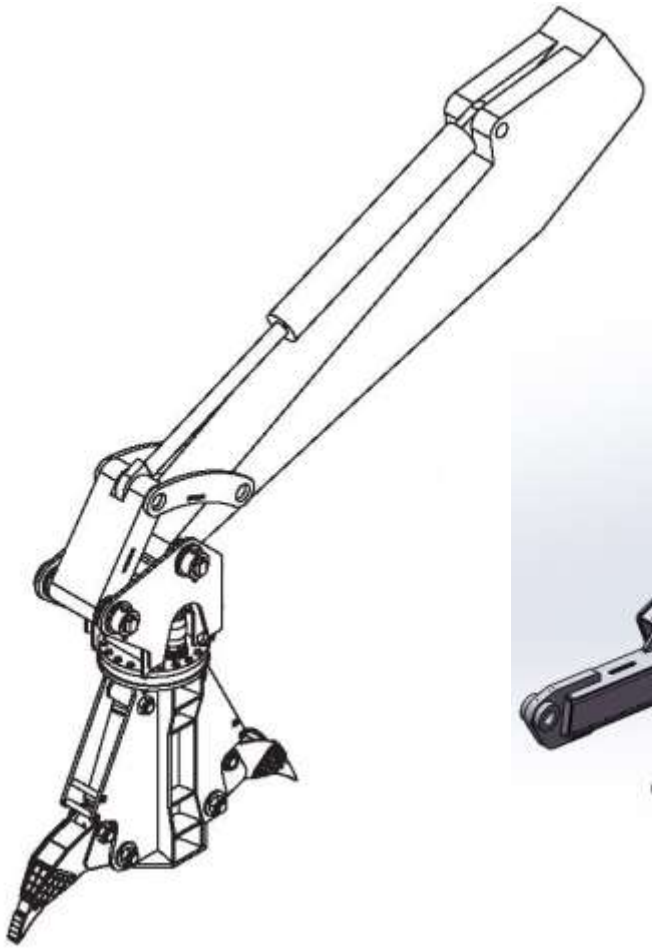
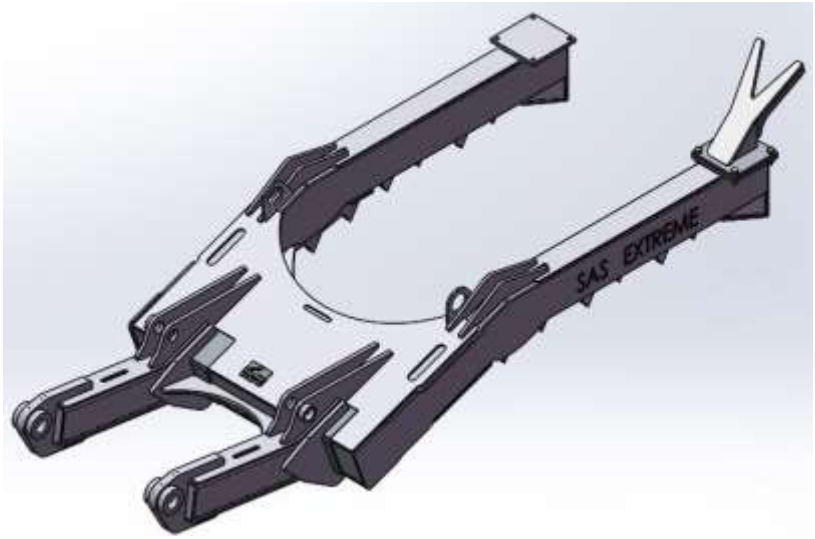
SASFORKS

engineered tough





PINCER™

Auto Processor

Excavator Attachment

==========

Operator Manual

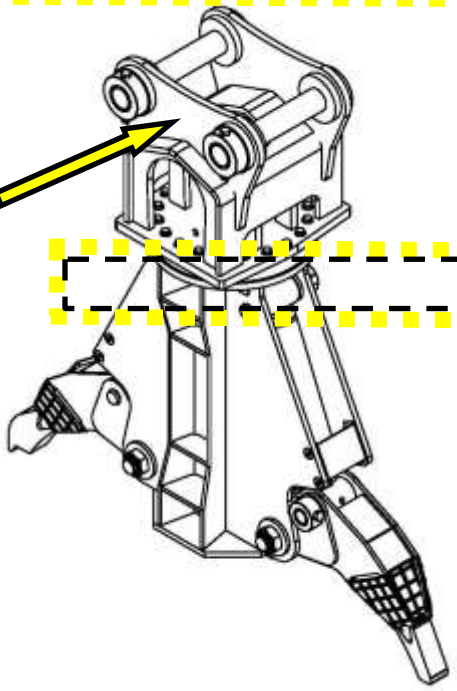
SERIAL NUMBER LOCATIONS (PAGE 2)
SAS™ PINCER™ AUTO PROCESSOR

Local Distributor or Supplier Name _____ Phone _____

Locate serial numbers and model numbers on SAS PINCER Auto Processor Attachment..

Note reference below. Providing this information when contacting your local Distributor, Supplier, Service Representative, or SAS will improve accuracy and level of service.

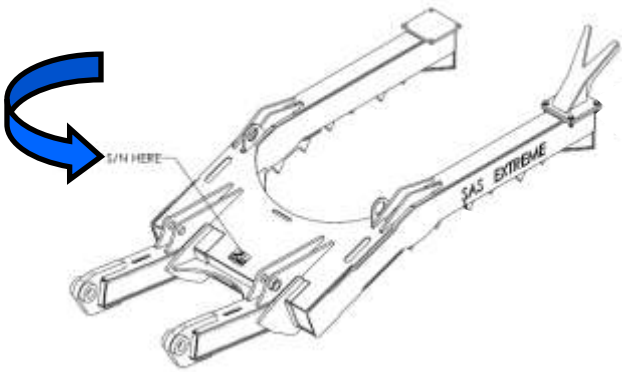
SAS PINCER
Head Assembly
Model……..._____
Serial Number _____



SAS PINCER
Rotator Only:
Model:_____
S/N: _____

SAS PINCER Hold Down Arm Assembly..……...Model……_____

SAS PINCER Hold Down Arm Assembly..……...Serial Number _____



PATENTED
WIRE STRIPPER

S.A.S. of Luxemburg, LLC. 133 Center Drive Hwy 54, PO Box 260, Luxemburg, WI 54217 USA
Phone: 920-845-2307 • 1-877-SAS-FORK • Fax: 920-845-2309 • Web: www.sasforks.com

TABLE OF CONTENTS (PAGE 3)
SAS™ PINCER™ AUTO PROCESSOR

LIMITED INTENDED USE OF THIS EQUIPMENT:

SAS PINCER™ Auto Processor excavator attachment is designed break recyclable scrap materials from end of life cars and trucks. Materials removed from cars and trucks will be damaged. Some excavators may require modification to pressures, valves, cylinders, reinforcement of x-frame, or other modifications for installation and to operate in a desirable manner. This attachment is considered a non-OEM attachment and has not been approved by any specific excavator manufacturer. Customer is responsible to read the excavator's manual and warranty documents, if any, and identify any impact installation and use of this attachment may have on the excavator's warranty. Read this manual completely before installation or use.

S.A.S. of Luxemburg, LLC. 133 Center Drive Hwy 54, PO Box 260, Luxemburg, WI 54217 USA
Phone: 920-845-2307 • 1-877-SAS-FORK • Fax: 920-845-2309 • Web: www.sasforks.com

INTRODUCTION LETTER (PAGE 4)
SAS™ PINCER™ AUTO PROCESSOR

TO THE OWNERS, MANAGERS, AND OPERATORS OF EXCAVATORS EQUIPPED WITH SAS™ PINCER™ AUTO PROCESSOR

Safety is the most important issue in the workplace. Observing safety guidelines, equipment capacities and using common sense will provide a work environment that is safe and efficient for employees, management and customers. It is important that you and your operators read and understand the information included in this manual prior to use of this equipment.

Safety warnings are highlighted through out this manual. Understanding the significance of these symbols is important. The following is a definition of each symbol you will encounter in this manual:

The Symbol is intended to draw your attention to important safety information, hazard or precaution.

The Danger Symbol indicates a hazardous situation that if not avoided will result in serious injury or death

The Warning Symbol indicates a hazardous situation that if not avoided could result in serious injury or death

The Caution Symbol indicates a hazardous situation that if not avoided could result in minor injury or potential property damage

The Notice Symbol indicates worst credible severity of harm is property damage.

The following information presented in this Operator Manual for SAS FORKS™ is intended to be a guide only, and is not meant to encompass all issues that may need to be addressed for your particular type of business operation.

If you encounter additional information that would be helpful to us, or others, please contact us.

Thank you for your business,

SAS Ltd.
S.A.S. OF LUXEMBURG, LLC.
133 Center Dr Hwy 54 · PO Box 260
LUXEMBURG, WI 54217 U.S.A.

Phone:
U.S.A. Dial: 920-845-2198
International: 00+1+920-845-2198

Email:
buyit@sasforks.com

GENERAL SAFETY GUIDELINES (PAGE 5)
SAS™ PINCER™ AUTO PROCESSOR

Installation & operation of equipment should only be performed by qualified and trained individuals. All persons operating or working in the area of operation should read this manual. A copy of this manual should be kept with the equipment. A qualified operator will operate the machine safely in accordance with, and:

- Understand the written instructions supplied by the manufacturer of the device, the manufacturer of the excavator, all company rules and any applicable OSHA or regulatory governing body regulations.
- Completed training including actual operation of the device and excavator to which it is attached.
- Know and follow the safety rules and regulations of the jobsite.

⚠WARNING Operation of equipment by un-qualified or un-trained individuals can result in serious injury or death. All operators must be properly trained prior to operation.

⚠WARNING Not designed to be operated in an explosive environment. Only use this equipment in well ventilated areas, a sufficient distance away from flammable or explosive gases, liquids or substances to avoid risk of ignition. Operating in an explosive environment may cause an explosion and fire, resulting in injury, death, property damage.

⚠WARNING Serious bodily injury, death and property damage can caused by an operator that is under the influence of drugs or alcohol (of any type, illegal, prescribed or over the counter) due to impaired operator judgment. Do not operate when impaired. Consult your physician before operation of this equipment while on medication.

⚠WARNING Inspect the device and perform all preventative maintenance before operation at the start of every work shift. Failure to perform inspections or proper maintenance can result in equipment failure resulting in serious injury or property damage.

⚠WARNING This equipment is operated by high pressure hydraulics. Hydraulics are a stored power source and as such must be treated as energized at all times. Be certain pressure has been relieved prior to handling, inspecting or performing maintenance on this unit. Follow lockout tag out procedures and release all stored energy before servicing equipment. Failure to release energy or disable hydraulic energy can result in serious injury or death. High pressure fluids can also discharge at great velocity and cause injection into skin. Wear safety glasses and appropriate gloves while inspecting, operating and maintaining this equipment.

⚠ DANGER This equipment has numerous moving components. Operate only from the cab equipped with safety glass windshield and adequate protective steel guard while seated and wearing a safety belt. Be aware of potential pinch points and keep clear during operation, inspection and maintenance. Pinch points exist between grapple attachment jaws, cab swing, hold down arms and others, failure to keep clear while in operation can result in serious injury or death.

⚠WARNING Do not exceed posted weight limits on equipment. Exceeding rated load limits will result in equipment damage, loss of steering control, machine tip over, serious injury or death.

S.A.S. of Luxemburg, LLC. 133 Center Drive Hwy 54, PO Box 260, Luxemburg, WI 54217 USA
Phone: 920-845-2307 • 1-877-SAS-FORK • Fax: 920-845-2309 • Web: www.sasforks.com

GENERAL SAFETY GUIDELINES (PAGE 6)
SAS™ PINCER™ AUTO PROCESSOR

PROTECTIVE EQUIPMENT

- Safety glasses with side shields
- Work boots with heavy sole and safety toes
- Fire extinguishing equipment
- Other such safety equipment to protect personnel from injury.
- Leather gloves
- Hard hat
- Adequate spill kit, oil dry etc.

CAUTION **Puncture or cut injuries may occur if contact made with sharp objects. Sharp objects are present from breaking materials out of scrap cars. Avoid contact.**

WARNING **Do not work under grapple claws, hold down, or any object lifted by this equipment. An unexpected movement, shift in the object, or hydraulic failure may cause claw, hold down, or object drop. Serious injury or death may occur.**

PERSONNEL TRAINING

Prior to installation or use of this equipment all personnel must review this operator manual, excavator manufacturer's manual and other pertinent safety manuals and be trained by qualified personnel. All hazards must be identified to ensure personnel avoid these hazards. Signed documentation certifying individual training has been completed is a must. Periodic retraining is recommended. Failure to follow Manufacturers recommendations can result in serious injury and property damage.

SITE PREPARATION & CLEAR OPERATING SPACE RECOMMENDED

- The Pincer™ Auto Processor should only be used in areas that are equipped with proper fluid containment measures, to ensure capture and containment of residual fluids in accordance with any and all environmental regulating body.
- Operation area must be sufficiently clear of buildings and overhead power lines.
- No Smoking, Safety Glasses & Hard Hat Required signage is recommended.
- Provide adequate space around this equipment to ensure all persons are kept at least 15 Meters (50 feet) away from the equipment and cars being moving by it.

VEHICLE PREPARATION PRIOR TO USING THE PINCER™ AUTO PROCESSOR

- Prior to use of this attachment, remove all batteries, gasoline, diesel fuel, all types of fuels, mercury switches, air conditioning Freon, engine oil, transmission fluid, antifreeze and other fluids.
- Engines, transmissions, and other components will be damaged, and only be suitable for metals recycling, not as cores or resalable operable parts.

WARNING **Vehicles contain several hazardous elements that pose explosion and fire hazards, such as gasoline and electric batteries containing battery acid. Be sure these are safely removed prior to using the PINCER™ Auto Processor. Failure to remove may result in explosion, fire hazard & injuries. Keep adequate fire suppression equipment accessible and persons trained on operation.**

S.A.S. of Luxemburg, LLC. 133 Center Drive Hwy 54, PO Box 260, Luxemburg, WI 54217 USA
Phone: 920-845-2307 • 1-877-SAS-FORK • Fax: 920-845-2309 • Web: www.sasforks.com

CE SPECIFIC NOTICES (PAGE 7)
SAS™ PINCER™ AUTO PROCESSOR

EMERGENCY STOP FUNCTION

To immediately stop the motion of this equipment:

1. Operator is to release all joystick button(s).

Additional secondary measures to immediately stop the motion include:

2. Moving excavator's auxiliary hydraulic 3rd spool lever to neutral position
3. Turn off ignition key of excavator to shut off engine

All three emergency stop options stop flow of hydraulic fluid. See excavator manufacturer's operator manual to identify proper controls & functions prior to use.

NOTICE

Even after emergency stop function is followed, there is residual stored hydraulic pressure in the system. See following:

WARNING

THIS EQUIPMENT IS OPERATED BY HIGH PRESSURE HYDRAULICS.

Hydraulics are a stored power source and as such must be treated as energized at all times. Be certain pressure has been relieved prior to handling, inspecting or performing maintenance on this unit. Follow lockout tag out procedures and release all stored energy before servicing equipment. Failure to release energy or disable hydraulic energy can result in serious injury or death. High pressure fluids can also discharge at great velocity and cause injection into skin. Wear safety glasses and appropriate gloves while inspecting, operating and maintaining equipment.

WARNING

STAY CLEAR

- Do not lift persons with this equipment. Not intended to lift people
- Always maintain a safe distance away from this equipment.
- Do not go near or under this equipment or any object lifted by this equipment. Failure to stay clear will result in injury or death.
- Refer to and follow all additional safety information in excavator manufacturer's operator, safety and service manuals.

POWER FAILURE

In the event of electrical or hydraulic supply failure from the excavator occurs, the equipment will stop further motion. Under normal circumstances the equipment is not expected to drop a load. *The symbol at the left indicates the hydraulic controls on this equipment are normally closed*. Thus without electrical power the gate valves are closed, in essence halting further movement. **See excavator manufacturer's operator manual to identify actual operation during power failure mode prior to use**.

SOUND

This equipment does not emit more than 70dba.

VIBRATIONS

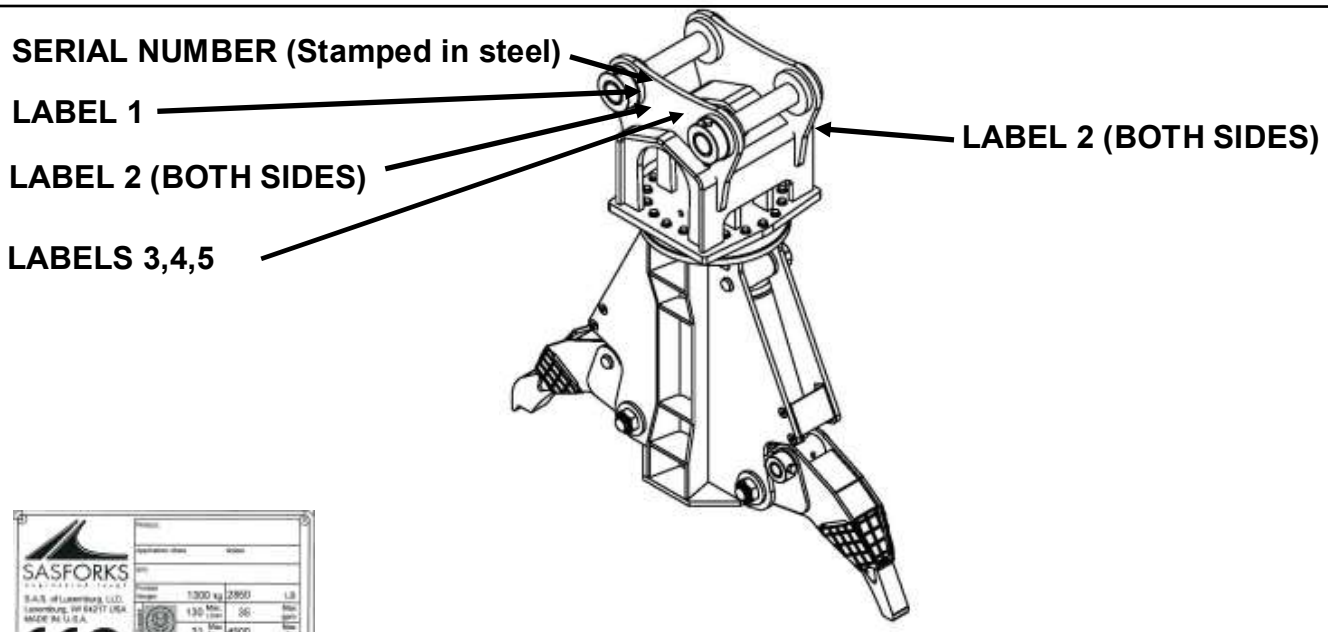
This equipment does not transfer vibrations in excess of 2.5m/s2.

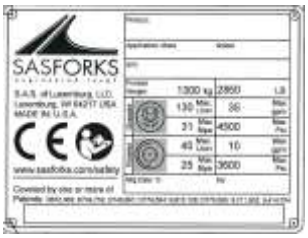
OPERATING TEMPERATURE

Equipment is best suited to operate in temperatures 0°C to 32°C (32°F to 90°F) with minimum temperature –30°C (–23°F) and maximum temperature 65°C (150°F)

S.A.S. of Luxemburg, LLC. 133 Center Drive Hwy 54, PO Box 260, Luxemburg, WI 54217 USA
Phone: 920-845-2307 • 1-877-SAS-FORK • Fax: 920-845-2309 • Web: www.sasforks.com

SAFETY LABELING (PAGE 8)
SAS™ PINCER™ AUTO PROCESSOR





	Label Description	Quantity	Label reorder #
LABEL 1:	PRODUCT ID PLATE	1	ID PLATE CE-EX-V5

LABEL 2:	KEEP BACK 15 METERS (50 FT)	2	W-LAB-STAYBACK50FT

LABEL 3:	KEEP AWAY MOVING PARTS	1	W-LAB-WARNING-PINCH

LABEL 4:	READ EQUIPMENT MANUALS	1	W-LAB-READ-504060

LABEL 5:	HIGH PRESSURE HYDRAULICS1	1	W-LAB-PRES-503600

LABEL 6:	STABILITY LABEL FOR CAB	1	W-LAB-EX-STABLE-1

S.A.S. of Luxemburg, LLC. 133 Center Drive Hwy 54, PO Box 260, Luxemburg, WI 54217 USA
Phone: 920-845-2307 • 1-877-SAS-FORK • Fax: 920-845-2309 • Web: www.sasforks.com

INSTALLATION: PREPARATION (PAGE 9)
SAS™ PINCER™ AUTO PROCESSOR

ADVANCE PREPARATION BEFORE ARRIVAL & INSTALLATION OF PINCER AUTO PROCESSOR

- Review this operator manual. Review operator, safety & service manuals of excavator manufacturer.

Items you need to obtain before arrival of Pincer™ Auto Processor:

- Excavator must have two bi-directional auxiliary hydraulics at the end of the stick with cab controls.
- Excavator must have one filtered free flow drain line back to tank
- Hydraulic fluid (specific for your machine). Identify fluid check and fill points.
- Identify and obtain needed hydraulic hose quick connections on your machine and fitting required.
- Locate supplier to make hydraulic hoses. Minimum recommend 19 mm (3/4") diameter, 34 Mpa (5,000 PSI) hoses and fittings once proper length is determined during installation.

Tools your mechanic may need for installation:

- Sockets, wrenches, large adjustable wrench, large rubber hammer, hydraulic bottle jack, grease gun

Service to do on your excavator in advance:

- Have maintenance personnel replace hydraulic system filters & fluids (as needed)
- Pressure and flow test. Have pressure results available. Set pressures:
  Grapple Open/Close: 20-25 GPM (76-95 LPM) 207 Bar (3,000 psi)
  Grapple Rotate: 4-7 GPM (15-27 LPM) 124 Bar (1,800 psi) ***Note: The rotation circuit does not require a case drain line.***
- Inspect pins & bushings in arm and dozer blade for wear (replace as needed)
- SAS has no responsibility as to performance of excavator's hydraulic system with this attachment.

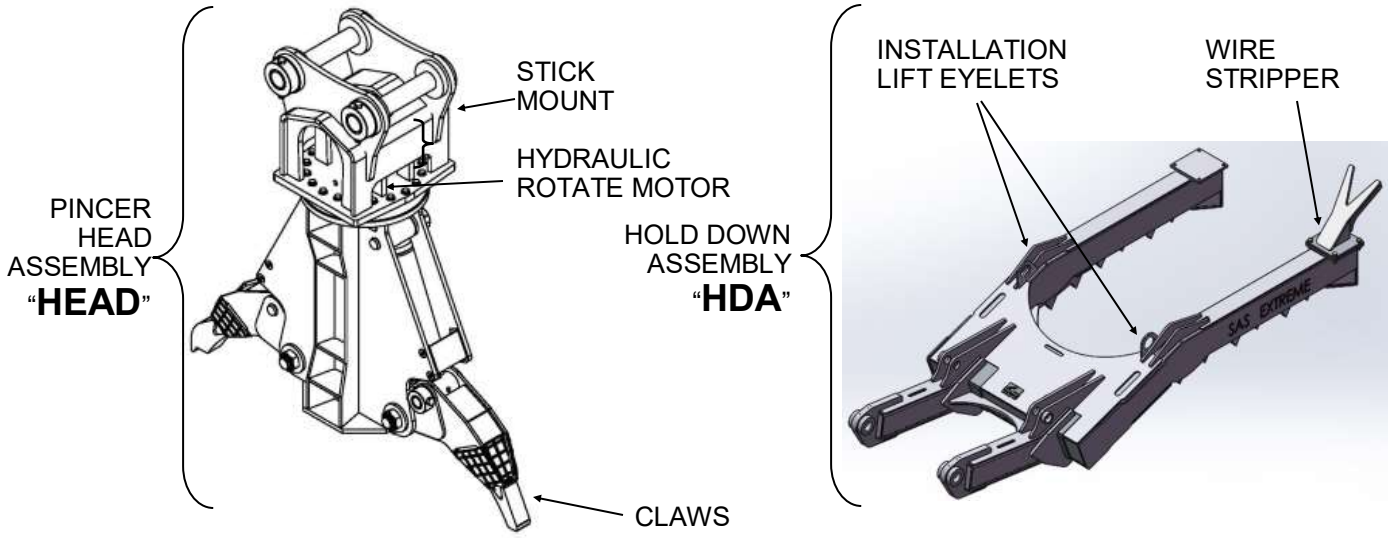
Available for training:

- Designate an area (i.e. where it is safe to run equipment) and an employee to operate unit
- Designate operator who can read and speak English, if SAS staff onsite to assist your mechanic.

⚠WARNING **Installation Hazards (Additional details covered elsewhere in this manual):**

- Pinch & crush points, High pressure hydraulics, Stored pressure, Skin injection risk
- **Installing this Pincer Head & Hold Down Assembly will change lifting dynamics & likely reduce lift capacity and reduce stability of the excavator**.
- Installer and operator must use caution in establishing reasonable lift capacities. Consider Head & HDA attachment weights and excavator manufacturer's manual guidance. These hazards may cause equipment damage, injury or death. Only qualified persons should complete installation.

COMPONENT IDENTIFICATION



S.A.S. of Luxemburg, LLC. 133 Center Drive Hwy 54, PO Box 260, Luxemburg, WI 54217 USA
Phone: 920-845-2307 • 1-877-SAS-FORK • Fax: 920-845-2309 • Web: www.sasforks.com

INSTALLATION: PREPARATION (PAGE 10)
EXCAVATOR FRAME REINFORCEMENT

POTENTIAL X-FRAME REINFORCEMENTS TO CONSIDER:

Excavator OEM x-frame brackets which mount OEM dozer blade may not provide sufficient distribution of loads from SAS Pincer Hold Down Arm attachment & may result in x-frame & bracket structural failure.

- Careful consideration of this information will reduce the likelihood of x-frame & x-frame bracket failure.
- Operational advice: Minimize the amount of down force applied when restraining the car, specifically, avoid pushing down to the extent that the front of the excavator is lifted and suspended.
- This document is not authorization to modify excavator x-frame, it is intended to provide a guide for consideration of reinforcements for Customer, OEM, OEM authorized equipment tech., & professional welder.

NOTICE: Any reinforcement work may cause Excavator OEM warranty, if any, to be void.

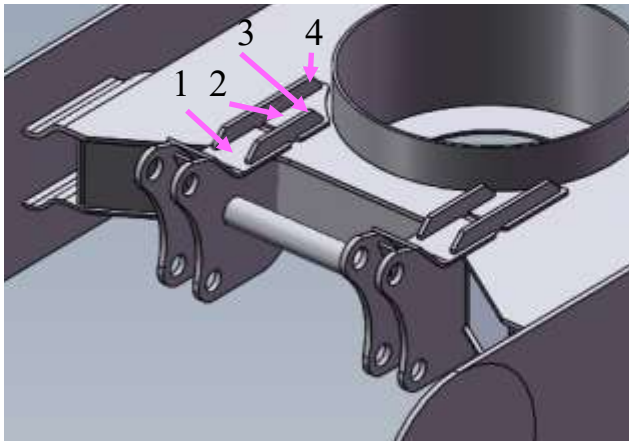
- Any reinforcement/modification of x-frame may cause other unintended cracking or damage. SAS is not responsible for reinforcement installation or performance, or resulting issues, if any.

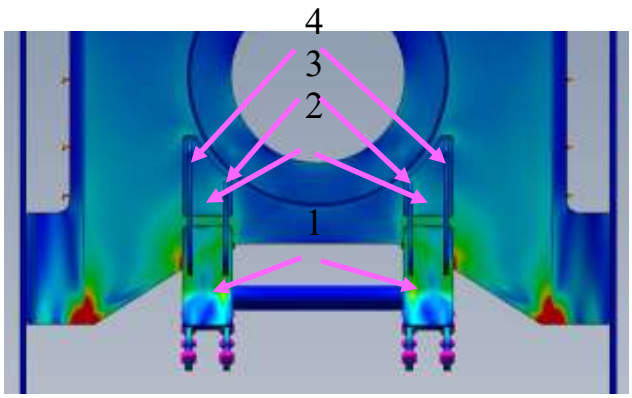
SAS Limited Warranty applies only to SAS manufactured components, not excavator, x-frame or x-frame brackets.

Intent is to extend the force back further on x-frame where there is internal support to dissipate the loading forces.

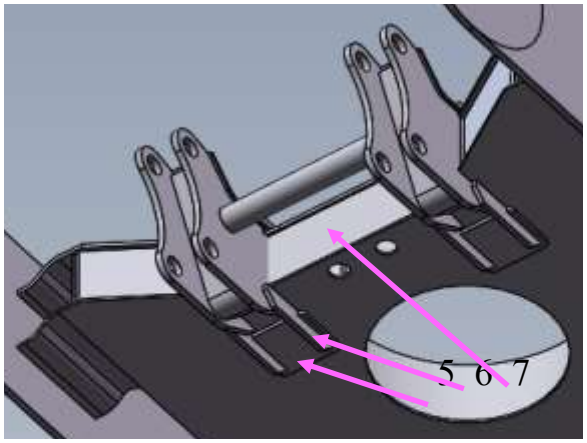
Reference:
1 - OEM hinge base plate existing
2 - NEW hinge base plate expansion (two)
3 - NEW inner vertical load rib extension (two)
4 - NEW outer vertical load rib extension (two)
5 - NEW lower base plate expansion (two)
6 - NEW lower load rib extension (four)
7 - NEW mid hinge frame tie in plate (one)

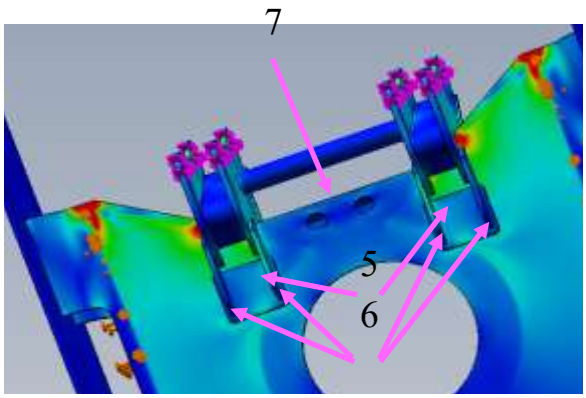
Upper view





Lower view



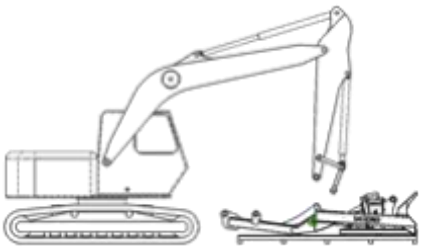


WARNING Welding can damage excavator electronics. Read excavator manufacturer's manual before welding. **NOTICE**

High pressure hydraulics. Stay clear of pinch points to avoid serious injury. Relieve pressure prior to work. Follow safety precautions in SAS PINCER Auto Processor Manual prior to work. **www.sasforks.com/safety**

INSTALLATION: HOLD-DOWN ASSEMBLY (PAGE 11)
SAS™ PINCER™ AUTO PROCESSOR

INSTALLATION OF SAS™ PINCER™ AUTO PROCESSOR HOLD DOWN ASSEMBLY (HDA):
INSTALLATION SHOULD BE COMPLETED BY AN EXPERIENCED HEAVY EQUIPMENT MECHANIC



1. Remove existing dozer blade. Inspect pins and bushings. Replace as needed.
2. Hold Down Assembly (HDA) weight approximately 1,620 kg (3,575 LB). Eyelets in center of HDA is balance point. If excavator is sufficiently rated to lift such, align stick with lifting eyelets. Using safe and adequately rated rigging chains, keeping all persons clear, lift HDA off pallet. Move away from shipping pallet and place on ground with block in place which will allow upper surface of HDA to be level.

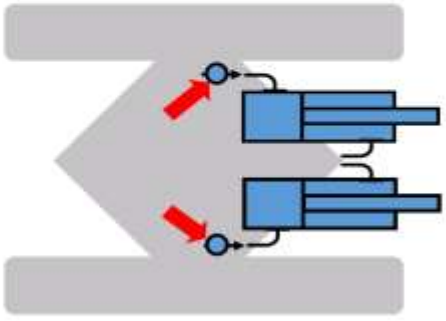
3. HDA should be set level as shown below for staging. Drive excavator up to HDA and align lower pivot holes in dozer blade mount on excavator with holes "**A**" in HDA. Insert and secure pivot pins into assembly.
4. With pivot pins inserted and secure, slowly extend dozer blade hydraulic cylinders to align holes in rod end of cylinder to lift holes "B" in HDA. Keep clear of pinch points. Insert and secure pivot pins into assembly.
5. Replace any guarding that may have been removed during the removal of the dozer blade assembly.

<u>SAS has no responsibility as to performance of excavator's Hydraulic system or structural adequacy or durability with this attachment</u>.

GROUND

AFTER INSTALLATION, PRIOR TO OPERATION

1. Grease all pivot points with Stick and HDA resting on the ground and machine engine off.
2. Stay clear of pinch points. Slowly engage controls. Watch for interference. <u>Stop if interference occurs</u>.
   a) **Test up and down** motions of HDA. Due to differences in machines and cylinder control valves, if down cycle is not smooth, a jerking condition may occur.



Typically this can be rectified by installing simple flow control valves on hydraulic lines which feed extend side of dozer cylinders. (Indicated by arrows). (see Hold Down Parts list on separate page). Two flow control valves are included in parts kit with Qty 2, SAS Part No. HV-FLW-D-EF30S : Thread #8 NPT

Install flow control valves with fittings between car body frame hose connection and hydraulic hose. Turn settings to near zero.

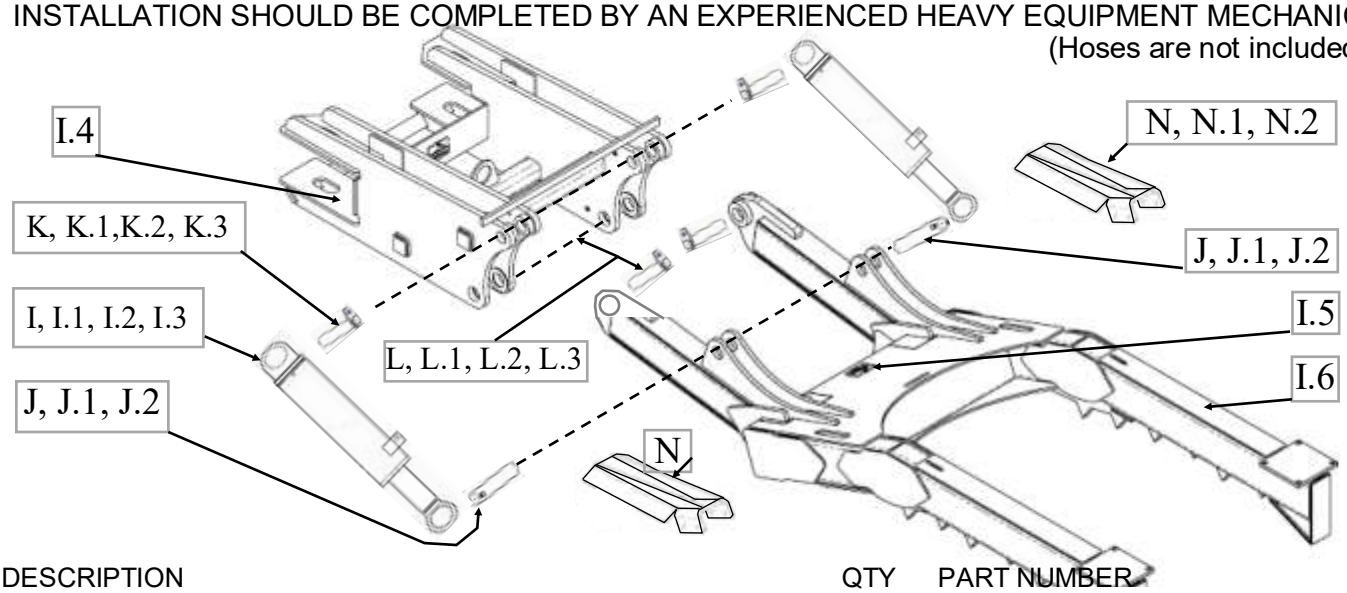
Test motion. Slightly open valves uniform amount. Retest. Repeat until jerking occurs, then turn back to achieve smooth motion.

b) **Test rotational clearance** with HDA raised incrementally higher. Stay clear of pinch points, overhead electrical wires, and other structures, slowly and cautiously rotate cab and counter weight <u>visually checking</u> for interference of lower cab and counter weight with HDA lifted at highest level. Stop if interference occurs & contact SAS FORKS with serial number for engineering assistance.

S.A.S. of Luxemburg, LLC. 133 Center Drive Hwy 54, PO Box 260, Luxemburg, WI 54217 USA
Phone: 920-845-2307 • 1-877-SAS-FORK • Fax: 920-845-2309 • Web: www.sasforks.com

INSTALLATION: HINGE & HYDRAULICS (PAGE 12)
SAS™ PINCER™ AUTO PROCESSOR

OPTIONAL: SAS SUPPLIED HINGE, HYDRAULIC DIVERTER BLOCK & CYLINDERS:
INSTALLATION SHOULD BE COMPLETED BY AN EXPERIENCED HEAVY EQUIPMENT MECHANIC
(Hoses are not included)



	DESCRIPTION	QTY	PART NUMBER
[I]	**Cylinder for SAS Hinge & Hold Down**	**2**	**HY-CYL-5.0X11.25-5K**
	This cylinder is not for use with excavator which had existing dozer blade. Call excavator manufacturer.		
	CYLINDER COMPONENTS (IDENTIFY CYLINDER STAMP TO SELECT CORRECT PARTS)		
	BM: Cyl stamp includes…. BM….I.-1 CYL SEAL KIT……	1	HK-5.00-783-244
	Cyl stamp includes…. BM….I.-2 CYL PIN BUSHING	2	W-B2.500X3.000X2.000
	Cyl stamp includes…. BM….I.-3 CYL PIN GREASE SEAL.	2	W-WIPER-2.5X3.0
	RR: Cyl stamp includes…. RR….I.-1 CYL SEAL KIT	1	HK-5.00-732703
	Cyl stamp includes…. RR….I.-2 CYL PIN BUSHING	2	W-B2.505X3.002X2.000
	Cyl stamp includes…. RR….I.-3 CYL PIN GREASE SEAL	2	W-WIPER-2.5X3.0
	I.4 Hinge (weldment)	1	0-EX-HGN- Custom per machine
	Read warnings on “Excavator Frame Reinforcement’ page & separate instructions provided with hinge.		
	I.5 Id plate (Specify serial no.)	1	ID-PLATE-CE-EX
	I.6 Hold down arm (weldment)……	1	0-EX-HD- Custom # per machine
[J]	**Pin (cylinder to hold down: rod end)**	**2**	**1903-202VOL220-5112**
	J.1 Bolt (for cyl rod end pin)	2	WBOLT 0.375X425 GR8
	J.2 Nut (for cyl rod end bolt)……	2	WNUT 0.375-16-GR8-NY
[K]	**Pin (cylinder to hinge: base end)**	**2**	**1904-006VOL220-5112A**
	K.1 Bolt (cylinder base pin)	2	WBOLT 0.625X1.50 GR8
	K.2 Pin lock spacer (cylinder base pin)……..	2	SPACER-0625-0000
	K.3 Flat Washer (cylinder base pin)……	2	WASHER-F 0.625 GR8
[L]	**Pin (hold down to hinge: lower pivot)**	**2**	**1315TILT-3454 ASY**
	L.1 Bolt (lower pivot pin)	2	WBOLT 0.625X1.50 GR8
	L.2 Pin lock spacer (lower pivot pin)……...	2	SPACER-0625-0000
	L.3 Flat Washer (lower pivot pin)	2	WASHER-F 0.625 GR8
[M]	**HYDRAULICS** Parts are not for use if excavator had existing dozer blade. Call excavator manufacturer.		
	M.1 Flow valves (thread #8 NPT)……	2	HV-FLW-D-EF30S
	(If jerking occurs during lowering Hold Down Arm (HDA), install flow valves on hydraulic lines which feed extend side of both cylinders, adjust equally reduce flow to eliminate or reduce this issue.)		
	M.2 Counter balance block (empty block)	2	HV-BLK-S-YEJ-S
	M.3 Counter balance valve (valves for block)	4	HV-CB-S-CBPA20MNS050
	(After cycling the Hold Down Arm a number of times to eliminate air in lines, if Hold Down Arm does not hold it’s positioning, install counter balance valve block with valves in line before each cylinder.)		
	M.4 Pilot valve (see next page)……	1	HV-BLK-F-DS70HP-1
[N]	**CYLINDER GUARD** (Only units with SAS hinge F5972 & UP)	**2**	**1902-027**
	N.1 1/2” x 6 1/2” Hex bolt	4	WBOLT 0.500X6.50 GR8
	N.2 1/2” Nyloc nut	4	WNUT 0.500-13-GR8-NY

OPTIONAL: SAS SUPPLIED HINGE, HYDRAULIC DIVERTER BLOCK & CYLINDERS:
INSTALLATION SHOULD BE COMPLETED BY AN EXPERIENCED HEAVY EQUIPMENT MECHANIC
(Installation may impact or void machine OEM warranty, if any)
(Hoses are not included)

DESCRIPTION	QTY	PART NUMBER
M.4 Pilot Operated Selector Valve Block ['Valve']……..	1	HV-BLK-F-DS70HP-A

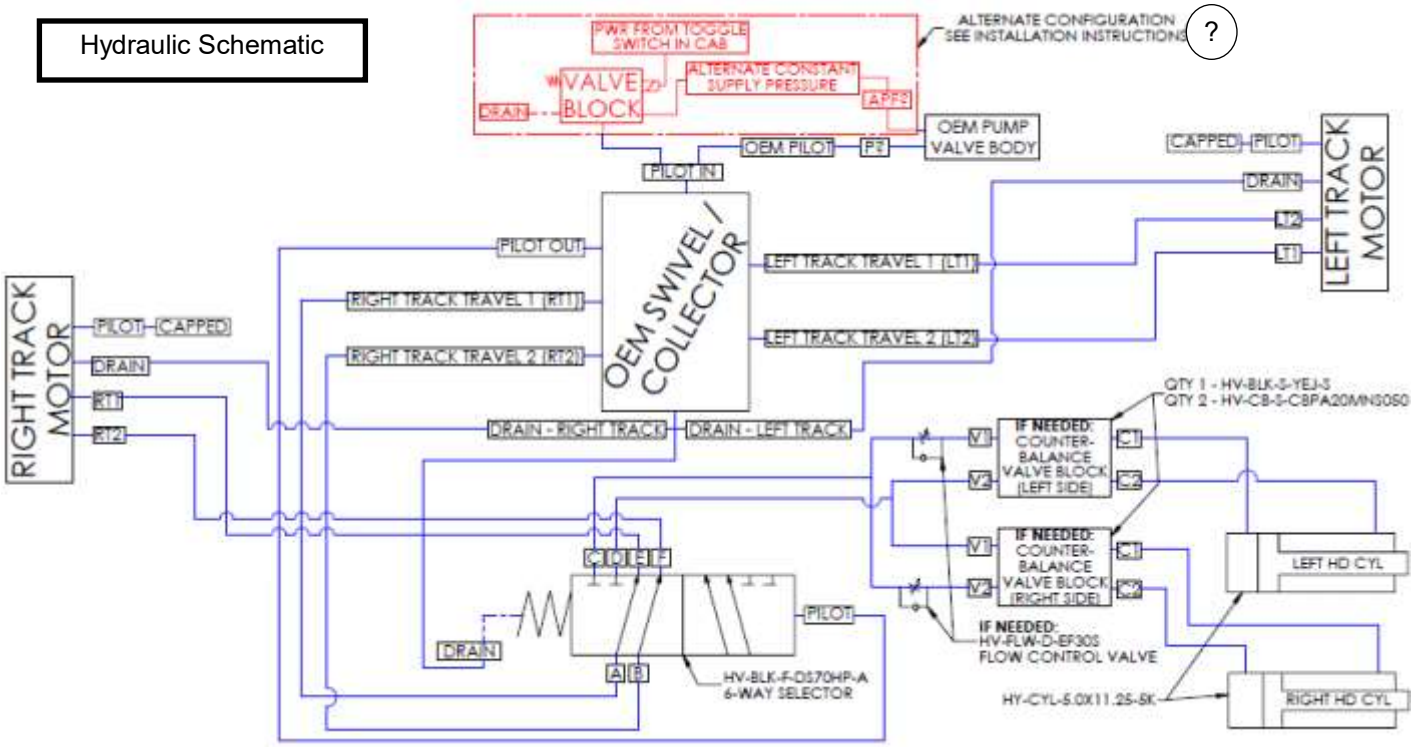
Locate 'Valve' for installation within protected area inside the x-frame belly.
Purpose: Divert fluid from right track to hydraulics to SAS Pincer hold down cylinders.

- Ports A & B are input Into 'Valve' which are pulled downstream of swivel/collector underneath the excavator that would originally route to one drive motors for one of the tracks, SAS has always used the 'right' track hydraulics.
- Ports E & F are then routed to drive motor for right track in standard position.
- The high speed pilot line that originally runs to each the left and the right track drive motors is disconnected from the motors and now only is routed to the pilot port on this 'Valve'. This pilot line is typically the smaller of the two small lines that run through the swivel/collector. This enables the 2nd position of the 'Valve' to function when the 'high speed' function is actuated in the cab of the excavator.
- With pilot line pressurized, ports C & D are now live & will be routed to cylinders to position hold down up/down.
- 'Drain line' is final port on 'Valve', this will be need to be T'd into existing drain line that runs from each track drive motor & back up through the swivel. This line is typically larger of two 'small' lines running through swivel/collector.

? If arm operates as expected, keep OEM pilot source at 'P?' If track unexpectedly moves, cap off OEM pilot at P?, then install Alternate Pilot Feed (APF?), valve, drain & switch to connect to "Pilot In" rather than OEM pilot.

M.5 Valve Block [for Alternative Configuration]……..1 HV-BLK-E-AT180585

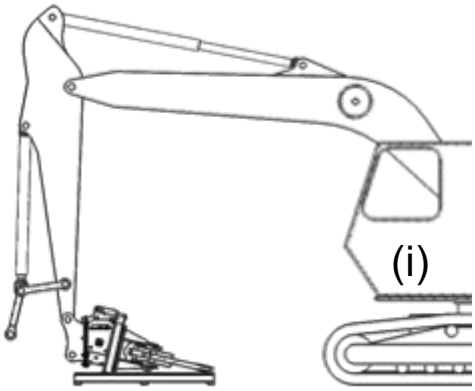
Hydraulic Schematic

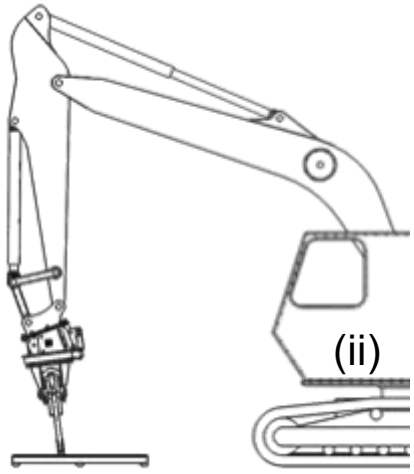


INSTALLATION OF SAS™ PINCER™ AUTO PROCESSOR HEAD ASSEMBLY:

INSTALLATION SHOULD BE COMPLETED BY AN EXPERIENCED HEAVY EQUIPMENT MECHANIC

1. Remove existing bucket and inspect pins and bushings. Replace as needed.
2. Line up palletized head assembly & machine. Image (i).
   Note: Head weight approximately:
   Model Pincer: 1,000 kg (2,200 lb)
3. Lower stick of excavator down to line up with hole at top of assembly and insert and secure pin "A" into head assembly.
4. With pin "A" secure in head assembly, lift assembly so that only the tips of the head assembly are resting on pallet as shown in image (ii). Align curl linkage to other hole in head Assembly mount. Insert & secure pin "B" in head assembly.



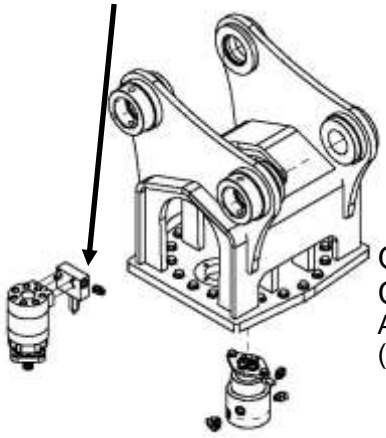


5. Connect hydraulic hoses.

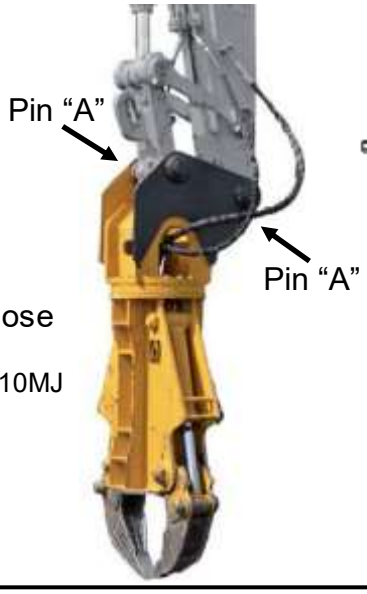
Hose specification Min. dia. 19mm 3/4", 34 Mpa, 344 Bar (5,000 psi)
Verify pressures set properly during installation preparation (Page 9)
Grapple Open/Close: 20-25 GPM (76-95 LPM) 207 Bar (3,000 psi)
Grapple Rotate: 4-7 GPM (15-27 LPM) 124 Bar (1,800 psi)
Note: The rotation circuit does not require a case drain line.

SAS has no responsibility as to performance of excavator's hydraulic system with this attachment.

Rotate hose connections
Adapter—ORFICE- 8JIC-8ORB 0.078 (Qty. 2)



Open/close hose Connections
Adapter—8MJx10MJ (Qty. 4)



AFTER INSTALLATION PRIOR TO OPERATION

1. Grease all pivot points with Head and Hold Down resting on ground and machine engine off.
2. Read excavator manufacturer's manual to identify control levers operation, method to stop motions, safety parameters related to operation of the excavator with any specialized attachment.
3. Stay clear of pinch points. Slowly engaging controls, test all motions of Head Assembly. Watch for interference points and stop further motion if interference occurs.

S.A.S. of Luxemburg, LLC. 133 Center Drive Hwy 54, PO Box 260, Luxemburg, WI 54217 USA
Phone: 920-845-2307 • 1-877-SAS-FORK • Fax: 920-845-2309 • Web: www.sasforks.com

PREVENTIVE MAINTENANCE (PAGE 15)
SAS™ PINCER™

Set attachments on ground, turn off excavator, depressurize hydraulic supply to attachments, stay clear of pinch points during greasing. Safe & proper daily maintenance will help ensure long term performance and prevent failures. Failure to follow preventive maintenance guidelines can result in equipment failure resulting in injury or property damage.

Visual Inspections: Frequency daily pre-operation inspection (or every 10 operating hours)

Re-Torque interval chart: After first 50 hours of operation & every 100 hours thereafter.

Replace Loose Bolt & Bolt on each side: During daily pre-operation inspection if any bolt are found to be more than 80% out of stated tightening torque or require more than 1/4 of turn to obtain required re-torque, install new bolt & adjacent bolts and set torque.

SERVICE REQUIRED	Daily *10-Hours*	Weekly *50-Hours*	Monthly *100-Hours*	2-Months *400-Hours*	6-Months *1000-Hours*
Cylinders, Hoses & Connections *Inspect for leaks and damage. Tighten, repair or replace parts if necessary.*	X				
Greese Fittings *Refer to lubrication section for lubrication points and for the propper lubricant.*	X				
Nuts, Bolts & Fasteners *Visually inspect for wear or damage.*	X				
Entire Grapple *Visually inspect for wear, stress, cracks damage and loose parts*	X				
Nuts, Bolts & Fasteners *Check for propper torque and re-torque if necessary. See Parts & Service Section.*		X			
Hydraulic Collector *Check mounting bolts.*			X		
Rotate Motor or Rotator *Check Rotate Motor or Rotator service manual sections. Replace fluids.*				X	
Entire Grapple *Clean all debris*					X

S.A.S. of Luxemburg, LLC. 133 Center Drive Hwy 54, PO Box 260, Luxemburg, WI 54217 USA
Phone: 920-845-2307 • 1-877-SAS-FORK • Fax: 920-845-2309 • Web: www.sasforks.com

PREVENTIVE MAINTENANCE (PAGE 16)
SAS™ PINCER™ GREASING

Prior to maintenance activities, place grapple on firm level surface, turn off machine, depressurize hydraulics & avoid pinch points, or serious injuries may result.

Lubricating the rotating grapple head (For models: SAS PINCER)
Lubricate the SAS PINCER Auto Processor rotating grapple head daily. Use this opportunity to closely inspect the pins and pin retaining hardware and conduct necessary repairs.

Recommended grease:

Brand	Raceway Grease
Mobil 1/14/19 Indexator 2014 Service InfoSheet	Mobilux EP2
Shell	Gadus S2 V220 2
Castrol	Spheerol EPL2

Brand	Pin Grease
Mobil * (11/4/2016 Per Eric @ Harlon Oil)	Centaur Moly EP2 *
Mobil	Mobilegrease CM-P
Comparable	Comparable

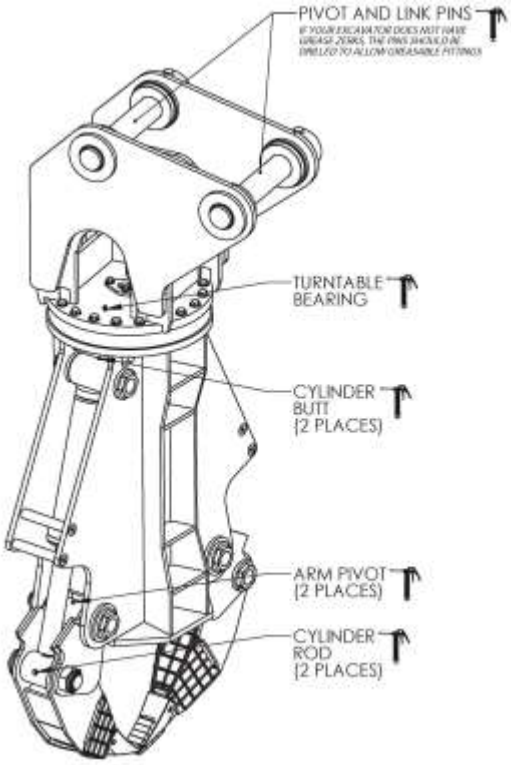
Lubrication interval chart

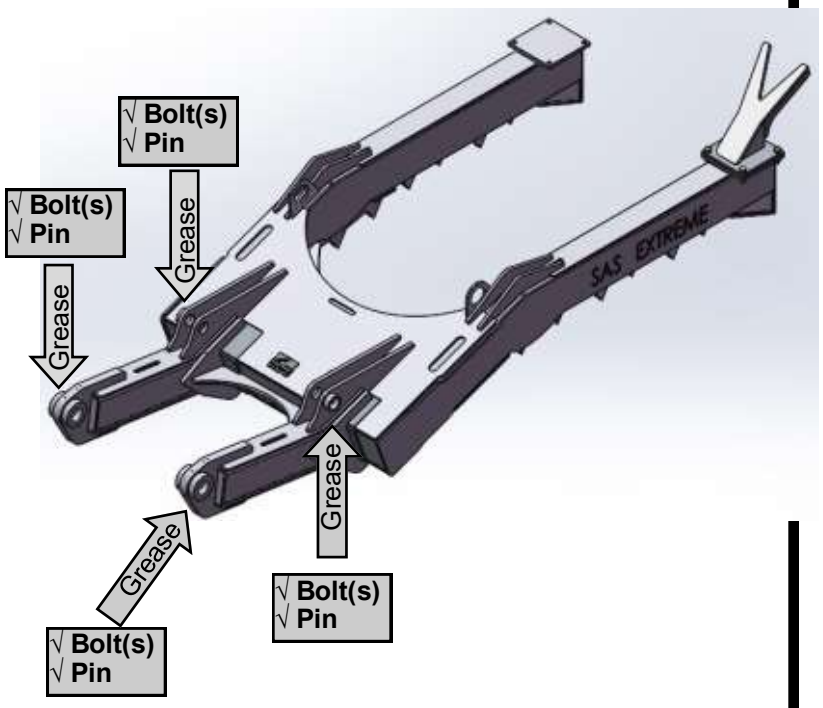
PINCER head	Grapple Pins	PINCER hold down	Pivot Pins
Quantity of nipples	7 nipples	Quantity of nipples	4 nipples
Every 10 hours*	4 pumps	Every 10 hours**	2 pumps
Every 40 hours*	4 pumps	Every 40 hours**	4 pumps

Grease nipple locations

Pincer head grease nipples (zerks) 1/8” NPT

*operating hours





S.A.S. of Luxemburg, LLC. 133 Center Drive Hwy 54, PO Box 260, Luxemburg, WI 54217 USA
Phone: 920-845-2307 • 1-877-SAS-FORK • Fax: 920-845-2309 • Web: www.sasforks.com

PRE-OPERATION CHECKLIST (PAGE 17)
SAS™ PINCER™ AUTO PROCESSOR

READ & FOLLOW SAFETY INFORMATION IN ORIGINAL EXCAVATOR MANUFACTURER'S OPERATOR, SAFETY AND SERVICE MANUALS. This checklist is limited to pre-operations inspection focused on Pincer Head and Hold Down Arm assemblies (HDA). Additional inspection points will be recommended in the excavator manufacturer manuals.

⚠WARNING Failure to follow instructions and precautions noted in excavator manufacturer's manuals and this manual can result in serious damage to equipment and/or result in injury or death.

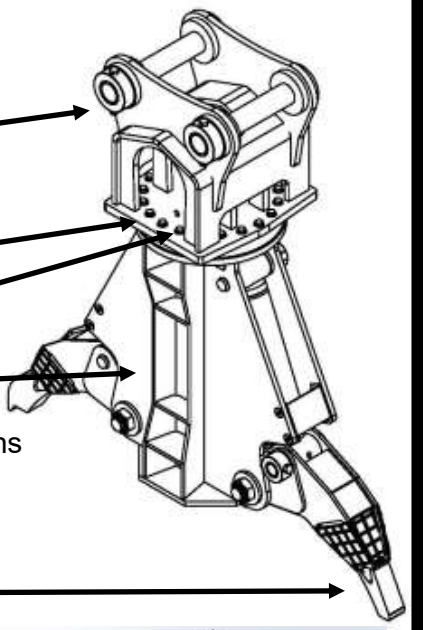
Use caution while inspecting. Be aware of:

- Pinch points (and additional risks covered throughout this manual)
- High pressure hydraulic fluids or stored energy, possible injection injuries
- Location of other individuals in the work area

Prior to conducting inspection;

- Stick and Head assembly must be resting on firm level ground.
- Hold Down Assembly (HDA) must be resting on firm level ground.
- Excavator must be parked on firm level ground
- Excavator engine must be turned 'off'

PINCER AUTO PROCESSOR ATTACHMENT INSPECTION POINTS:



Head to stick fastening pins

- Check both pins for proper securement.
- Check stick mount for cracks

Rotator

- Check bolts that fasten the rotator to the stick mounts
- Check rotator for cracks
- Check for leaks or damage on hoses.
- Check bolts fastening rotator to clamp body

Clamp body

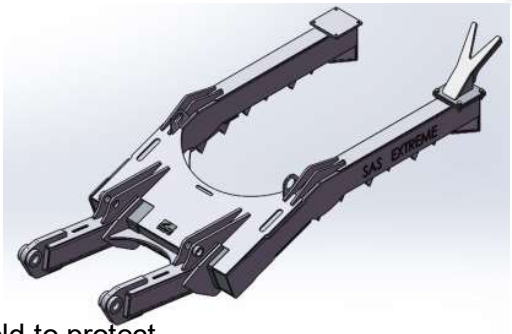
- Check for damaged pins, pin retention hardware or misaligned pins
- Check clamp body for cracks

Claws & tips

- Check claws for cracks
- Check claw tip bolts (loose or missing pins and bolts)

Hold Down Assembly (HDA)

- Check all pins for properly secured
- Check HDA for cracks
- Check wire stripper for loose or missing bolts



Excavator x-frame inspection

- Look from bottom up & or cracks around hinges

Operator cab

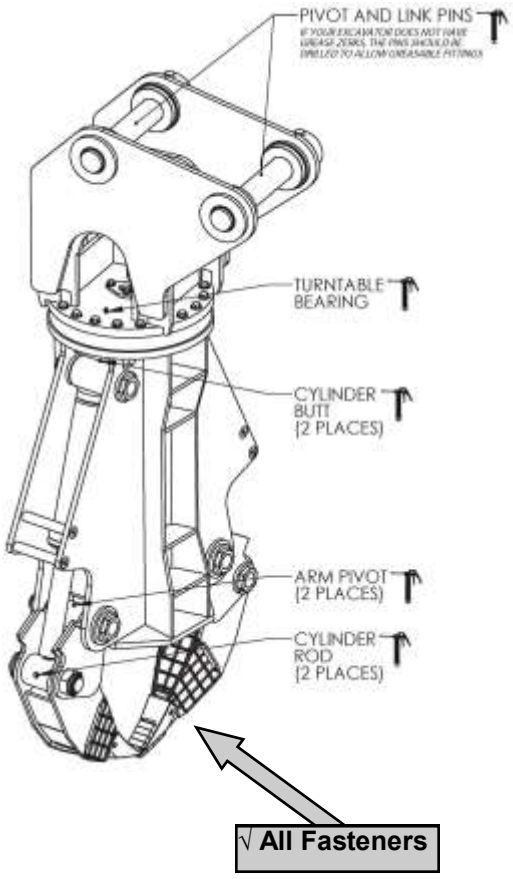
- Cab should have Roll Over Protection System
- Verify safety glass windshield in place
- Verify exterior steel guard is in place over front windshield to protect operator.

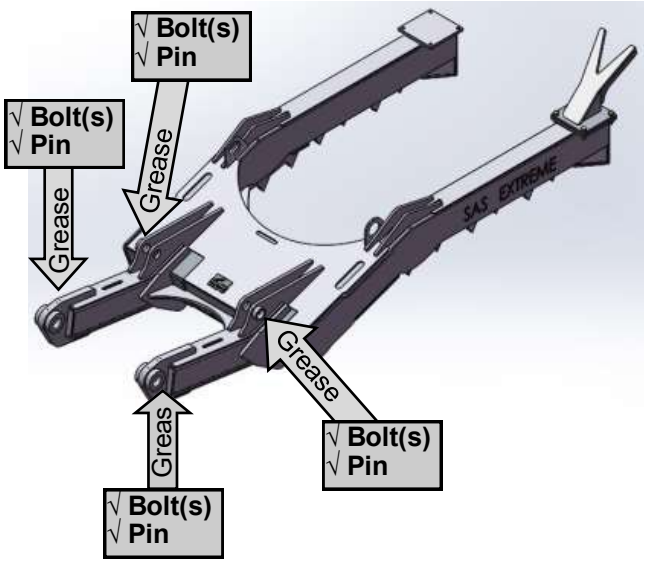
Repair all problems before operation. Lock out / tag out excavator if defects present.
Repairs must only completed by authorized mechanic.

DAILY PRE-OPERATION CHECKLIST (PAGE 18)
SAS™ PINCER™ AUTO PROCESSOR

Set attachments on ground, turn off excavator, depressurize hydraulic supply to attachments, stay clear of pinch points during greasing. Safe & proper daily maintenance will help ensure long term performance and prevent failures. Failure to follow preventive maintenance guidelines can result in equipment failure resulting in injury or property damage.

Item	√	√	√	√	√	√	√	√	√	√
Stick pin & bolt										
Stick pin & bolt										
Stick mount bolts										
Stick mount cracks										
All Rotator bolts										
Rotator cracks										
R-Cyl bolt, clip, pin										
L-Cyl bolt, clip, pin										
Main pivot grease										
Main pivot grease										
Main pivot pin, bolt										
Main pivot pin, bolt										
Clamp body cracks										
Parallel bar pin, bolt, clip										
R-Claw tip bolts										
L-Claw tip bolts										
Claw cracks										
Hold arm bolt, pin										
Hold arm bolt, pin										
Hold arm cracks										
Wire stripper bolts										
Machine x-frame Structural cracks										
Date										
Machine hours										
Inspection by:										





DETERMINING LIFT CAPACITY (PAGE 19)
SAS™ PINCER™ AUTO PROCESSOR

READ & FOLLOW SAFETY INFORMATION IN ORIGINAL EXCAVATOR MANUFACTURER'S OPERATOR, SAFETY AND SERVICE MANUALS.

Excavator will handle loads differently than with the original dozer blade & bucket.

The purpose of this document is to describe the **method of** load rating and operating limitation **parameters** of the Pincer auto processor as indicated on the operating data plate of the device.
On this product, SAS Forks installs a data plate on the product which specifies ;

- Product model
- Product serial number
- Product weight
- Product production date

■ Notice to refer to Excavator OEM positional lift chart and make appropriate reductions in permissible lift capacities to offset any differential in the original rated attachment, if any, and the weight of the Product, the Pincer Head Assembly.

It is important to note that the actual load (lift) ratings of the product are impacted by multiple factors in which the operator is responsible to take into account and to reduce the weight of any potential item to lift, to ensure machine remains stable, and does not tip. The below items are not a comprehensive list, but these complex work variables must be taken into account by the operator to ensure safe operation;

■ ***Ground or working surface stability***
■ ***(More unsafe: soft, unpredictable or variable surface compaction /vs/ More safe: solid surface)***

■ ***Positioning of excavator on such working surface***
■ ***(More unsafe: angled and tilted /vs/ More safe: flat & level)***

■ ***Proximity in which excavator is to work and materials to be lifted.***
■ ***(More unsafe: Extending lift arms and lifting /vs/ More safe: working close with minimum reach***

■ ***Lowering and engagement of outriggers to working surface***
■ ***(More unsafe: Outriggers removed and/or not engaged to ground /vs/ More safe; Outriggers lowered fully and engaged with solid working surface.***

■ ***Amount of hydraulic pressure operator allocates to the grapple of the Pincer product***
■ ***(More unsafe: Operator not providing sufficient hydraulic pressure to engage object lifted /vs/ More safe: Operator engages excavator's hydraulic system to ensure secure grappling.***

■ ***Lift capacity limitation of excavator, based on excavator's OEM lift capacity chart***
■ ***(More unsafe: Not understanding parameters and assumes within the excavator's OEM chart vs/ More safe: Clearly understand excavator's OEM load chart, product weight, & parameters.***

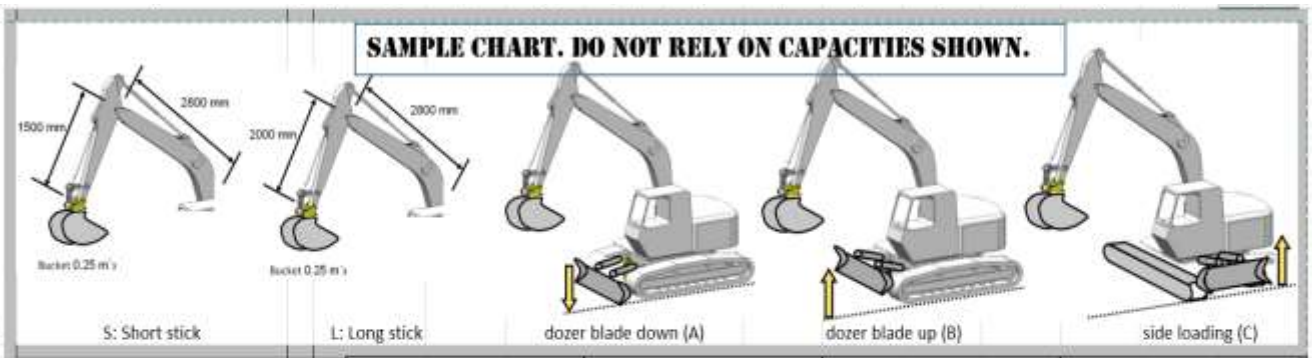
■ ***Strength and durability of the item being lifted. (This product is meant only to lift scrap metal, never lift any good resalable product. Never lift any persons or any device holding any persons.***
■ ***(Prohibited & dangerous: Attempting to lift persons in any manner will result in injury or death.***
■ ***(More unsafe: Lifting items in such a manner that may rip or separate /vs/***
■ ***More safe: Grapple items on heavy surface that provides a secure grip with Pincer grapple.***

DETERMINING LIFT CAPACITY (PAGE 20)
SAS™ PINCER™ AUTO PROCESSOR

Establishing Load Ratings
The structure of the Pincer auto processor grapple head attachment is designed to lift a load that meets or exceeds the excavator's boom lift capacity, when hydraulic pressure of between 80% and 100% of maximum pressure per the label on Pincer grapple head attachment is supplied by the excavator, the Pincer's grapple mechanism to adequately engage the item lifted.

The lift limitations set forth by the excavator OEM (Original Equipment Manufacturer) must be reviewed and understood by the operator. The excavator OEM operator manual or in cab label is expected to provide a chart with lifting capacities at a variety of lift positions, **in accordance with ISO 10567:2007** The operator must apply the weight of the Pincer grapple head assembly and interpret the excavator OEM chart whereas the position of the dozer blade or stabilizers are considered to be off the ground to determine the permissible load.

Sample chart. This chart does not contain any valid lift capacities for any excavator equipped with an Pincer auto processor attachment.



R: Reach / H: Height			R: 2.0 m			R: 3.0 m			R: 4.0 m			R: MAX		
			dz dwn	dzr up	side	dz dwn	dzr up	side	dz dwn	dzr up	side	dz dwn	dzr up	side
H: 3.0 m	kg	S							800	800	800	750	700	600
H: 3.0 m	kg	L							700	700	700	800	600	550
H: 2.0 m	kg	S				1400	1200	1200	1100	1000	900		600	500
H: 2.0 m	kg	L				1200	1100	1000	900	800			600	450
H: 1.0 m	kg	S				2300	1500	1300	1800				600	400
H: 1.0 m	kg	L				2000	1500	1300					600	450
H: 0.0 m	kg	S				2500						1100	600	500
H: 0.0 m	kg	L				2400					800	900	700	550
H:-1.0 m	kg	S	3800	3400	2800	2400			1600	900	775	1300	800	600
H:-1.0 m	kg	L	2900	2800	2600	2300		1100	1600	1000	750	1100	700	650
H:-2.0 m	kg	S	3000	3000	2400	2100	1400	1000	1500	1100	725	1400	1100	650
H:-2.0 m	kg	L	2800	2500	2200	1900	1300	900	1400	1000	700	1200	800	600

In accordance with typical excavator OEM lifting charts, with general reference to sample chart above, positions that effectively reduce the load threshold at which tipping occurs, include:

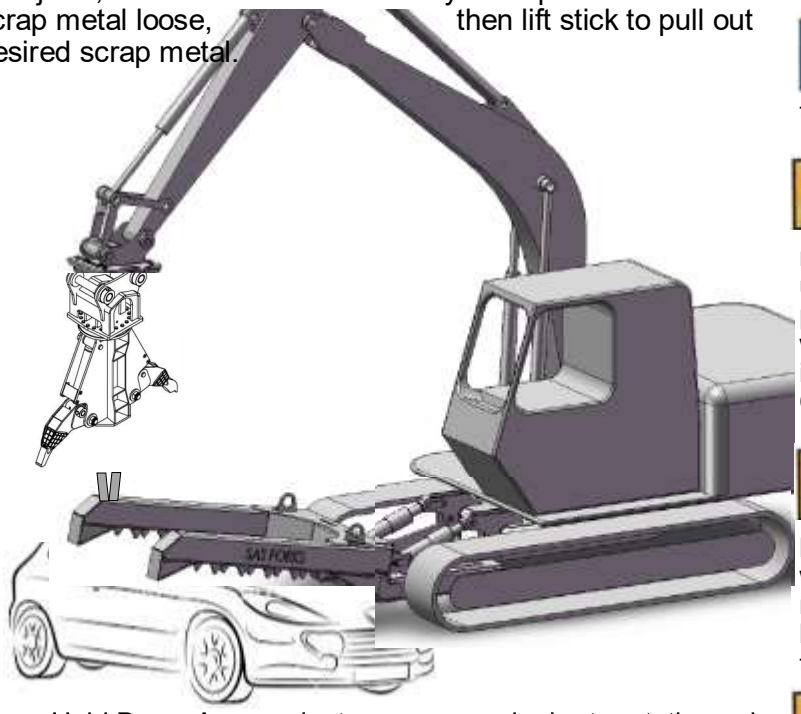
- Lifting dozer blade, downriggers or Pincer hold down arm, as shown in sample illustration (B) or (C).
- Turning of excavator's cab across tracks or wheels with the dozer up, shown in sample illustration (C).
- Extending the reach of the boom and stick.

Operator must identify load chart for specific excavator, not included herein, and use limits per the chart which specifies 'dozer up and side lift' or 'outriggers up and side lift', and subtract weight of Pincer grapple head assembly, to identify the net lift capacity permissible.

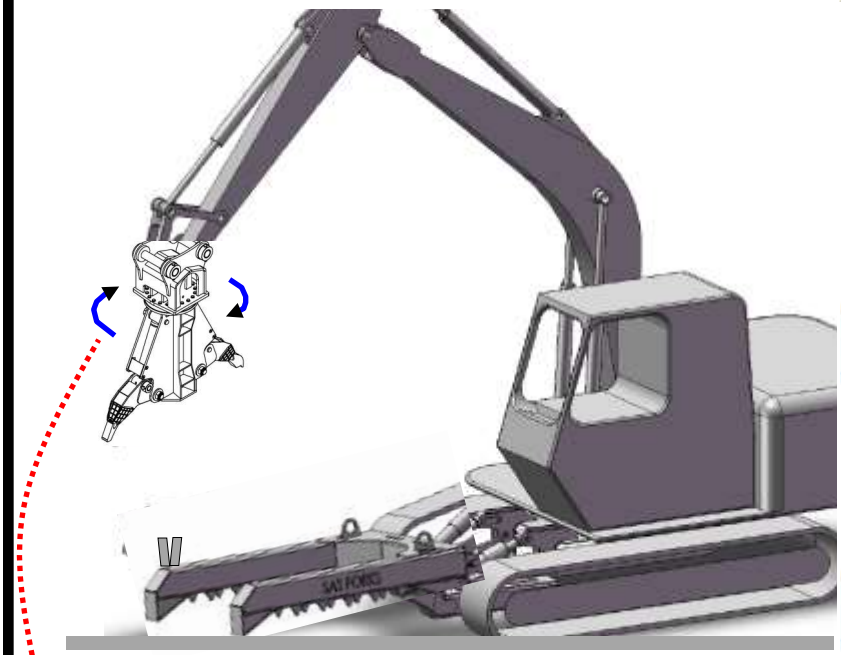
OPERATION GUIDE (PAGE 21)
SAS™ PINCER™ AUTO PROCESSOR

FOLLOW SAFETY INFORMATION IN EXCAVATOR MANUFACTURER OPERATOR MANUAL.

Be cautious, as working load capacities are determined.
Secure car down with Hold Down Arm. Grasp scrap metal with jaws, use stick breakout force cylinder power to break scrap metal loose, then lift stick to pull out desired scrap metal.



Lower Hold Down Arm against car or ground prior to rotating cab.



Multiple times during work day, complete several full rotations to circulate fresh fluid from tank to rotator.

NOTICE **Minimize down force applied** when restraining car. Avoid pushing down to extent that front of excavator is lifted and suspended. Excess stress can cause x-frame failure. Hold down arm swaying or reduced lift height may indicate x-frame damage. Stop use immediately.

NOTICE **Move controls slowly,** not jerking machine. Rough or jerking motions may cause damage to machine or Pincer.

⚠WARNING Tip over & crush risk. Pincer Grapple Head Assembly may weigh more than original bucket which excavator manufacturer installed, thus reducing potential lift capacity. Lifting excess weight may cause tip over, damage, injury or death. **Wear seat belt and Operate to maintain safe stability.**

⚠WARNING Tip over & crush risk. **Wear seat belt**. Rotating machine with hold down arm or out-riggers not in firm contact with ground or traveling with an elevated load, may **cause machine to tip over**. For best stability prior to rotating cab, lower hold down arm to ground or on top of car.

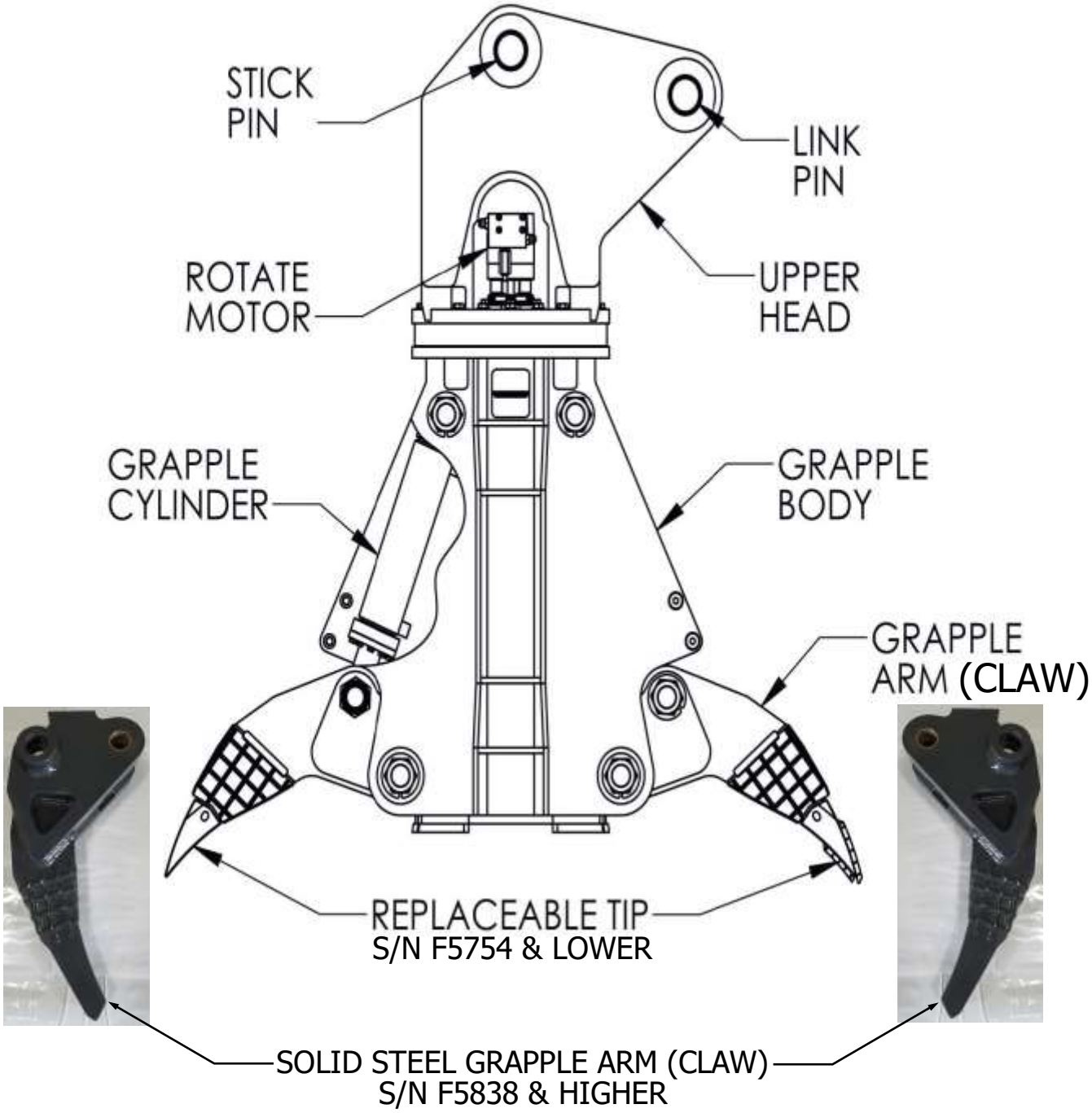
⚠WARNING Electrocution and crush risk if contact made with electric power lines or building structure. **Avoid contact.**

⚠WARNING Electric & Hybrid—High Voltage battery equipped vehicles pose electrocution, explosion & fire hazards. Identify these vehicles clearly. **Do not use SAS Pincer grapple jaws to remove, impact or damage battery assemblies**.

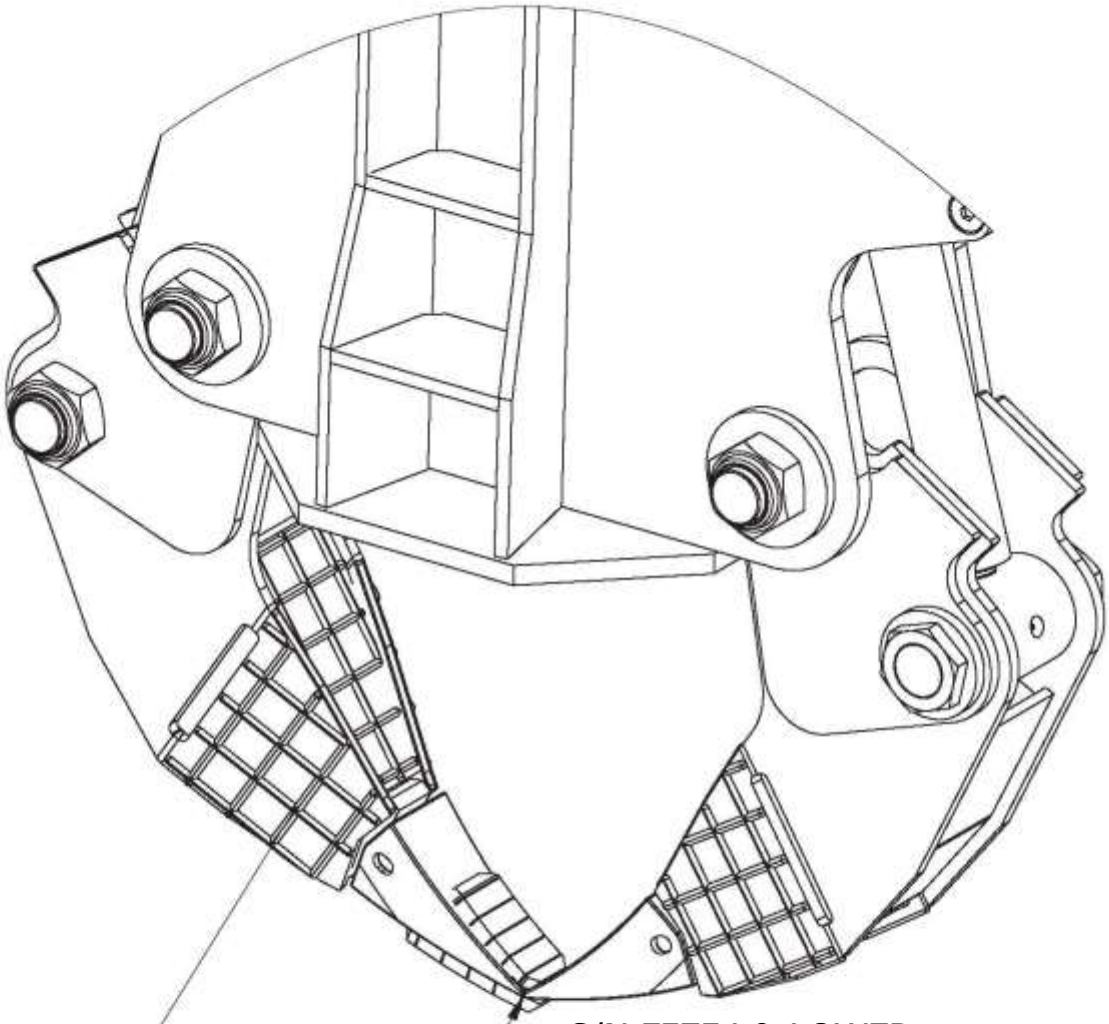
NOTICE Head, claw & wire stripper impact will cause damage. Avoid contact.

⚠WARNING Risk of claw contact to cab, damage & or injury to operator if operator curls boom, stick, & jaws in tightly toward cab. Do not fully curl boom, stick, jaws in.

NOTICE **Avoid overheating** of hydraulic fluid in rotator by engaging rotate function and allowing head to rotate several full rotations to **circulate fresh fluid from tank to rotator,** occasionally during day.



S.A.S. of Luxemburg, LLC. 133 Center Drive Hwy 54, PO Box 260, Luxemburg, WI 54217 USA
Phone: 920-845-2307 • 1-877-SAS-FORK • Fax: 920-845-2309 • Web: www.sasforks.com



⚠WARNING Pinch points will cause serve injury. Stay clear of pinch points at all times. Only an authorized and experienced person should perform this work.

S.A.S. of Luxemburg, LLC. 133 Center Drive Hwy 54, PO Box 260, Luxemburg, WI 54217 USA
Phone: 920-845-2307 • 1-877-SAS-FORK • Fax: 920-845-2309 • Web: www.sasforks.com

If the machine should malfunction, find the problem in the headings listed then refer to the possible causes and remedies listed with the problem.

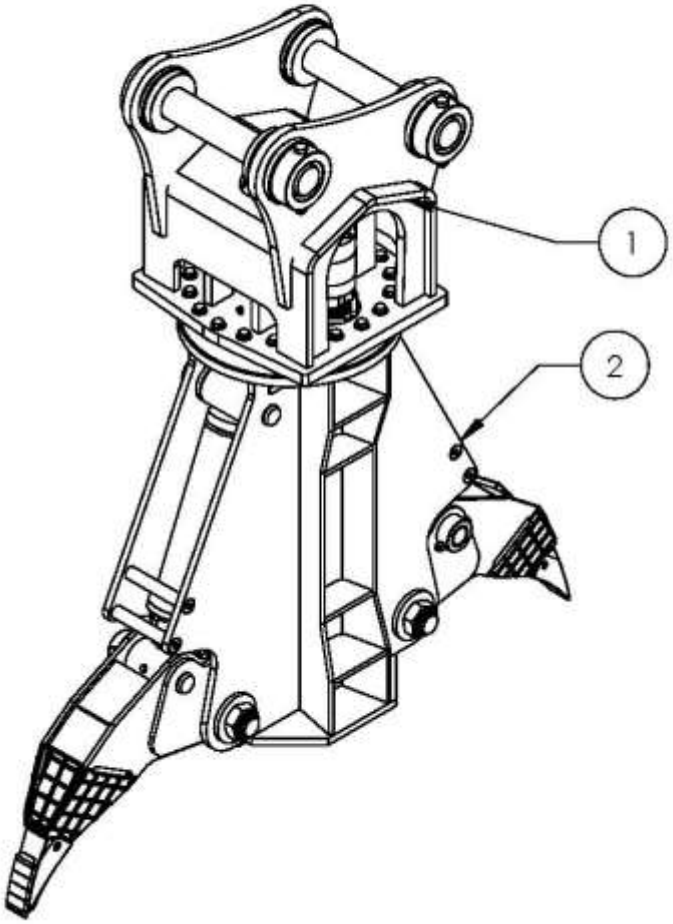
The list of problems, causes, and remedies will only give an indication of where a possible problem can be and what repairs are needed.

More, or other, possible servicing may be needed beyond the recommendations in the list or a factory service man may be required.

TROUBLESHOOTING		
SYMPTOM	**CAUSE**	**SOLUTION**
Grapple will not hold load.	Cylinder seal damage. Collector seal damage.	Re-seal cylinder. Re-seal collector.
Grapple arms open and close slowly.	Insufficient oil flow to cylinders.	Check oil flow from loader and adjust properly. Consult loader manufacturer.
Grapple won't rotate.	Faulty relief valve cartridge.	Replace cartridge.
Grapple rotates slowly.	Insufficient oil flow to grapple rotate system.	Check oil flow from loader and adjust properly. Consult loader manufacturer.

S.A.S. of Luxemburg, LLC. 133 Center Drive Hwy 54, PO Box 260, Luxemburg, WI 54217 USA
Phone: 920-845-2307 • 1-877-SAS-FORK • Fax: 920-845-2309 • Web: www.sasforks.com

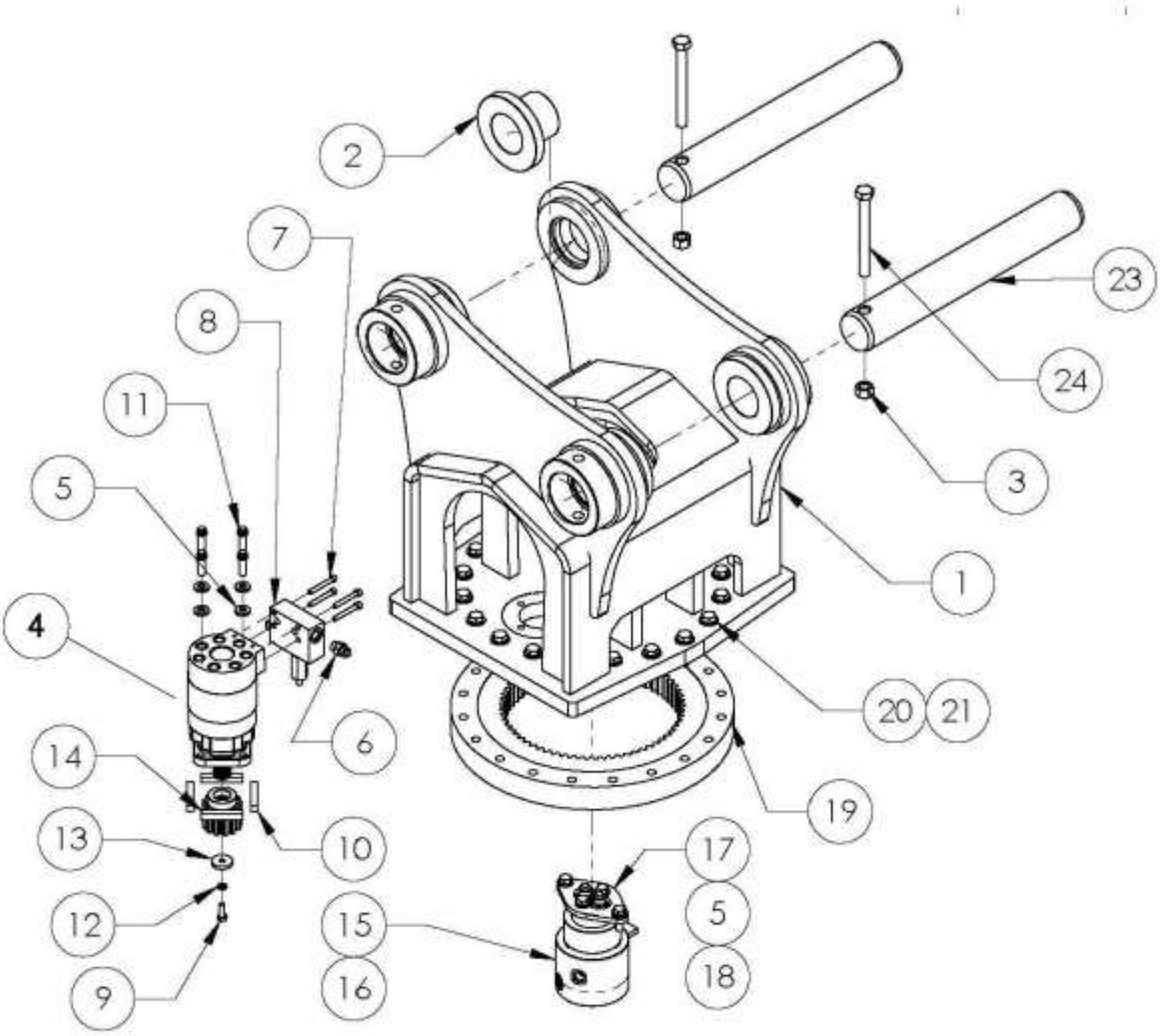
GRAPPLE ASSY–18204715 (CASE) (PAGE 25)
SAS™ PINCER™ AUTO PROCESSOR



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	18204744*	PINCER AUTO PROCESSOR UPPER HEAD	1
2	18203493	PINCER AUTO PROCESSOR CLAMP BODY	1
3	20200096	PINCER AUTO PROCESSOR HYD SCHEM	1

*P/N MAY DIFFER. PROVIDE MACHINE MAKE & MODEL

UPPER HEAD ASSY - 18204744 (PAGE 26)
SAS™ PINCER™ AUTO PROCESSOR



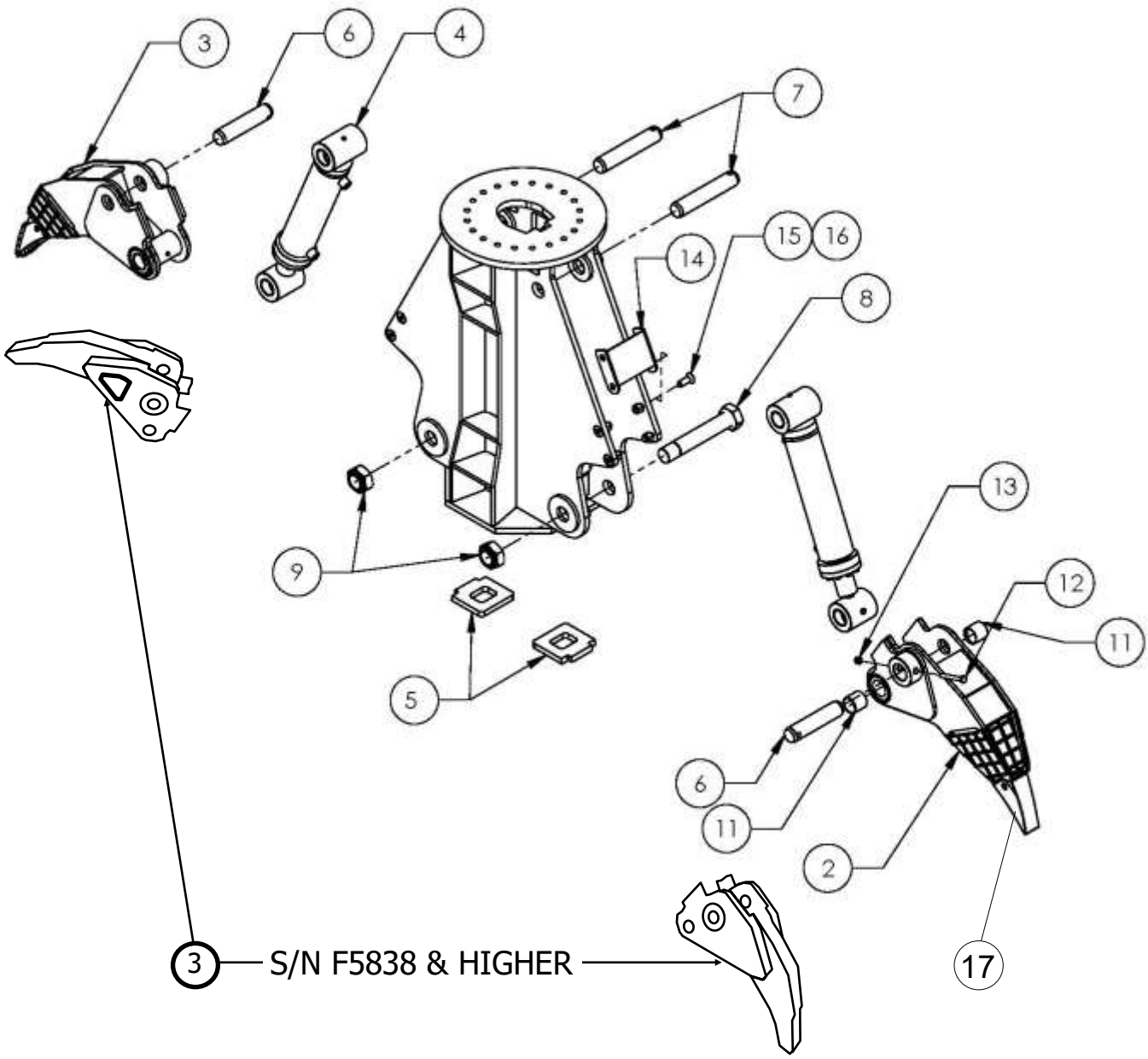
UPPER HEAD ASSY - 18204744 (PAGE 27)
SAS™ PINCER™ AUTO PROCESSOR

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	18204684*	PINCER AUTO PROCESSOR UPPER HEAD	1
2	12200104	BSHG SPCR 3.163 X 3.542 X .82	4
3	35100795	NUT, 3/4-16 TOPLOCK	2
4	22102801	MOTOR, GRAPPLE ROTATE	1
5	35100323	WASHER- 1/2 FLAT HARDENED A325	8
6	22102803	ORFICE- 8JIC-8ORB 0.078 ORIFICE	2
7	35101219	BOLT- 5/16-18 X 1 3/4 SHCS	4
8	22102802	VALVE- CROSSOVER RELIEF	1
9	35100127	BOLT- 3/8-16 X 1 HHCS GR5	1
10	18201849	LOCKING BAR- HYD MOTOR	4
11	35101078	BOLT- 1/2-13 X 1-1/2 12PT ALLOY	4
12	35132	WASHER- 3/8 LOCK SPLIT	1
13	18100064	WASHER- PINION GEAR	1
14	35100219	GEAR- PINION C/R GRAPPLE	1
15	35103756	COLLECTOR 4 PORT 3-1/2	1
16	22100193	ADAPTER- 10MB-10MJ	2
17	18100159	PLATE FOOTBALL COLLECTOR	1
18	35100475	BOLT- 1/2-13 X 1-1/2 HHCS GR8	4
19	35100218	BEARING GRAPPLE	1
20	35100278	WASHER- 5/8 FLAT GR9	20
21	35100387	BOLT- 5/8-11 x 2-1/4 HHCS GR8	20
22	35100534	GREASE FITTING- 1/8 45°	1
23	13202075	PIN HEADLESS 80mm X 21-15/16	2
24	35100204	BOLT- 3/4-10 X 7 HHCS GR5	2

*P/N MAY DIFFER. PROVIDE MACHINE MAKE & MODEL

S.A.S. of Luxemburg, LLC. 133 Center Drive Hwy 54, PO Box 260, Luxemburg, WI 54217 USA
Phone: 920-845-2307 • 1-877-SAS-FORK • Fax: 920-845-2309 • Web: www.sasforks.com

LOWER ASSY-18203493 (PAGE 28)
SAS™ PINCER™ AUTO PROCESSOR



S.A.S. of Luxemburg, LLC. 133 Center Drive Hwy 54, PO Box 260, Luxemburg, WI 54217 USA
Phone: 920-845-2307 • 1-877-SAS-FORK • Fax: 920-845-2309 • Web: www.sasforks.com

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	18203101	PINCER LOWER HEAD CLAMP BODY	1

S/N F5754 & LOWER

2	18203108	PINCER CLAW GRAPPLE ARM W/O TIP	2
3	18203115	PINCER CLAW GRAPPLE ARM W/TIP	2

S/N F5838 & HIGHER

2	N/A	N/A	
3	EP-PINCER CLAW	PINCER CLAW SOLID STEEL	2

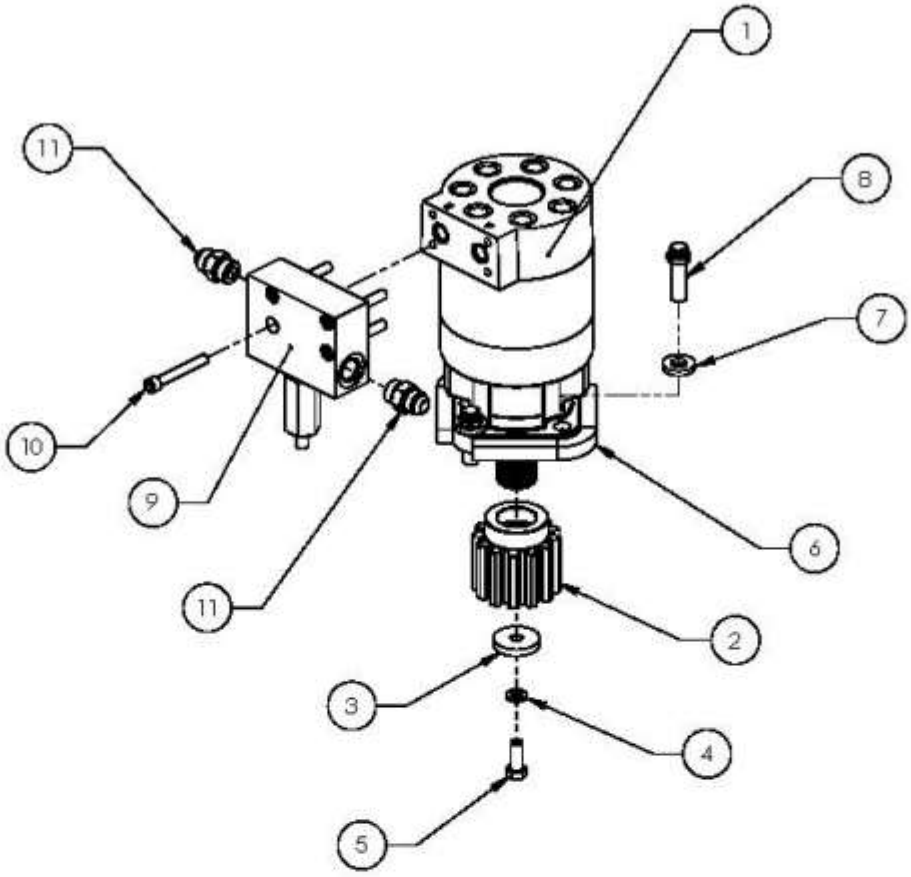
4	17202246	CYL- ASSY	2
5	18203970	PL GRPL ARM STOP	2
6	13202035	PIN HEADLESS 2 X 8-7/8	2
7	13202036	PIN HEADLESS 2 X 10-1/2	2
8	13100341	BOLT WLDT- 2"-12 X 11-1/2" 4140	2
9	35100055	NUT- 2-12 NYLOCK	2
10	35100267	GREASE FITTING- 1/8 STRAIGHT	2
11	12100020	BUSHING, 2" ID X 2-1/4" OD X 2"	4
12	35100158	BOLT- 1/2-13 X 4 HHCS	4
13	35100026	NUT- 1/2-13 NYLOCK	4
14	18205139	WELDT FLANGE LOWER HEAD SUPPORT	2
15	35103851	BOLT- 3/4-10 X 2 FSHCS	8
16	35100028	NUT- 3/4-10 NYLOCK	8

S/N F5754 & LOWER

17	35100645	TOOTH, REPLACEABLE TIP	2

S.A.S. of Luxemburg, LLC. 133 Center Drive Hwy 54, PO Box 260, Luxemburg, WI 54217 USA
Phone: 920-845-2307 • 1-877-SAS-FORK • Fax: 920-845-2309 • Web: www.sasforks.com

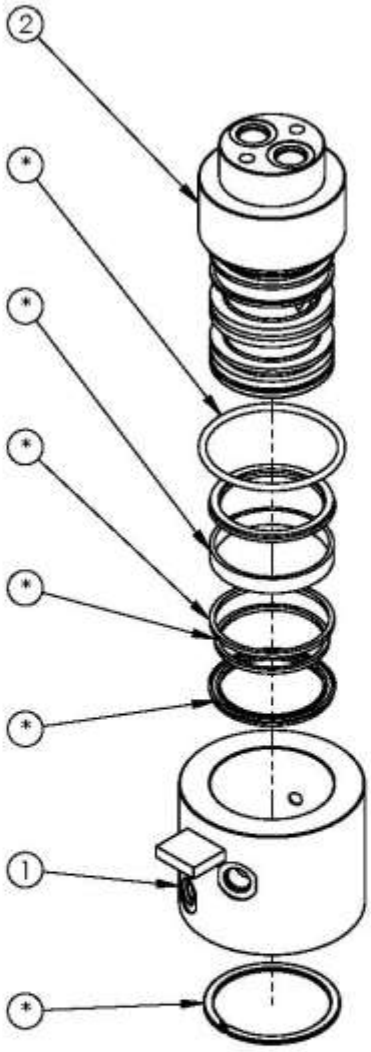
ROTATE MOTOR ASSY—18203519 (PAGE 30)
SAS™ PINCER™ AUTO PROCESSOR



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	22102801	MOTOR, GRAPPLE ROTATE	1
2	35100219	GEAR- PINION C/R GRAPPLE	1
3	18100064	WASHER- PINION GEAR	1
4	35100032	WASHER - SPLIT LOCK	1
5	35100127	BOLT	1
6	18201849	LOCKING BAR- HYD MOTOR	4
7	35100323	WASHER - FLAT	4
8	35101078	BOLT	4
9	22102802	VALVE- CROSSOVER RELIEF	1
10	35101219	BOLT	4
11	22102803	ORFICE	2
		TORQUE SPECIFICATIONS -	
8	35101078	64 FT-LBS.	4

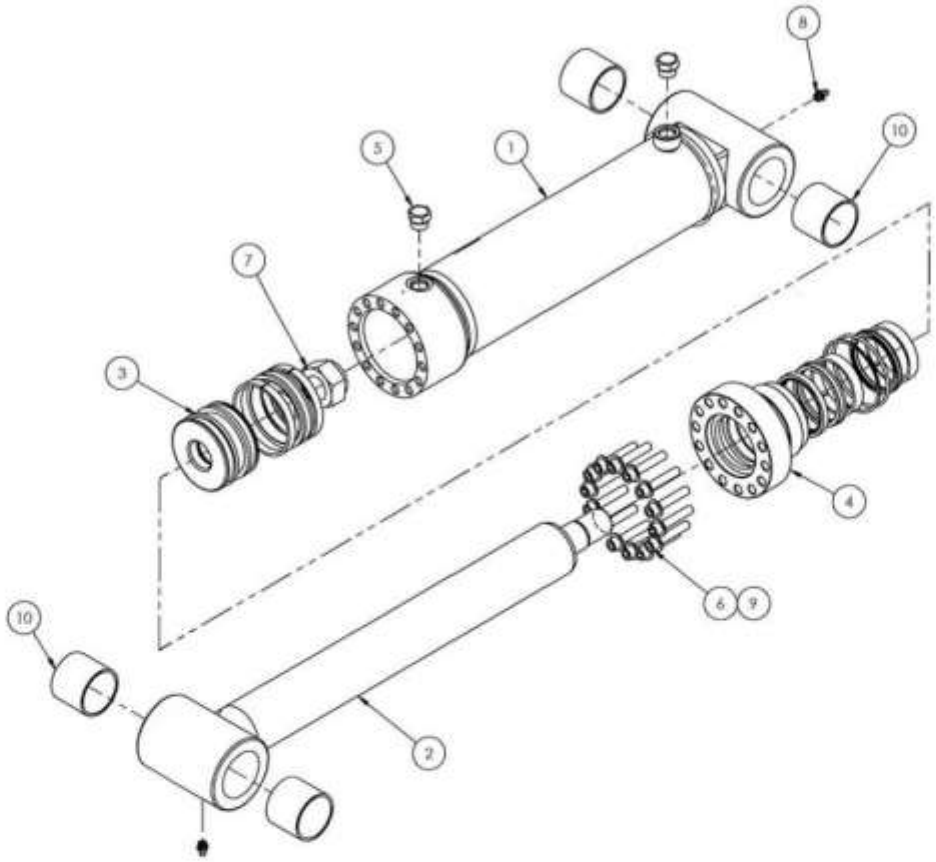
S.A.S. of Luxemburg, LLC. 133 Center Drive Hwy 54, PO Box 260, Luxemburg, WI 54217 USA
Phone: 920-845-2307 • 1-877-SAS-FORK • Fax: 920-845-2309 • Web: www.sasforks.com

4 PORT COLLECTOR ASSY—35103756 (PAGE 31)
SAS™ PINCER™ AUTO PROCESSOR



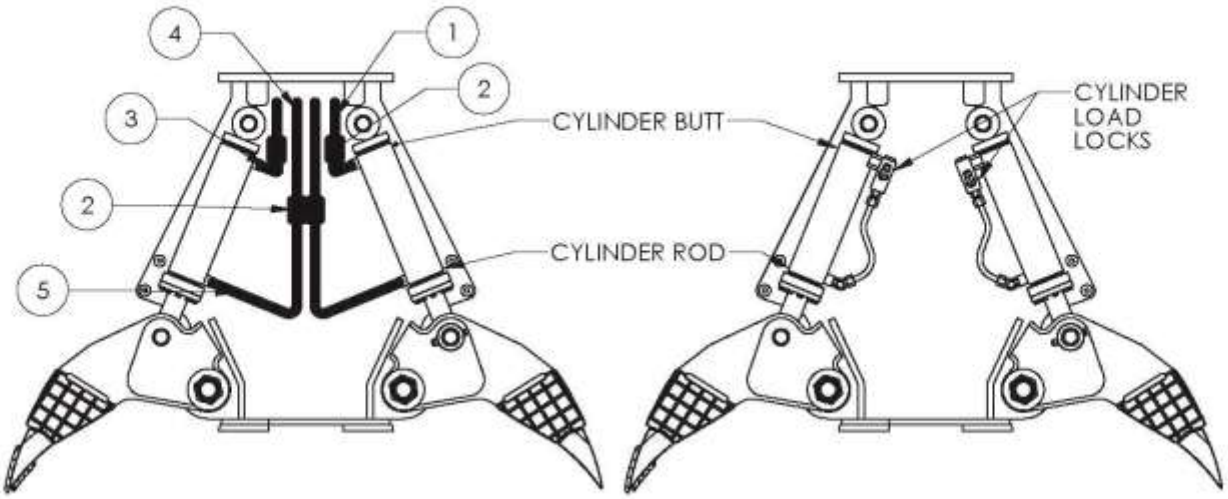
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	22101733	WELDT, 4 PORT COLLECTOR BARREL	1
2	22200021	COLLECTOR SPOOL, 2 PORT	1
*	35103757	SEAL KIT	1

S.A.S. of Luxemburg, LLC. 133 Center Drive Hwy 54, PO Box 260, Luxemburg, WI 54217 USA
Phone: 920-845-2307 • 1-877-SAS-FORK • Fax: 920-845-2309 • Web: www.sasforks.com



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	17100724	BARREL ASSY - 3.50	1
2	17100725	ROD ASSY - 2.50	1
3	17100633	PISTON ASSY 3.50 X 1 .25	1
4	17100726	HEAD ASSY 3.50 X 2.50	1
5	17100526	HH ORING PLUG SAE #8	2
6	17100727	SHCS .38-16UN X 2.00 A574	14
7	17100648	1 .25-12UN LOCK NUT	1
8	17100529	GR FTG STR 1 /8-27NPT	2
9	17100530	WA FL .375 STLHRD F436 ZN PL	14
10	17100522	BUSH 2.014 X 2.256 X 1 .88 BRZ	4
	42100287	SEAL KIT	1

S.A.S. of Luxemburg, LLC. 133 Center Drive Hwy 54, PO Box 260, Luxemburg, WI 54217 USA
Phone: 920-845-2307 • 1-877-SAS-FORK • Fax: 920-845-2309 • Web: www.sasforks.com



NOTE: 1. ALL HOSE/FITTING INFORMATION BASED ON "GATES" BRAND
2. DETERMINE IF YOUR GRAPPLE IS EQUIPPED WITH LOAD LOCK VALVES BEFORE ORDERING HOSES

ITEM	FUNCTION	HOSE TYPE	CYLINDER ROD/BUTT	DESCRIPTION	PART NUMBER
1	GRAPPLE CLOSE	8M5K	BUTT	HA 8M5K-8FJX-8FJX-8	22104146
2	SUPER SWIVEL	N/A	N/A	8MJ-8MJ	22102707
3	GRAPPLE CLOSE	8M5K	BUTT	HA 8M5K-8FJX-8FJX90S-24.63	22104147
4	GRAPPLE OPEN	8M5K	ROD	HA 8M5K-8FJX-8FJX90S-8.75	22104145
5	GRAPPLE OPEN	8M5K	ROD	HA 8M5K-8FJX-8FJX-24	22104144
	GRAPPLE OPEN/CLOSE	8M5K	ROD	8M5K-8FOX90S-8FOX-XX	CALL
	(WITH LOAD LOCKS)	8M5K	BUTT	8M5K-8FOX90S-8FOX-XX	CALL

S.A.S. of Luxemburg, LLC. 133 Center Drive Hwy 54, PO Box 260, Luxemburg, WI 54217 USA
Phone: 920-845-2307 • 1-877-SAS-FORK • Fax: 920-845-2309 • Web: www.sasforks.com

WIRE STRIPPER

DESCRIPTION			PART NUMBER
[A] WIRE STRIPPER			**EP-EXC-WIRE-STRIP-1**
[B] FASTENERS			
BOLTS	Qty 4		WBOLT 0.750X3.00 GR8
NUTS	Qty 4		WNUT 0.750-10-GR8-NY

PATENTED
WIRE STRIPPER
U.S.A. PATENT NUMBER:
9414704

S.A.S. of Luxemburg, LLC. 133 Center Drive Hwy 54, PO Box 260, Luxemburg, WI 54217 USA
Phone: 920-845-2307 • 1-877-SAS-FORK • Fax: 920-845-2309 • Web: www.sasforks.com

LIMITED WARRANTY (PAGE 35)
SAS™ PINCER™ AUTO PROCESSOR

SAFETY
Buyer accepts the responsibility to (1) Ensure that all personnel that will use and/or work in the area of the purchased product will read the safety ID plate and the Operator Manual for machines equipped with SAS FORKS™ and the machine manufacturer's Operators Manual, prior to use; and (2) Ensure that all personnel follow the safety guidelines outlined on these materials.

S.A.S. OF LUXEMBURG, LLC. IS NOT RESPONSIBLE FOR SAFETY IN THE FIELD.

GOALS OF THE S.A.S. OF LUXEMBURG, LTD. LIMITED WARRANTY PROCEDURE
- ASSURE MINIMUM CUSTOMER DOWNTIME by resolving the problem correctly on a timely basis.
- ASSURE END-USER CONFIDENCE while maintaining an equitable warranty expense for both your company and SAS.
- PRODUCT IMPROVEMENT. We have an engineering staff ready to assist you. Call us at 1-877-SAS-FORK (1-877-727-3675) Please call S.A.S. of Luxemburg, LLC. (SAS™) before attempting any repair, modification, or questionable job applications.

LIMITED WARRANTY FOR SAS FORKS™

For products that SAS™ manufactures, SAS™ warrants that such products conform to all specifications for materials and workmanship for the period of time indicated below, after delivery, when used in compliance with the SAS FORKS™ Operator Manual.

PRODUCT	LIMITED WARRANTY PERIOD	ITEM	COVERED
PINCER™	1 year from original ship date	Rotator Head Weldment / Hold Down	Defects in materials & workmanship
PINCER™	1 year from original ship date	Hydraulic cylinders, Hydraulic Rotator Motor Assembly	Defects in materials

No warranty on other products not listed above, unless otherwise specified on the face of the original invoice.
No warranty against abrasion wear, claw chip wear, fork tip damage, blade bending, fusible link, separation, bent fork mounting shafts, hoses, cables, or wires.
No warranty against used equipment. All used excavators, loaders, and other equipment sold "AS IS".
SAS™ does not warranty the products that it does not manufacture. Rather all warranties, if any, for these products are supplied by the manufacture. SELLER EXPRESSLY DISCLAIMS ALL OTHER WARRANTIES, WHETHER EXPRESSED OR IMPLIED, INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

CALL FOR LIMITED WARRANTY CONSIDERATION:
To be considered for warranty repairs or replacement buyer must notify SAS™ of any warranty claim within 10 days after such claim arises, and prior to expiration of the warranty period and prior to the performance of any repairs being done, otherwise buyer waives all rights to such claim.
- Obtain the SAS™ Fork serial number & call SAS™ at 920-845-2198. Clearly describe the problem and the operation that was taking place when it occurred.
- Buyer is to return defective assembly, freight prepaid, or photographic evidence clearly showing the problem area and details of failure to SAS™ for review. When necessary, a factory representative may evaluate the problem in the field.

WHAT SAS WILL DO:
SAS™ will examine the defective product, and the details of the failure. If SAS™ determines that the failure of materials or workmanship was proven to be within the terms of this limited warranty, SAS™ will, at it's option, repair or replace, Freight On Board (FOB) to the factory, in Luxemburg, WI, USA, the defective product. If the product cannot be returned to the factory, SAS™ may approve field repair of defective product. SAS™ will approve an appropriate amount of hours and cost for the repair before authorizing repairs to begin. No provisions will be made for incidental damages, mileage, travel time, overtime, downtime, or special freight charges.

CONDITIONS THAT WILL VOID YOUR LIMITED WARRANTY:
Failures, which in our determination were the result of:
- Improper installation.
- Misapplication - See SAS FORKS™ Operator Manual.
- Misuse or improper operation – See SAS FORKS™ Operator Manual.
- Exceeding the weight and/or lift limitation posted on the Identification Plate attached the SAS FORKS™.
- Negligence or failure to perform routine inspection and/or maintenance as outlined in the SAS FORKS™ Operator Manual.
- Unauthorized modification, welding, burning, grinding, installation of non-factory skid plates, etc. (other than specifically allowed in the SAS FORKS™ Operator Manual or as provided in a written authorization directly from SAS™ Factory Engineers.).
- Continued use after a malfunction of the hydraulic system in the forklift or loader.
- Accidental damage.

LIMITED WARRANTY REMEDIES:
Buyer must notify SAS™ of any warranty claim within 10 days after such claim arises; otherwise buyer waves all rights to such claim, unless agreed otherwise in writing. Buyer's sole remedy for breach of warranty is, at seller's option, the repair of the defect, or the providing of a replacement part FOB to seller's office. **Seller will not be responsible for costs of shipping, travel time, travel expense, dismantling or reassembling the product**. Further, seller will not be liable for any direct, indirect, consequential, incidental, or special damages arising out of a breach of warranty. These remedies are exclusive, and all other warranty remedies are excluded.

PROPRIETARY RIGHTS:
All designs and other proprietary rights provided by SAS™ to Buyer are to remain the property of SAS™, and Buyer shall honor all proprietary legends. Buyer agrees not to copy the design of SAS FORKS™ , SAS™ PINCER™ Auto Processor attachment, or any other SAS™ products or hire a third party to copy.

LIMITATION OF LIABILITY:
The seller's price is based on the enforceability of this limitation of liability, and the buyer understands that the price would be substantially higher without this limitation. Seller shall have no liability to buyer for lost profits or for special, consequential, exemplary, or incidental damages of any kind, whether arising in contract, tort, product-liability, or otherwise, even if advised of the potential damages in advance.
- In no event shall seller be liable to buyer for any damages whatsoever in excess of the contract price.
- In the event that any warranty or warranty remedy fails of its essential purpose, or is held to be invalid or unenforceable for any reason, in consideration of the other provisions of this agreement, the parties understand and agree that all limitations of liability under this provision will nevertheless remain in effect.

SEVERABILITY:
Any legally unenforceable provision may be severed from this agreement, and the remaining terms and conditions will be enforced as a whole.

SALES TERMS:
SAS FORKS™ SALES TERMS document is included as part of this document. See www.sasforks.com/SalesTerms.pdf

Declaration of Conformity for CE Marking
EU Directive 2006/42/EC (Machinery Directive)

We declare that the products listed below conform to the listed provisions of the following Council Directives

Model	Description
Pincer Auto Processor	Hydraulically actuated attachment for excavator used to extract vehicle engines for salvage operations

Conforms to the following directives:

2006/42/EC	Machinery Directive
ISO 10567_2007	Earth Moving Machinery Hydraulic Excavators

Date of CE Marking: October 20, 2014

Technical Construction File is maintained at:

SAS Headquarters
133 Center Drive Hwy 54
Luxemburg, WI 54217 USA

Signed

Adam Lindley, President
S.A.S. of Luxemburg, LLC.
DBA: SAS FORKS
133 Center Drive Hwy 54
Luxemburg WI 54217-0260 U.S.A.

