers of Huck®, Marson®, Recoil®
Brand Fasteners, Tools & Accessories

October 2, 2026
HK1179

HOWMET AEROSPACE

EC Declaration of Conformity

Manufacturer:
Huck International, LLC, Industrial Products Group,
1 Corporate Drive, Kingston, NY, 12401, USA

Description of Machinery:
Models SF## families of hydraulic installation tools and specials based on their design (e.g. PR####).

Relevant provisions complied with:
- Council Directive related to Machinery (2006/42/EC)
- British Standard related to hand held, non-electric power tools (ISO 11148-1:2011)

Representatives:
EU: Lutz Baumann
Hildesheim Operations
Fairchild Fasteners Europe - VSD GmbH
Steven 3
31135 Hildesheim, Germany

Authorized Signature/date:
I, the undersigned, do hereby declare that the equipment specified above conforms to the above Directive(s) and Standard(s).

Signature: 

Full Name: Nicholas Gougoutris

Position: Engineering Manager

Location: Huck International, LLC d/b/a
Howmet Fastening Systems
Kingston, New York, USA

Date: 7/15/2026 July 15, 2026

UKCA Declaration of Conformity

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Huck International, LLC, Industrial Products Group,
1 Corporate Drive, Kingston, NY, 12401, USA

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Models SF## families of hydraulic installation tools and specials based on their design (e.g. PR####).

Relevant provisions complied with:
- British Standard related to hand held, non-electric power tools (ISO 11148-1:2011)
- Supply of Machinery (Safety) Regulations 2008

Representatives:
UK: Paul Carson
Huck International, Ltd.
Unit C
Stafford Park 7
Telford, Shropshire
England TF3 3BQ, United Kingdom

Authorized Signature/date:
I, the undersigned, do hereby declare that the equipment specified above conforms to the above Directive(s) and Standard(s).

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Howmet Fastening Systems
Kingston, New York, USA

Date: 7/15/2026 July 15, 2026

Declared dual number noise emission values in accordance with ISO 4871
A weighted sound power level, LWA: **76** dB (reference 1 pW) Uncertainty, KWA: 3 dB
A weighted emission sound pressure level at the work station, LpA: **65** dB (reference 20 µPa) Uncertainty, KpA: 3 dB
C-weighted peak emission sound pressure level, LpC, peak: **94** dB (reference 20 µPa) Uncertainty, KpC: 3 dB
Values determined according to noise test code ISO 15744, using as basic standards ISO 3744 and ISO 11203. The sum of a measured noise emission value and its associated uncertainty represents an upper boundary of the range of values which is likely to occur in measurements.

Declared vibration emission values in accordance with EN 12096			
Measured Vibrations emission value, a:	**.359** m/s^2	Uncertainty, K:	**.078** m/s^2
Max Peak Vibrations emission value:	**3.539** m/s^2	Max Peak Uncertainty:	**1.489** m/s^2
Values measured and determined according to ISO 28662-1, ISO 5349-2, and EN 1033			

Test data to support the above information is on file at:
Howmet Fastening Systems, Kingston Operations, Kingston, NY, USA.

Safety Instructions

GLOSSARY OF TERMS AND SYMBOLS:

- Product complies with requirements set forth by the relevant UK and European directives.
- Read manual before using equipment.
- Eye protection is required while using this equipment.
- Hearing protection is required while using this equipment.

Notes: are reminders of required procedures. ***Bold, Italic type, and underline:*** emphasize a specific instruction.

WARNINGS: Must be understood to avoid severe personal injury.

CAUTIONS: Show conditions that will damage equipment or structure.

I. GENERAL SAFETY RULES:

1. A half hour long hands-on training session with qualified personnel is recommended before using Howmet equipment.
2. Howmet equipment must be maintained in a safe working condition at all times. Tools and hoses should be inspected at the beginning of each shift/day for damage or wear. Any repair should be done by a qualified repairman trained on Howmet procedures.
3. For multiple hazards, read and understand the safety instructions before installing, operating, repairing, maintaining, changing accessories on, or working near the assembly power tool. Failure to do so can result in serious bodily injury.
4. Only qualified and trained operators should install, adjust or use the assembly power tool.
5. Do not modify this assembly power tool. This can reduce effectiveness of safety measures and increase operator risk.
6. Do not discard safety instructions; give to operator.
7. Do not use assembly power tool if it is damaged.
8. Tools shall be inspected periodically to verify all ratings and markings required, and listed in the manual, are legibly marked on the tool. The employer/operator shall contact the manufacturer to obtain replacement marking labels when necessary. Refer to assembly drawing and parts list for replacement.
9. Tool is only to be used as stated in this manual. Any other use is prohibited.
10. Read MSDS Specifications before servicing the tool. MSDS specifications are available from the product manufacturer or your Howmet representative.
11. Only genuine Howmet parts shall be used for replacements or spares. Use of any other parts can result in tooling damage or personal injury.
12. Never remove any safety guards or pintail deflectors.
13. Never install a fastener in free air. Personal injury from fastener ejecting may occur.
14. Where applicable, always clear spent pintail out of nose assembly before installing the next fastener.
15. Check clearance between trigger and work piece to ensure there is no pinch point when tool is activated. Remote triggers are available for hydraulic tooling if pinch point is unavoidable.
16. Do not abuse tool by dropping or using it as a hammer. Never use hydraulic or air lines as a handle or to bend or pry the tool. Reasonable care of installation tools by operators is an important factor in maintaining tool efficiency, eliminating downtime, and preventing an accident which may cause severe personal injury.
17. Never place hands between nose assembly and work piece. Keep hands clear from front of tool.
18. Tools with ejector rods should never be cycled with out nose assembly installed.
19. When two piece lock bolts are being used always make sure the collar orientation is correct. See fastener data sheet for correct positioning.

II. PROJECTILE HAZARDS:

1. Risk of whipping compressed air hose if tool is pneudraulic or pneumatic.
2. Disconnect the assembly power tool from energy source when changing inserted tools or accessories.
3. Be aware that failure of the workpiece, accessories, or the inserted tool itself can generate high velocity projectiles.
4. Always wear impact resistant eye protection during tool operation. The grade of protection required should be assessed for each use.
5. The risk of others should also be assessed at this time.
6. Ensure that the workpiece is securely fixed.
7. Check that the means of protection from ejection of fastener or pintail is in place and operative.
8. There is possibility of forcible ejection of pintails or spent mandrels from front of tool.

III. OPERATING HAZARDS:

1. Use of tool can expose the operator's hands to hazards including: crushing, impacts, cuts, abrasions and heat. Wear suitable gloves to protect hands.
2. Operators and maintenance personnel shall be physically able to handle the bulk, weight and power of the tool.
3. Hold the tool correctly and be ready to counteract normal or sudden movements with both hands available.
4. Maintain a balanced body position and secure footing.
5. Release trigger or stop start device in case of interruption of energy supply.
6. Use only fluids and lubricants recommended by the manufacturer.
7. Avoid unsuitable postures, as it is likely for these not to allow counteracting of normal or unexpected tool movement.
8. If the assembly power tool is fixed to a suspension device, make sure that fixation is secure.
9. Beware of the risk of crushing or pinching if nose equipment is not fitted.

IV. REPETITIVE MOTION HAZARDS:

1. When using assembly power tool, the operator can experience discomfort in the hands, arms, shoulders, neck or other parts of the body.
2. The operator should adopt a comfortable posture, maintain a secure footing and avoid awkward or off balanced postures.
3. The operator should change posture during extended tasks to help avoid discomfort and fatigue.
4. If the operator experiences symptoms such as persistent or recurring discomfort, pain, throbbing, aching, tingling, numbness, burning sensations or stiffness, these warnings should not be ignored. The operator should tell the employer and consult a qualified health professional.

V. ACCESSORIES HAZARDS:

1. Disconnect tool from energy supply before changing inserted tool or accessory.
2. Use only sizes and types of accessories and consumables that are recommended. Do not use other types or sizes of accessories or consumables.

VI. WORKPLACE HAZARDS:

1. Be aware of slippery surfaces caused by use of the tool and of trip hazards caused by the air line or hydraulic hose.
2. Proceed with caution while in unfamiliar surroundings; there could be hidden hazards such as electricity or other utility lines.
3. The assembly power tool is not intended for use in potentially explosive environments.
4. Tool is not insulated against contact with electrical power.
5. Ensure no electrical cables, gas pipes, etc. can cause a hazard if damaged by use of the tool.

VII. NOISE HAZARDS:

1. Exposure to high noise levels can cause permanent, disabling hearing loss and other problems such as tinnitus, therefore risk assessment and the implementation of proper controls is essential.
2. Appropriate controls to reduce the risk may include actions such as damping materials to prevent workpiece from 'ringing'.
3. Use hearing protection in accordance with employer's instructions and as required by occupational health and safety regulations.
4. Operate and maintain tool as recommended in the instruction handbook to prevent an unnecessary increase in the noise level.
5. Select, maintain and replace the consumable / inserted tool as recommended to prevent an unnecessary increase in noise.
6. If the power tool has a silencer, always ensure it is in place and in good working order when the tool is being operated.

VIII. VIBRATION HAZARDS:

1. Exposure to vibration can cause disabling damage to the nerves and blood supply to the hands and arms.
2. Wear warm clothing when working in cold conditions and keep hands warm and dry.
3. If numbness, tingling, pain or whitening of the skin in the fingers or hands, stop using the tool, tell your employer and consult a physician.
4. Support the weight of the tool in a stand, tensioner or balancer in order to have a lighter grip on the tool.

IX. HYDRAULIC TOOL SAFETY INSTRUCTIONS:

WARNINGS: Do not exceed maximum pull or return settings on tool.
Be sure all hose connections are tight. All tool hoses must be connected.

1. Carry out a daily check for damaged or worn hoses or hydraulic connections and replace if necessary.
2. Wipe all couplers clean before connecting. Failure to do so can result in damage to the quick couplers and cause overheating.
3. Ensure that couplings are clean and correctly engaged before operation.
4. Use only clean oil and filling equipment.
5. Power units require a free flow of air for cooling purposes and should therefore be positioned in a well ventilated area free from hazardous fumes.
6. Do not inspect or clean the tool while the hydraulic power source is connected. Accidental engagement of the tool can cause serious injury.
7. Be sure all hose connections are tight.
8. Wipe all couplers clean before connecting. Failure to do so can result in damage to the quick couplers and cause overheating.

DANGER - IMPORTANT

DO NOT EXCEED HOSE MINIMUM BEND RADIUS

Failure to heed the warnings below could lead to a damaged hose, damaged tool, damaged property, personal injury, or death.

- This high pressure hose is not to be used other than assembled in a genuine HUCK tool or hose assembly or used as a replacement hose of a genuine HUCK tool or hose assembly.
- Improper use of this product can cause ***property damage***, ***personal injury***, and ***death***, including but not limited to ***electrocution***, ***fluid injection*** or ***loss of limb*** caused by ***high pressure leak***, ***dangerously whipping hose*** or contact with suddenly moving or falling objects.
- Do not exceed rated working pressure ***(700 bar/10150 psi)*** or minimum bend radius (see chart below). Do not use in temperatures less than ***-40°C (-40°F)*** or greater than ***+100°C (+212°F)***. Do not exceed fluid working temperature of ***+70°C (+158°F)***.
- Do not use if hose is kinked, abraded, cut, bulged or leaking. Do not attempt to repair hose.
- Do not carry tool by hoses.
- Store hose assemblies in a clean dry area.
- Refer to a HUCK hydraulic tool manual for hose inspection & maintenance intervals.

HOSE TYPE	MINIMUM BEND RADIUS	
126107 SERIES	2.76 Inches	70 mm
118944 and **124881 SERIES**	2.17 Inches	55 mm
HA and **HPH SERIES**	1.97 Inches	50 mm

Description

The swage forward SF tool series, with appropriate nose assemblies, install and remove a range of Huck BobTail® fasteners. Each tool is complete with hydraulic hoses and couplings, electric switch and cord.

The end cap is threaded with a left-hand (LH) thread which engages the nose assembly's puller or puller extension. The end of the piston is threaded with a right-hand (RH) thread which engages the nose assembly's anvil assembly or anvil holder.

Huck Hydraulic Installation Tools are designed to be powered by Huck Powerig® Hydraulic Unit models 913H, 918, 918-5, 920D, 940, 964B, or equivalent, as power sources.

A specific nose assembly is required for each fastener type and size. Nose assemblies must be ordered separately. Contact your Huck representative.

The quantity of spare parts that should be kept on hand varies with the application and number of tools in service. Spare service kits containing perishable parts such as seals, back-up rings, etc., should be kept on hand at all times.

Tool Specifications

TOOL	HOSE LENGTH
SF20N	2'

TOOL	HOSE LENGTH	INCLUDES
SF20	2'	Puller Locknut Wrench installation tool (P/N 128817)
SF20-200-12	12'	

Hose Kits: Use only genuine HUCK Hose Kits rated at 10,000 psi (689.5 bar) working pressure.

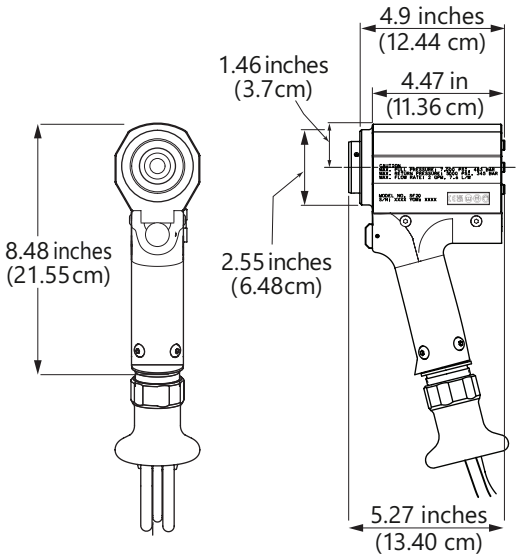
Hydraulic fluid: Hydraulic fluid shall meet DEXRON III, DEXRON VI, MERCON, Allison C-4 or equivalent ATF specifications. Fire resistant fluid may be used if it's an ester based fluid such as Quintolubric HFD or equivalent. Water based fluid shall NOT be used as serious damage to equipment will occur.

DESCRIPTION	DETAIL		DESCRIPTION	DETAIL	
POWER SOURCE	Huck Powerig® Hydraulic Unit		**PULL CAPACITY**	20,650 lbf	92 kN
MAX OPERATING TEMP	125 ° F	51.7 ° C	**RETURN CAPACITY**	9,500 lbf	42 kN
MAX INLET PULL PRESSURE	7000 psi	483 bar	**MAX INLET RETURN PRESSURE**	5000 psi	345 bar
WEIGHT *(approximate)*	11 lbs	4.99 kg	**MAX FLOW RATE**	2 gpm	7.57 l/m
STROKE	2 inches	5.08 cm			

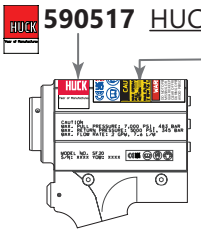
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Tool Specifications continued...

Dimensions - SF20 Series
(not including hose, cord, or nose assembly)



Sticker Locations



590517 HUCK/Year of Manufacture Sticker

590512-7 CE and WARNING Sticker



HUCK hydraulic tools come labeled with stickers which contain safety and pressure settings information. Stickers must remain on the tool and readable. If a sticker becomes damaged or worn, or if it has been removed from the tool, or when replacing the hydraulic Cylinder, it must be ordered and placed in the location shown in this diagram.

Spare Parts & Accessories

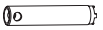
To maintain CE conformity, only CE compatible equipment should be used with these tools. Installation tools and nose assemblies are the only CE components, unless otherwise noted. Controls and other hardware shown in the manual are for domestic use only. These components are available independently. The Service Parts Kit includes all perishable O-rings and Back-up rings. A spare Service Parts Kit should be kept on hand at all times.

DESCRIPTION	PART #
Service Kit	SF20KIT
Teflon® Stick	503237
Loctite® 243	508567
Never-Seez® NS-160 anti-seize and lubricating compound	505565
Lubriplate® 130-AA	502723
Puller Wrench - included with the **SF20 and the SF20-200-12** but not the SF20N	128817
SF20 Series Tool bracket	AC-TH01-SF20
Gauge, Pressure Setting, CE	T-124833CE

HOSE ASSEMBLY		
Contains 2 hydraulic hoses with 1 male & 1 female quick connect fitting at each end & 1 control cable with 1 male connector & 1 female connector		
HOSE LENGTH	**PART # WITHOUT SLEEVE**	**PART # WITH SLEEVE**
6 FT	HAY06-ECA03	N/A
12 FT	HAY12-ECA03	HAY12-ECA33
26 FT	HAY26-ECA03	HAY26-ECA33
38 FT	HAY38-ECA03	HAY38-ECA33
52 FT	HAY52-ECA03	HAY52-ECA33



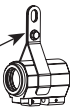
T-124833CE
Gauge, Pressure Setting, CE



128817
Puller Wrench



AC-TH01-SF20
SF20 Tool bracket



shown with SF20

SWAGE GAGES							
HG-S-BT16	½"	HG-S-BT20	⅝" & 16 mm	HG-S-MBT12	12 mm	HG-S-MBT14	14 mm

Where the following trade names are used in this manual, please note:

DEXRON *is a registered trademark of General Motors Corporation.*
GLYD Ring *is a registered trademark of Trelleborg Sealing Solutions Germany GmbH*
Loctite *is a registered trademark of Henkel IP & Holding GmbH*
LUBRIPLATE *is a registered trademark of Fiske Brothers Refining Co.*
MERCON *is a registered trademark of Ford Motor Corp.*
MOLYKOTE *is a registered trademark of Dow Corning Corporation*
Never-Seez *is a registered trademark of Bostik, Inc.*
Quintolubric *is a registered trademark of Quaker Chemical Corp.*
Slic-tite *is a registered trademark of LA-CO Industries, Inc.*
Spirolox *is a registered trademark of Smalley Steel Ring Company*
Teflon *is a registered trademark of Chemours Company FC.*
Threadmate *is a registered trademark of Parker Intangibles LLC.*
TRUARC *is a trademark of TRUARC Co. LLC.*
Vibra-Tite *is a registered trademark of ND Industries, Inc. USA.*

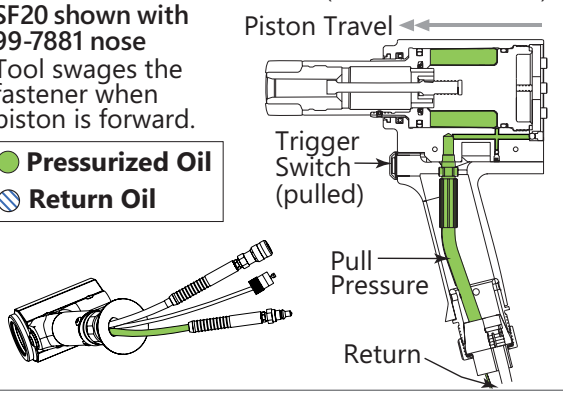
Actual tool model may vary from figures shown.
Component part numbers may change without notice.

Principle of Operation

Figure 1 **Pull Pressure** (Pull Cycle)
Section shown through right side
Return flow is through left side hose (not shown in this view)

SF20 shown with 99-7881 nose
Tool swages the fastener when piston is forward.

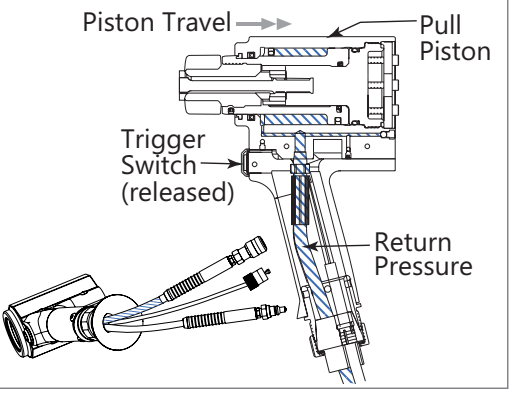
Pressurized Oil
Return Oil



PULL CYCLE **Figure 1**

The operator pushes the Tool's Nose over the end of the fastener until the Tool's Puller bottoms on the fastener. When the trigger is pressed, a solenoid-operated valve in the Powerig® hydraulic power source directs pressurized fluid through the PULL hose to the rear side of the piston, and allows fluid on the RETURN side to flow back to the tank. The piston and nose assembly anvil move forward, installing the fastener.

Figure 2 **Return Pressure** (Return Cycle)
Section shown through left side
Fluid returns to tank through right side hose (not shown in this view)



RETURN CYCLE **Figure 2**

After the fastener is fully swaged, the operator must release the trigger. When the trigger is released, the solenoid is de-energized. The valve directs pressurized fluid through the RETURN hose to the front of the piston and the fluid on the PULL side flows back to the tank. This causes the piston and anvil to move backward, pushing the nose assembly and tool off the swaged (installed) fastener.

When the piston reaches the end of the RETURN stroke, pressure builds, causing the Powerig® to shut off (940 & 968 series) or to kick down to an idle pressure.

Preparation for Use

WARNINGS: Read full manual before using tool.
A half-hour training session with qualified personnel is recommended before using Huck equipment.

When operating Huck installation equipment, always wear approved eye protection.

Be sure there is adequate clearance for the operator's hands before proceeding.

Correct PULL and RETURN pressures are required for operator's safety and for installation tool's function. Gauge T-124833CE is available for checking pressures. See Pressure Settings and Gauge Instruction Manual. Failure to verify pressures may result in severe personal injury.

Be sure to connect Tool's hydraulic hoses to Powerig Hydraulic Unit before connecting Tool's switch control cord to unit. If not connected in this order, severe personal Injury may occur.

Huck recommends that only Huck Powerig Hydraulic Units be used as a power source for Huck installation equipment. Hydraulic power units that deliver high pressure for both PULL and RETURN, and are not equipped with relief valves are specifically not recommended and may be dangerous.

CAUTIONS: Do not use TEFLON® tape on pipe threads. Pipe threads may cause tape to shred resulting in tool malfunction. Parker Threadmate™ is recommended, available independently.

Do not let disconnected hoses and couplers contact a dirty floor. Keep harmful material out of hydraulic fluid. Dirt in hydraulic fluid causes valve failure in Tool and in Powerig Hydraulic Unit.

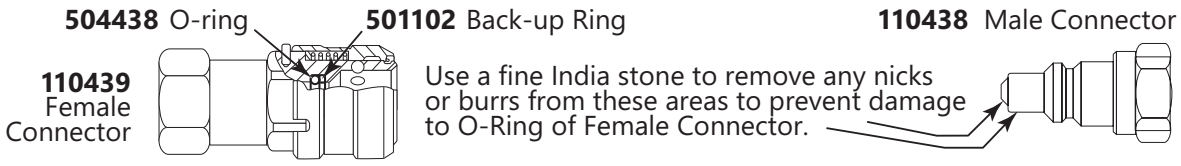
Hose couplers must be completely joined together to ensure that ball checks in both nipple and body are completely open. Improperly assembled couplers will cause overheating and malfunctions in both tool and Powerig. Hand tighten couplers. Do NOT use a pipe wrench.

POWER SOURCE CONNECTIONS

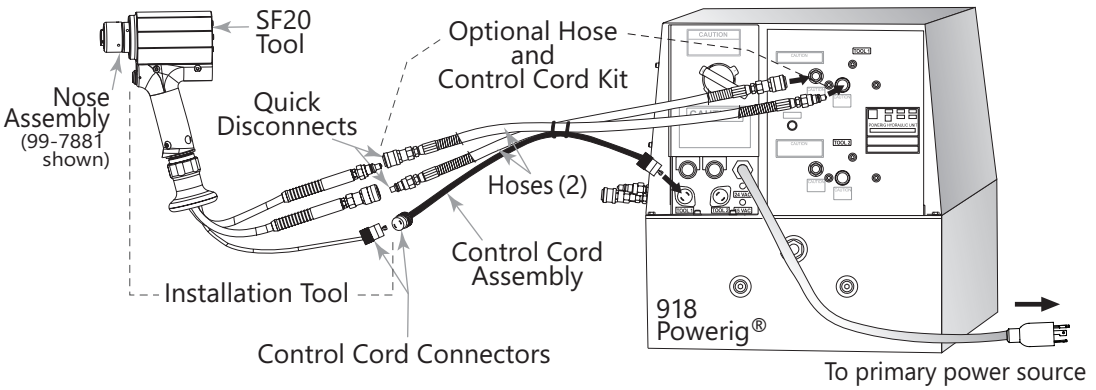
1. Coat hose fitting threads with a non-hardening TEFLON® thread compound. Parker Threadmate™ is recommended, available independently.
2. Use only a Huck Powerig 918, 940 or equivalent that is prepared for operation per applicable instruction manual. Check both PULL and RETURN pressures and adjust as necessary to match installation tool. Use a Huck T-124833CE Gauge to check the Powerig pressure.
3. Turn Powerig to "OFF" and couple tool hoses to Powerig hoses.
4. Turn Powerig to "ON" and depress and release trigger a few times to circulate hydraulic fluid. Observe action of tool. Check for fluid leaks.
5. Attach the proper Nose Assembly to the tool.

NOTE: If fasteners do not pass inspection, see **Troubleshooting** to investigate possible causes.

110440 Hydraulic Couplings



Tool-to-Powerig® Setup



WARNINGS: To prevent tripping hazard, suspend tools and route hoses off of floors. Only use compatible equipment with this tool.

1. Set Pull and Return pressures on Powerig® using Huck Gauge P/N: T-124833CE and Table 1.
2. Install nose assembly to the tool, per "Nose Assembly Installation and Removal" instructions on page 10 of this manual.
3. First connect the Hydraulic Hoses to the Powerig.
4. Connect the other end of the Hose Assembly to the installation tool.
5. Connect the Power Cord from the Tool to the Hose Assembly.
6. Connect the Power Cord from the Hose Assembly to the Powerig.
7. Once the system is set up, turn on Powerig and install test fastener. Check to be sure that the fastener is installed correctly. This can be checked by inspecting the dimples on the collar flange. At least one dimple should be marked by the anvil. It can also be checked by using the appropriate swage gauge.

Pressure Settings

Notes:

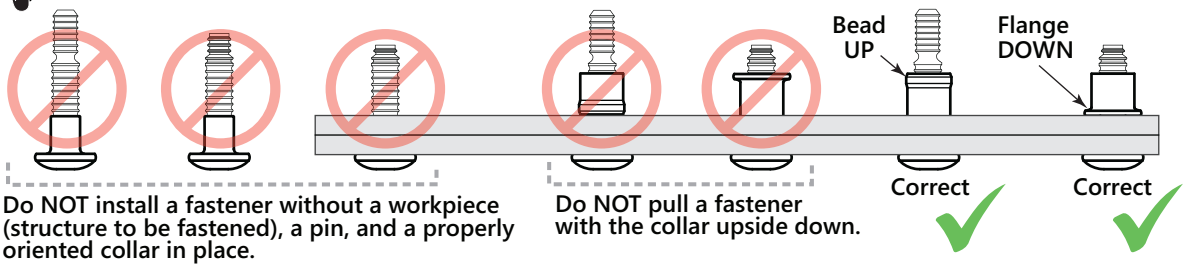
1. All pressures shown in Table 1 are starting points. Pressures may need adjusting up or down due to application and tooling setup.
2. Pressures shown are for both installation and removal applications.

Table 1

Fastener Size	Grade 5				Grade 8				Class 8.8				Class 10.9			
	Pull		Return		Pull		Return		Pull		Return		Pull		Return	
	psi	bar	psi	bar	psi	bar	psi	bar	psi	bar	psi	bar	psi	bar	psi	bar
-16 (½")	3100	210	1600	110	4400	300	2300	150	-		-		-		-	
-20 (⅝")	5600	380	2900	190	7000	480	3600	240	-		-		-		-	
12mm	-		-		-		-		-		-		4200	280	2200	150
14mm	-		-		-		-		4400	300	2300	150	5600	380	2900	190
16mm	-		-		-		-		5600	380	2900	190	7000	480	3600	240

Operating Instructions

FOR SAFE OPERATION, THIS SECTION MUST BE READ AND UNDERSTOOD.



Do NOT install a fastener without a workpiece (structure to be fastened), a pin, and a properly oriented collar in place.

Do NOT pull a fastener with the collar upside down.

WARNINGS: To avoid severe personal injury: Wear approved eye and ear protection. Be sure of adequate clearance for Operator's hands before proceeding with fastener installation.

CAUTIONS: Remove excess gap from between the sheets. This permits enough pintail to emerge from collar for ALL jaw teeth to engage with pintail. If ALL teeth do not engage properly, jaws will be damaged.

WARNINGS: To avoid pinch point, never place hand between nose assembly and work piece.

Only use compatible equipment with this tool.

If the tool comes with a pintail deflector or bottle, make sure it is attached to the tool and directed away from all personnel.

Do NOT attempt to install a pin without placing the fastener and collar in the work piece (structure to be fastened).

Do NOT attempt to install a pin without a properly oriented collar in place.

The collar flange must be against work piece.

If these safety measures are not followed, the fastener could eject with great velocity and force if the pintail breaks off or teeth/ grooves strip, causing severe personal injury.

CAUTION: Component items may change without notice. If you have an older model, verify that replacement parts are compatible with your specific model before installing. In all cases, refer to the original manual that shipped with your tool or contact the supplier.

Note: In certain situations, it may be permissible to use a BobTail tool & fastener without a collar to remove sheet gap prior to full installation with a collar. Consult qualified Huck engineering personnel before attempting this operation.

GENERAL

Operators should receive training from qualified personnel. Do not bend tool to free if stuck. Tool should only be used to install fasteners. NEVER use as a jack/spreader or hammer.

TO INSTALL A BobTail® FASTENER:

1. Check work and remove excessive gap. (Gap is the space between sheets. Gap is excessive if not enough pintail sticks through the collar for the nose assembly puller to grab onto).
2. Put BobTail fastener/pin in hole.
3. Slide BobTail collar over fastener. (The flanged end of the collar must be towards the pieces being fastened.)
4. Push nose assembly onto the pin until the nose assembly puller stops against the pin. Tool and nose assembly must be held at right angles (90˚) to the work.
5. Depress tool trigger to start installation cycle.
6. When forward motion of nose assembly anvil stops, release trigger. Tool will go into its return stroke and push off the installed fastener.
7. The tool and nose assembly are ready for the next installation cycle.

Assembly of NPTF Threaded Components

AIR FITTINGS

1) Apply TEFLON® stick to male threads which do not have pre-applied sealant per manufacturer's recommendations. (Proceed to All Fittings step 2)

HYDRAULIC FITTINGS

1) Apply Threadmate™ to male and female threads which do not have pre-applied sealant per manufacturer's recommendations. (Proceed to All Fittings step 2)

ALL FITTINGS:

2) Tighten to finger-tight condition.
3) Wrench tighten to 2-3 turns past finger-tight condition.
4) Final thread engagement can be checked (optional) by measuring the dimension from the flange of male fitting to the end of the thread before assembly and subtracting the distance under the flange after assembly.

Thread Size	Final thread engagement at full make-up
⅛-27 NPTF	**.235 inch** *(.59 cm)*
¼-18 NPTF	**.339 inch** *(.86 cm)*
⅜-18 NPTF	**.351 inch** *(.89 cm)*

Maintenance

WARNING: Inspect tool for damage or wear before each use. Do not operate if damaged or worn, as severe personal injury may occur.

WARNING: Consult MSDS before servicing tool. Keep dirt and other material out of hydraulic system.

Separated parts most be kept away from dirty work surfaces.

Dirt/debris in hydraulic fluid causes failure in Powerig® Hydraulic Unit valves.

Do not use TEFLON® tape on pipe threads. Pipe threads may cause tape to shred resulting in tool malfunction. Parker Threadmate™ is recommended, available independently.

Always replace seals, wipers & back-up rings when tool is disassembled for any reason.

The efficiency & life of your tool depends on proper maintenance. Please read this section completely before proceeding with maintenance & repair. Use proper hand tools in a clean, well-lit area. Only standard hand tools are required in most cases. Where a special tool is required, the description & part number are given. When clamping tool or parts in a vise, and when parts require force, use suitable soft materials to cushion impact. For example, using a half-inch brass drift, wood block and vise with soft jaws greatly reduces possibility of damaging tool. Remove components in a straight line without bending, cocking or undue force. Reassemble tool with the same care.

Sealants, Lubricants, Service Kits

See SPECIFICATIONS for fluid type. Dispose of fluid in accordance with local environmental regulations. Recycle steel, aluminum, and plastic parts in accordance with local lawful and safe practices. Rub pipe plug threads and quick connect fittings with PTFE thread compound. Smear Lubriplate® 13OAA, or equivalent lubricant, on O-Rings and mating surfaces to aid assembly and to prevent damage to O-Rings. (Lubriplate 13O-AA is available in a tube as Huck P/N 502723.) Each Service Kit contains perishable parts for your specific tool. Plan ahead and keep extra kits (O-rings, Back-up Rings, other standard items) & tool parts in stock. When stock is depleted, order kits from a regular retailer of these items.

CAUTION: Component items may change without notice. If you have an older model, verify that replacement parts are compatible with your specific model before installing. In all cases, refer to the original manual that shipped with your tool or contact the supplier.

PREVENTIVE MAINTENANCE

System Inspection

Operating efficiency of the tool is directly related to the performance of the complete system, including the tool with nose assembly, hydraulic hoses, trigger and control cord, and Powerig. Therefore, an effective preventive maintenance program includes scheduled inspections of the system to detect and correct minor troubles. At the beginning of each shift/day:

- Inspect tool and nose assembly for external damage.
- Verify that hydraulic hose fittings, couplings, and electrical connections are secure.
- Inspect hydraulic hoses for damage and deterioration. Do not use hoses to carry tool. Replace hoses if damaged.
- Observe tool, hoses, and hydraulic unit during operation to detect abnormal heating, leaks, or vibration.
- Max hydraulic fluid contamination level: NAS 1638 class 9, or ISO CODE 18/15, or SAE level 6.

Powerig® Maintenance

Maintenance instructions and repair procedures are in the appropriate Powerig® Instruction Manual.

Tool Maintenance

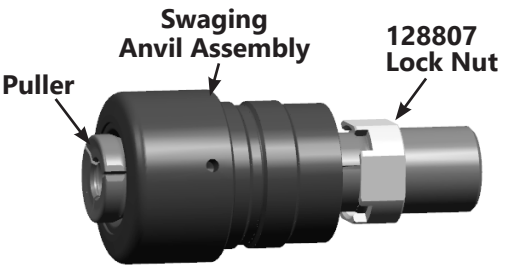
Whenever disassembled and also at regular intervals (depending on severity and length of use), replace all seals, wipers, and back-up rings in tool. Service Kits, hoses, and extra parts should be kept in stock. Inspect cylinder bore, pistons, and piston rods for scored surfaces and excessive wear or damage. Replace as necessary.

Nose Assembly Maintenance

Clean nose assembly often. Dip in mineral spirits or similar solvent to clean puller & wash away metal chips and debris. At regular intervals, as experience shows, disassemble nose and use a sharp “pick” to remove embedded particles from grooves of puller.

Nose Assembly Installation and Removal - SF20

Figure 2 General Installation Nose Components



99-7881 shown

ATTACHING INSTALLATION NOSE ASSEMBLY:

NOTE: The SF20 and SF20-200-12 are shipped with Puller Wrench, part number 128817, used to tighten and loosen the nose assembly locknut.

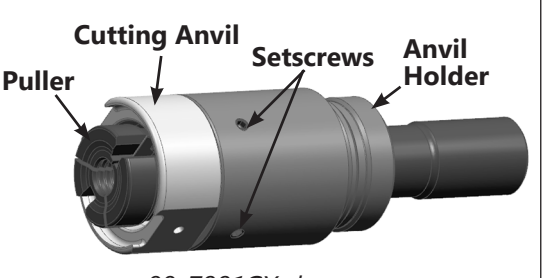
1. Remove puller from anvil prior to installation; then ensure that 128807 Locknut on puller is fully loosened.
2. Thread puller fully into end cap, while ensuring it is not being stopped by locknut. This may entail loosening the locknut on the puller, then tightening puller against end cap. (LH thread)
3. Use 128817 Puller Wrench to tighten locknut (LH thread) on puller until it bottoms against the end cap.
4. Apply anti-seize lubricant to outside of puller and inside of anvil in contact areas.
5. Slide anvil over puller; then thread locknut onto puller (LH thread).
6. Thread anvil into piston. (RH thread)
7. Tighten set screws on piston to lock anvil in place.

REMOVING INSTALLATION NOSE ASSEMBLY:

(Figure 2)

1. Loosen set screws on piston.
2. Turn swaging anvil with wrench on flats or spanner wrench, as required. (RH thread)
3. Pull anvil off.
4. Using puller wrench, part no. 128817, loosen locknut on puller.

Figure 3 General Cutter Nose Components



99-7881CX shown

5. Unscrew puller from end cap. (LH thread)

ATTACHING CUTTER NOSE ASSEMBLY:

1. Thread anvil holder into tool piston.
2. Apply Loctite® 243 to set screws of piston; then tighten set screws, locking anvil holder into place.
3. Apply anti-seize lubricant to outside of puller & inside of anvil in contact areas; then install puller into anvil.
4. Insert anvil and puller assembly through anvil holder and piston, into the tool end cap; then thread into end cap. (LH thread)
5. Once puller and anvil are fully installed, apply Loctite® 243 to the 4 set screws and install them, locking anvil holder and anvil together.

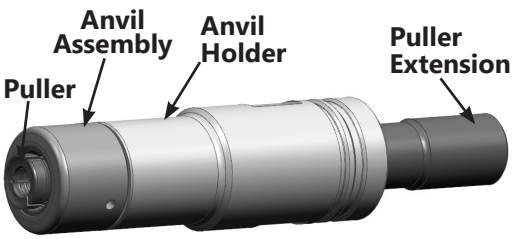
REMOVING CUTTER NOSE ASSEMBLY:

(Figure 3)

1. Remove 4 set screws from anvil holder.
2. Remove cutting anvil and puller assemblies from end cap (LH thread).
3. Loosen set screws on piston, and unthread anvil holder from piston. (RH thread)

Nose Assembly Installation and Removal - SF20N

Figure 4 Extended Installation Nose Components



99-7880X-3 shown

ATTACHING INSTALLATION NOSE ASSEMBLY:

NOTE: The SF20N is designed to work with extended installation noses such as 99-7880X-3 shown above. It can be used with standard length installation noses, but a 128817 Puller Wrench must be purchased separately, and then the SF20 Nose Assembly Installation and Removal procedure shown previously can be used.

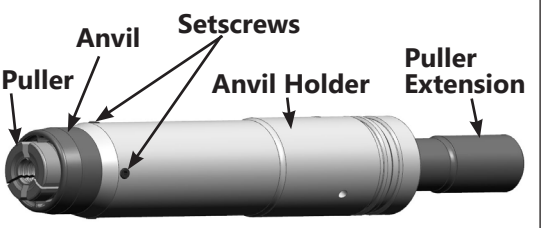
1. Remove Puller, Puller Extension, Locknut subassembly through the anvil to access the locknut.
2. Apply Loctite® 243 to anvil assembly threads (minimal amount, roughly 2 drops). Thread anvil assembly into anvil holder. (RH thread)
3. Assemble the puller, puller extension, locknut subassembly fully into the endcap. Ensure locknut is tightened on puller against puller extension. (LH thread)
4. Apply anti-seize lubricant to outside of puller and inside of anvil in contact areas.
5. Slide anvil assembly and anvil extension subassembly over puller.
6. Thread anvil extension into piston. (RH thread)
7. Tighten set screws on piston to lock anvil in place.

REMOVING INSTALLATION NOSE ASSEMBLY:

(Figure 4)

1. Loosen set screws on piston.
2. Unscrew anvil holder and swaging anvil assembly from piston (RH thread), and pull off from puller.
3. Unscrew puller holder, puller and locknut subassembly from end cap. (LH thread)

Figure 5 Extended Cutter Nose Components



99BT-M12-CLAT shown

ATTACHING CUTTER NOSE ASSEMBLY:

1. Thread puller extension into tool endcap. (LH Thread)
2. Slide anvil extension over puller and thread into piston. (RH Thread). **NOTE: Do not use Loctite® on puller extension threads. This is not necessary and will make removing the puller extension more difficult.**
3. Apply anti-seize lubricant to outside of puller and inside of anvil in contact areas; then install anvil over puller and slide into anvil holder. (LH Thread) **NOTE: Keep blades of anvil aligned with the slots of the puller.**
4. Once anvil is installed over puller and into anvil holder fully, apply Loctite® 243 to the 4 set screws and install them, locking anvil holder and anvil together.

REMOVING CUTTER NOSE ASSEMBLY:

(Figure 5)

1. Loosen set screws on piston.
2. Remove cutting anvil and puller from puller extension (LH thread).
3. Unthread anvil extension from piston. (RH thread)
4. Unthread puller extension from tool endcap. (LH thread).

Tool Disassembly Procedure

WARNING: Be sure to disconnect tool electrical control trigger system from Powerig® Hydraulic Unit BEFORE disconnecting tool's hydraulic hoses from unit. If not disconnected in this order, severe personal injury may occur.

Disassemble only the components necessary to check damaged O-ring, wiper, back-up ring, piston seal, or other components.

1. Disassemble only the components necessary to check damaged O-ring, wiper, back-up ring, piston seal, or other components.
2. Disconnect electrical control cord from Powerig.
3. Uncouple tool's hydraulic hoses from Powerig.
4. Remove nose assembly from tool (refer to Nose Assembly Removal sections on pages 10 & 11).
5. Remove 4 cap screws and end cap cover.
6. Remove locking pin.
7. Using ½ hex wrench, unscrew end cap from cylinder assembly. Once completely unscrewed, push out from front of tool.
8. Remove 3 set screws from piston to avoid damaging seals upon reassembly.
9. Push piston out of cylinder from front of tool.
10. Using a small diameter, dull-pointed rod, remove O-ring, back-up rings, wiper, piston seal, and polyseals.

Tool Assembly Procedure

WARNINGS: Do not omit any seals during servicing, leaks will result and personal injury may occur.

Tool must be fully assembled with all components included.

CAUTION: Do not use TEFLON tape.

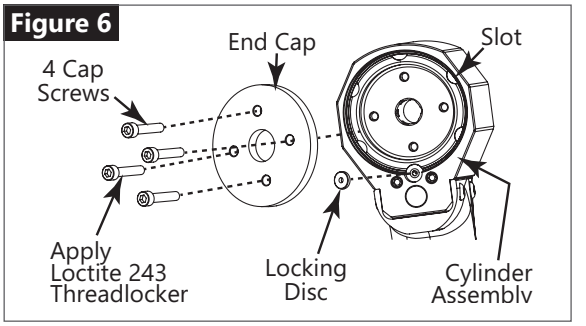
ASSEMBLY PREPARATION:

(a) Clean components in mineral spirits or other solvent compatible with O-ring seals.
(b) Clean out O-ring grooves.
(c) Inspect components for scoring, excessive wear or damage.
(d) Replace O-rings and back-up rings. Be sure that relative positions of the O-rings and back-up rings are positioned as shown in the assembly drawing.
(e) Service Kit part number SF20KIT contains O-Rings, Back-up Rings and other seals necessary for servicing this tool.
(f) Smear Lubriplate 130AA on O-rings and mating surfaces to prevent damage to O-rings & to aid assembly.

ASSEMBLY PROCEDURE:

1. Install wiper and polyseal in cylinder. Note orientation of seals in Components Drawing on page 13.
2. Install piston seal and polyseal on piston. Note orientation of polyseals on Components Drawing on page 13.

Figure 6



3. Insert assembled piston into cylinder assembly.
4. Install O-ring and back-up ring on end cap, and insert end cap into back of piston. Using ½ inch hex wrench, thread end cap fully into cylinder assembly, then back off until slot in rear of end cap is aligned with slot in rear of cylinder (Figure 6).
5. Slide locking pin on SF20 (locking disc on SF20N) into place where slots align (Figure 5).
6. Install end cap cover.
7. Apply Loctite 243 threadlocker to 4 cap screws and fasten end cap cover in place with screws.
8. Connect tool hoses to Powerig® hoses.
9. Connect tool electrical trigger plug to Powerig®, and cycle tool a few times. Observe action of tool and check for leaks.
10. Disconnect tool electrical trigger plug, then tool hoses, from Powerig®.
11. Attach nose assembly to the tool as described on pages 10 & 11.

Component Drawings

Figure 7 **130356** Cylinder Assembly contains:

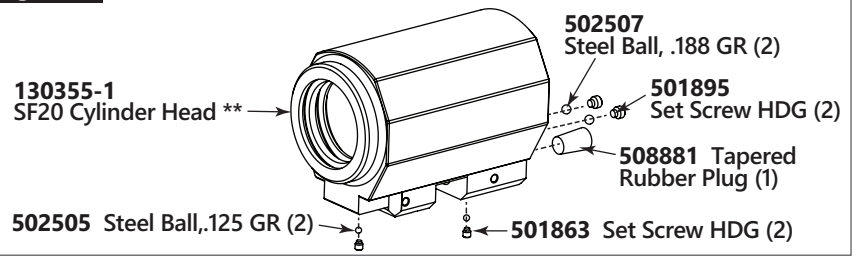
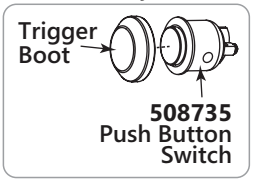


Figure 8

131040 Trigger Switch Assembly contains:



continued...

Component Drawings continued...

Figure 9

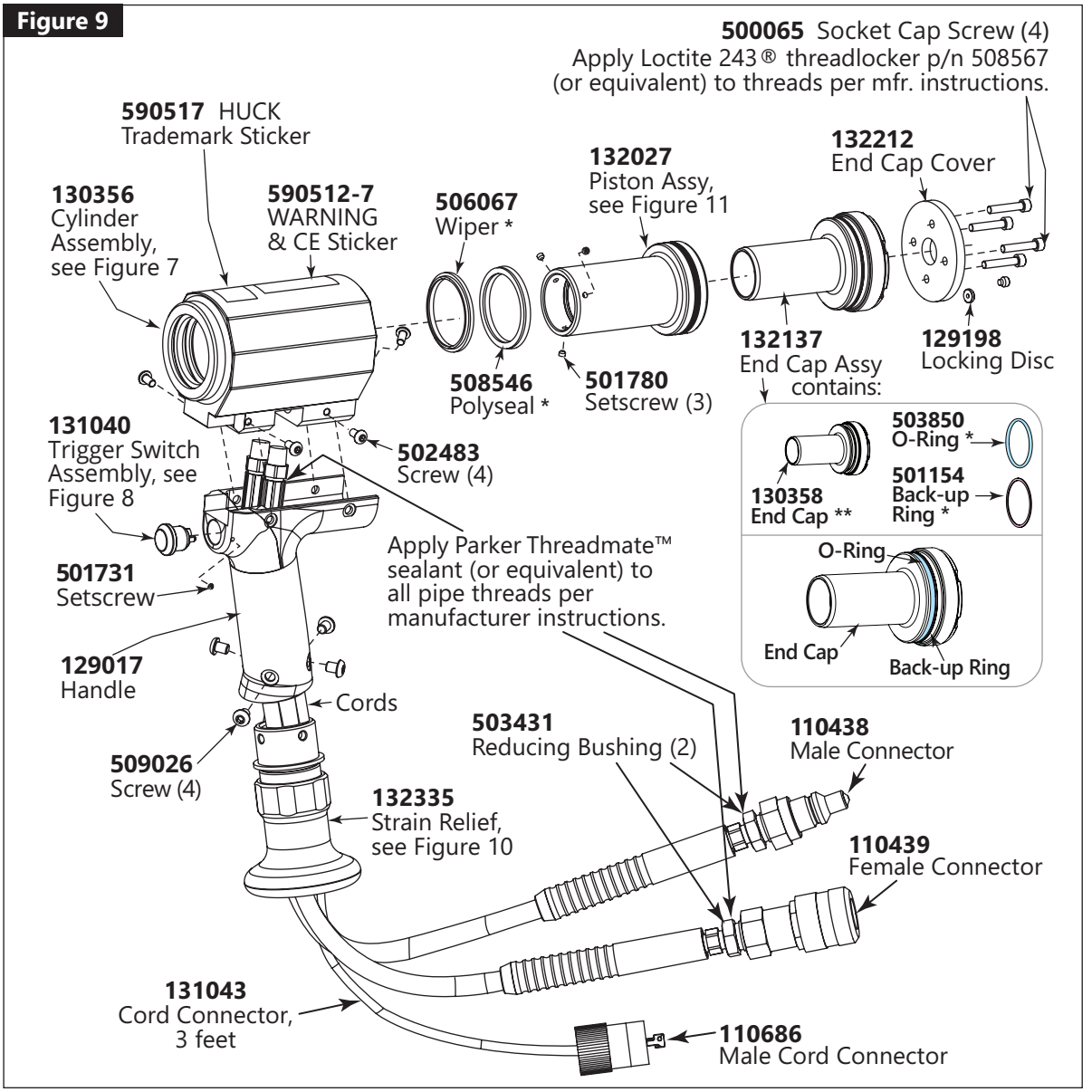


Figure 10

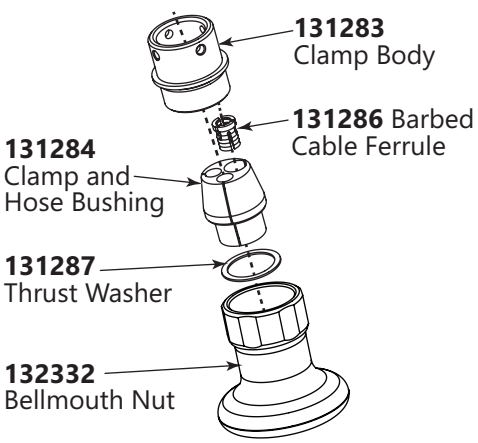
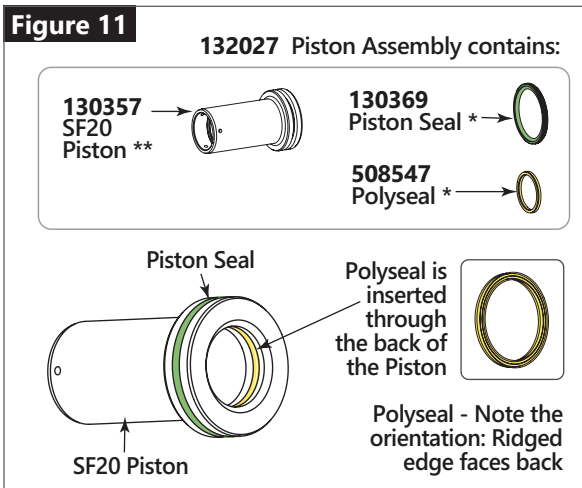


Figure 11



Notes: Colors are only used to show the different parts contained in an assembly and do not represent the actual colors of the items.

* Part contained in **SF20KIT** Service Kit.

** Part not sold separately. Only sold as part of Upper Assembly.

Troubleshooting

Always check the simplest possible cause of a malfunction first. For example, a loose or disconnected trigger line. Then proceed logically and eliminate each possible cause until the defect is found. Where possible, substitute known good parts for suspected defective parts. Use chart as an aid in troubleshooting.

1. Tool fails to operate when trigger is pressed.
   a. Inoperative Powerig® Hydraulic Unit. See applicable instruction manual.
   b. Loose air or electric connections.
   c. Damaged trigger assembly.
   d. Loose or faulty hydraulic hose couplings.
2. Tool operates in reverse.
   a. Reversed hydraulic hose connections between hydraulic unit and tool.
3. Tool leaks hydraulic fluid.
   a. Defective tool O-rings, Polyseal or piston seals.
   b. Loose hose connections at tool.
   c. Damaged hose or fittings.
4. Hydraulic couplers leak fluid.
   a. Damaged or worn O-rings in coupler body. See **Hydraulic Couple**r 110440.
   b. Debris or contamination in couplers.
5. Hydraulic fluid overheats.
   a. Powerig® Hydraulic Unit not operating properly. See applicable instruction manual.
   b. 918 or 918-5 Powerig® Hydraulic Unit running in reverse. See applicable instruction manual.
   c. Ambient temperature at tool or Powerig® Hydraulic Unit is excessive.
6. Tool operates erratically and fails to install fastener properly.
   a. Low or erratic hydraulic pressure: Air in system.
   b. Damaged or worn piston seal or polyseal in tool.
   c. Excessive wear on sliding surfaces of tool parts.
7. Pull grooves on BobTail® fastener pintail stripped during PULL stroke.
   a. Operator not sliding puller completely onto fastener pintail.
   b. Incorrect fastener grip.
   c. Excessive sheet gap.
   d. Debris/contamination in puller grooves or on puller/anvil mating surfaces
   e. Lack of lubrication in puller/anvil mating surfaces.
   f. Contamination on or lack of lubrication on Bobtail® fastener collar.
   g. Incorrect PULL pressure setting for specific Bobtail® fastener size and grade/material.
8. Collar of BobTail® fastener not completely swaged.
   a. Improper tool operation. See **Troubleshooting** section, item 6.
   b. Scored anvil.
   c. Incorrect fastener grip.
   d. Excessive sheet gap.
   e. Debris/contamination in puller grooves or on puller/anvil mating surfaces.
   f. Lack of lubrication in puller/anvil mating surfaces.
   g. Contamination on or lack of lubrication on Bobtail® fastener collar.
   h. Incorrect PULL pressure setting for specific Bobtail® fastener size and grade/material.
9. Tool hangs up on swaged collar of BobTail® fastener.
   a. Improper tool operation. See **Troubleshooting** section, item 6.
   b. RETURN pressure too low.
   c. Contamination on or lack of lubrication on Bobtail® fastener collar.
   d. Nose assembly not installed correctly.
10. Puller will not engage BobTail Fastener® pintail.
    a. Nose assembly not installed correctly.
    b. Piston not fully retracted.

Limited Warranties

Limited Lifetime Warranty on BobTail® Tools:

Huck International, Inc. warrants to the original purchaser that its BobTail® installation tools manufactured after 12/1/2016 shall be free from defects in materials and workmanship for its ***useful lifetime***. This warranty does not cover special order / non-standard products, or part failure due to normal wear, tool abuse or misapplication, or user non-compliance with the service requirements and conditions detailed in the product literature.

Two Year Limited Warranty on Battery Powered Installation Tools:

Huck International, Inc. warrants that its Battery Powered installation tools sold after September 1, 2018 shall be free from defects in materials and workmanship for a period of two years from date of purchase by the end user. This warranty does not cover special order / non-standard products, or part failure due to normal wear, tool abuse or misapplication, or user non-compliance with the service requirements and conditions detailed in the product literature.

Two Year Limited Warranty on Installation Tools:

Huck International, Inc. warrants that its installation tools and Powerig® hydraulic power sources manufactured after December 1, 2016 shall be free from defects in materials and workmanship for a period of two years from date of purchase by the end user. This warranty does not cover special order / non-standard products, or part failure due to normal wear, tool abuse or misapplication, or user non-compliance with the service requirements and conditions detailed in the product literature.

90 Day Limited Warranty on Nose Assemblies and Accessories:

Huck International, Inc. warrants that its nose assemblies and accessories shall be free from defects in materials and workmanship for a period of 90 days from date of purchase by the end user. This warranty does not cover special clearance noses, or special order / non-standard product, or part failure due to normal wear, abuse or misapplication, or user non-compliance with the service requirements and conditions detailed in the product literature.

Useful lifetime is defined as the period over which the product is expected to last physically, up to the point when replacement is required due to either normal in-service wear, or as part of a complete overhaul. Determination is made on a case-by case basis upon return of parts to Huck International, Inc. for evaluation.

Tooling, Part(s) and Other Items not manufactured by Huck:

HUCK makes no warranty with respect to the tooling, part(s), or other items manufactured by third parties. HUCK expressly disclaims any warranty expressed or implied, as to the condition, design, operation, merchantability, or fitness for use of any tool, part(s), or other items thereof not manufactured by HUCK. HUCK shall not be liable for any loss or damage, directly or indirectly, arising from the use of such tooling, part(s), or other items or breach of warranty or for any claim for incidental or consequential damages.

Huck shall not be liable for any loss or damage resulting from delays or non-fulfillment of orders owing to strikes, fires, accidents, transportation companies or for any reason or reasons beyond the control of the Huck or its suppliers.

Huck Installation Equipment:

Huck International, Inc. reserves the right to make changes in specifications and design and to discontinue models without notice.

Huck Installation Equipment should be serviced by trained service technicians only.

Always give the serial number of the equipment when corresponding or ordering service parts.

Complete repair facilities are maintained by Huck International, Inc. Please contact one of the offices listed below.

Eastern
One Corporate Drive
Kingston, New York 12401-0250
Telephone (845) 331-7300
FAX (845) 334-7333

Outside USA and Canada
Contact your nearest Huck International location (see reverse).

In addition to the above repair facilities, there are Authorized Tool Service Centers (ATSC's) located throughout the United States. These service centers offer repair services, spare parts, Service Parts Kits, Service Tool Kits and Nose Assemblies. Please contact your Huck Representative or the nearest Huck International location (see reverse) for the ATSC in your area.

Howmet Inc. (NYSE: HWM) creates breakthrough products that shape industries. Working in close partnership with our customers, we solve complex engineering challenges to transform the way we fly, drive, build and power.

Through the ingenuity of our people and cutting-edge advanced manufacturing, we deliver these products at a quality and efficiency that ensures customer success and shareholder value.

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