



**OPERATION/INSTRUCTION MANUAL
AND
GENERAL INFORMATION**



**165 Independence Ct, Lancaster PA 17601
Telephone (717) 397-5100 Fax (717) 291-0877
1-800-23-SOMAT (1-800-237-6628)**



	SAFETY INSTRUCTIONS	
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READ THE MANUAL COMPLETELY BEFORE ATTEMPTING TO OPERATE THE UNIT.

HIGH VOLTAGE! DO NOT PERFORM ANY REPAIRS TO MOTORS OR CONTROL SYSTEMS WITHOUT TURNING OFF THE MAIN POWER.

ALWAYS ***TURN THE MAIN POWER OFF*** AND LET ALL MOTORS COME TO A STANDSTILL BEFORE DOING ANY MAINTENANCE ADJUSTMENTS OR CLEANING OF THE UNIT.

BEFORE STARTING, BE SURE ***ALL PERSONNEL ARE CLEAR*** OF MOVING PARTS.

KNOW LOCATION AND FUNCTIONS OF ALL ***START/STOP BUTTONS*** AND SAFETY SWITCHES.

DURING PERIODIC MAINTENANCE, ***CHECK ALL SAFETY SWITCHES*** TO BE SURE THEY ARE OPERATING PROPERLY.

DO NOT REMOVE OR ALTER GUARDS.

DO NOT REMOVE SAFETY LABELS. IF LABELS ARE MISSING OR DESTROYED, CONTACT FACTORY FOR REPLACEMENT.

DO NOT OBSTRUCT ELECTRICAL PANELS OR PUSH BUTTONS.

GOOD HOUSEKEEPING IS THE MOST IMPORTANT SAFETY PROCEDURE.

IMPORTANT

The Instruction Manual is important to the proper operation and maintenance of your SOMAT[®] System. It should be readily available to those who are responsible for the operation and performance of the SOMAT[®] equipment.

Due to the high cost of preparing replacement manuals, a charge will be made for duplicate manuals beyond those furnished with the original shipment.

For ordering duplicate manuals, please contact:

***SERVICE DEPARTMENT
SOMAT COMPANY
165 Independence Ct. Lancaster, PA 17601
Telephone 717-397-5100, Fax 717-291-0877
1-800-23-SOMAT (1-800-237-6628)
Internet: www.somatcompany.com***



SOMAT COMPANY LIMITED WARRANTY

SOMAT COMPANY warrants each new product manufactured by it to be free from defects in material and workmanship under normal use and service, which does not include normal wear of parts, ("normal use and service", with respect to Pulpers, Presses, water Hydra-Extractors, Waste Handling and Processing Systems, shall mean the handling only of waste items of the types listed in the SOMAT[®] Quotation or Sales Order therefore and within the **LIMITATIONS THEREIN** set forth), its obligation under this warranty being limited to repairing or replacing any part or parts thereof, free of charge **INCLUSIVE** of labor to remove and replace, f.o.b. factory from which shipped, which shall, within one year from initial start-up of the SOMAT[®] System or from date of original installation of the product if not a system, or eighteen months from date of shipment, whichever shall first occur, be returned to SOMAT[®] at the factory from which shipped, with transportation charges prepaid, and which SOMAT's examination shall disclose to its satisfaction to have been thus defective. This warranty shall not apply to any product or part which shall have been repaired or altered by any person not employed or retained by SOMAT[®], so as in the judgment of SOMAT[®] to affect its operation and reliability, nor which has been installed, operated, or maintained contrary to SOMAT[®] OPERATION or PREVENTIVE MAINTENANCE INSTRUCTION MANUALS or to other written instructions or drawings approved by SOMAT[®], nor which has been subject to misuse, negligence, or accident. This warranty shall not apply should the SOMAT[®] System be initially started up without a duly authorized SOMAT[®] representative present.

EXCEPT AS HEREIN EXPRESSLY STATED, NO WARRANTY, EXPRESS, IMPLIED OR BY LAW, (INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE), IS MADE BY SOMAT; AND IN ANY EVENT SOMAT'S LIABILITY, WHETHER IN CONTRACT, TORT, STRICT LIABILITY, OR UNDER ANY WARRANTY, OR OTHERWISE, SHALL NOT EXCEED THE PURCHASE PRICE RECEIVED BY IT AND SHALL IN NO EVENT INCLUDE ANY CONSEQUENTIAL, INCIDENTAL, PUNITIVE OR OTHER SPECIAL DAMAGES.

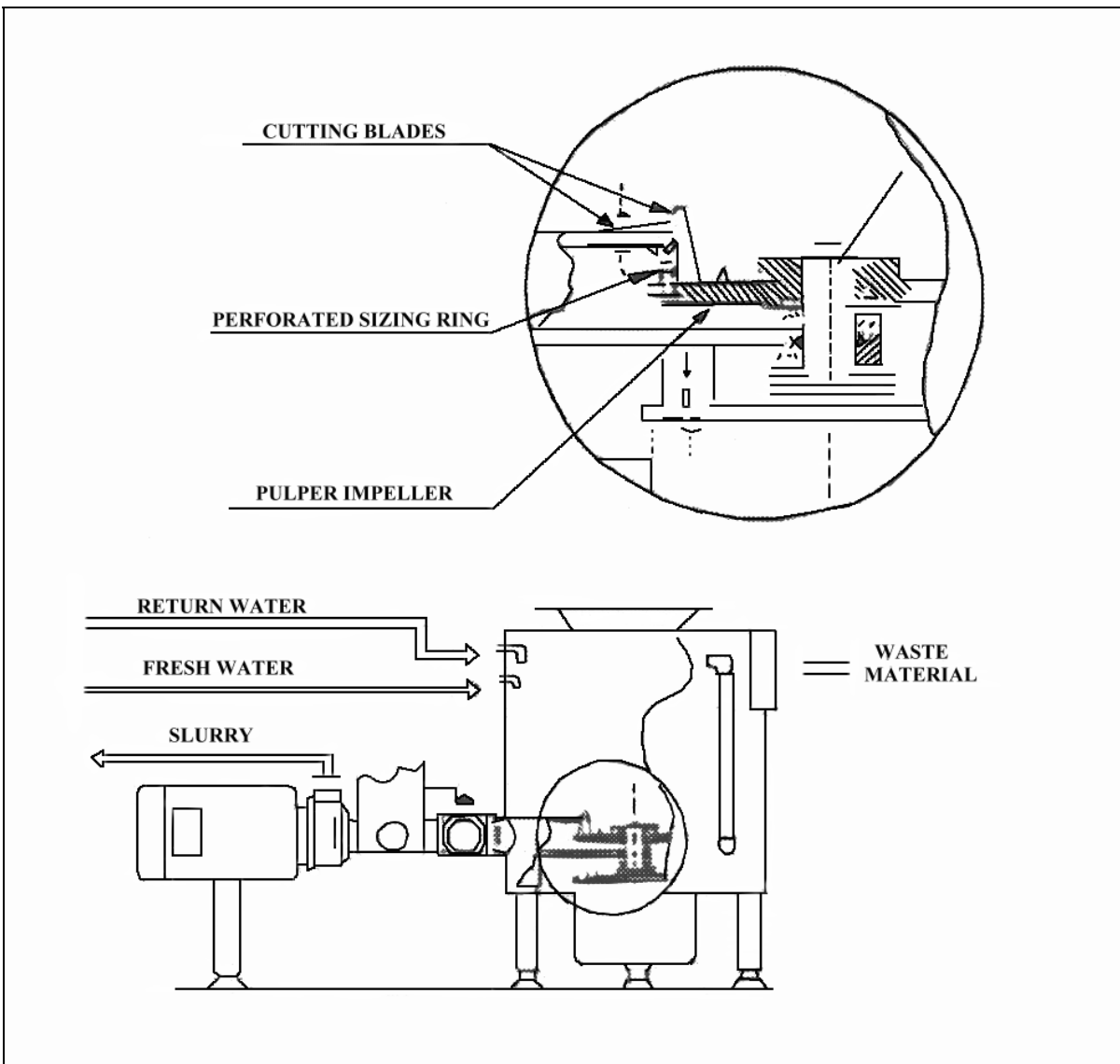
NO CHANGE IN THIS WARRANTY AND LIMITATION OF LIABILITY AND NO SUBSTITUTE THEREFORE (WHETHER INCORPORATED IN A PURCHASE ORDER OR OTHERWISE) SHALL BE EFFECTIVE UNLESS SPECIFICALLY SET FORTH IN A WRITTEN INSTRUMENT SIGNED BY AN OFFICER OF SOMAT[®].

rev. 08/01/00

GENERAL DESCRIPTION

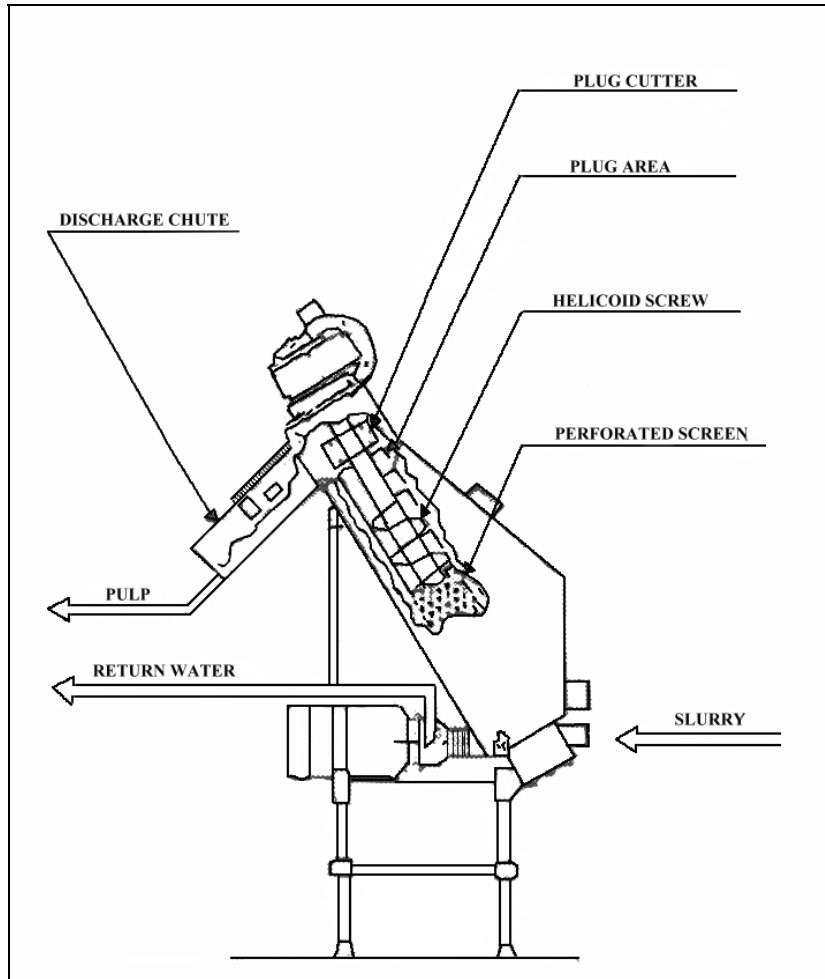
The SOMAT® system prepares solid waste materials for disposal by transforming the materials, with water, into a pulp. This transformation takes place in a unit called a Pulper which is designed to pulp all forms of paper, plastic, foil, and food waste. The waste material is fed manually or automatically to the Pulper. The continual down flow of water and the rotation of the Pulper impeller create a strong vortex action which pulls the waste down against the cutting blades of the impeller. The resultant slurry is then forced through a perforated stainless steel Sizing Ring surrounding the impeller.

Items such as tin cans, silverware, nails, bolts and other non-palpable objects which may be inadvertently fed into the Pulper are separated out of centrifugal force and gravity and are caught in the junk box within the Pulper. This junk box should be emptied manually during cleanup.



TYPICAL PULPER

The SOMAT® System is designed to pump the mixture of macerated solids and water, called a slurry, to the Hydra-Extractor® where the slurry is reduced to a semi-dry pump. Within the Hydra-Extractor®, the slurry is carried by a helicoid screw within a perforated tubular screen. The water passes through the screen and is pumped back to the pulping unit. The solids continue up the helicoid screw to a compression chamber or plug area where additional water is removed by extrusion. The solids in this area are called the plug. This plug is broken up at the Hydra-Extractor® discharge opening by a cutter and the pulp then falls out of the discharge chute. This system is capable of reducing the volume of average non-compacted waste by approximately 80 percent.



TYPICAL HYDRA-EXTRACTOR®

The system is powered by electric motors with the associated controls housed in Som-A-Trols (electric control panels). Since, in the course of operation, some water is absorbed by the pulp, fresh make-up water is supplied to the Pulper automatically through a solenoid valve which responds to a water level sensor.

In addition to the basic system as discussed to this point, numerous additional items of equipment may or may not be required to comprise a specific system. **The inside rear cover of this manual is provided with a pocket which contains Installation Drawings. These drawings show the equipment comprising your system.**

DEFINITIONS – GENERAL

1. Pulper - SOMAT[®] device that contains an impeller and security ring to grind solid waste. The resultant mixture of waste particles and water is called slurry.
2. Hydra-Extractor[®] - Inclined screw-type press for removing transport water from pulp.
3. Slurry - A water solution containing a low percentage of suspended solids.
4. Pulp - Semi-dry solid from which transport water has been extracted.
5. Som-A-Trol[®] - Electrical control panel, including motor starters and sequencing controls for automatic operation of the SOMAT[®] system.
6. Slurry Pump - Specially designed pump used to transport slurry from a SOMAT[®] Pulper to Hydra-Extractor[®].
7. Return Pump - Specially designed pump used to return water from Hydra-Extractor[®] to SOMAT[®] Pulpers.
8. Water Level Control - a pressure-sensitive device that automatically controls the water level in the SOMAT[®] Pulper.
9. Chemical Additive Pump - A proportioning type Additive pump that adds defoaming, deodorizer, and/or buffering solutions to the process water.
- * 10. Pulp Screw Conveyor - Transport screw used for conveying pulp to a point remote from Hydra-Extractor[®].
- * 11. Distributing Type Pulp Screw Conveyor - Transport screw with discharge ports throughout its length for even distribution in large haul-away containers.
- * 12. Water economizing tank. Reservoir for return water used in large systems.

- * Optional equipment which may not be furnished with your Pulping System.

DEFINITIONS – COMPONENTS

SOMAT[®] PULPER:

1. Tank - Pulping or grinding chamber of the SOMAT[®] Pulper.
2. Impeller - Rotating metal plate with Cutting Blades and Tungsten Carbide teeth which defiber and pulp the waste, and along with the Security Ring provides a shearing action for non-fibrous waste.
3. Security Ring - Perforated stainless steel ring surrounding the impeller through which all slurry must pass after waste is pulped. Dimensions of Security Ring holes controls particle size of materials leaving the Pulper.
4. Junk Box - Chamber in bottom of tank that segregates non-pulpable materials from tank.

HYDRA-EXTRACTOR[®]:

1. Screw - Vertical helix which lifts and compresses solids from the slurry and permits water to drain off by gravity.
2. Screen - Mesh screen that surrounds the screw, through which water drains off.
3. Plug - Mass of pulp extending beyond last helix of the screw. The force required to extrude the plug squeezes additional water from pulp.
4. Brush - Nylon brush attached to edge of screw helix which serves to clean the screen.
5. Plug Cutter - Adjustable portion of Hydra-Extractor[®] screw which controls moisture content of the pulp.

GENERAL:

1. Throttling Valve - Full ported valve used to control water flow.
2. Timer - Electrical device used to automatically shut down the SOMAT[®] System at a pre-determined time.
3. Fresh Water Solenoid - Electric valve used to control fresh water make-up to the SOMAT[®] System.
4. Motor Operated Valve - (MOV) Electric valve used to control return water flow in the system.

OPERATING INSTRUCTIONS

TYPICAL STARTUP AND OPERATING PROCEDURE - The following startup procedures must be followed prior to operating the System:

1. Close drain valve on the Pulper.
2. Check to ensure that the main power switch of the SOM-A-TROL[®] panels is in the "ON" position.
3. Unlock the Pulper "**STOP**" button. Turn "**EMPTY-RUN**" Selector Switch to the "**RUN**" position if so equipped. The Pulper will begin to fill with water. When the water has reached the prescribed level, press the Pulper "**START**" button and wait until there is a continuous flow of return water. Then begin feeding waste to the Pulper either manually or by starting waste down the flushed trough, if so equipped.

Waste Feeding Instructions - Best results are obtained if the Pulper is fed waste at a **UNIFORM RATE**. *Under normal conditions, waste may be fed to the Pulper as long as a strong vortex is maintained in the tank. If waste is fed too fast the vortex will diminish to a point where it will no longer pull the material into the impeller for efficient grinding.*

*Do not "starve" the Pulper. If no waste is available for disposal, **TURN THE PULPER OFF**. Don't "slug" the Pulper for short periods of time with excessive feeding. Overloading interferes with the grinding process and takes longer to dispose of a given quantity of waste than if the machine is fed at a **UNIFORM RATE**.*

When shutting down the Pulper for short periods, it is not necessary to run the Pulper until all the waste has been pumped out of the tank. Run the Pulper for a few minutes to thin down the slurry and then shut off the machine.

SHUTDOWN PROCEDURES - The following shutdown procedures must be followed prior to performing necessary cleaning and maintenance duties.

1. Allow the Pulper to operate approximately fifteen minutes after the last waste has been fed.
2. With the Pulper still running, turn the Selector Switch to the "EMPTY" position, if so equipped, permitting the system to be pumped down automatically. The Pulper will stop when the shutdown timer has timed out.
3. Press the "STOP" button and engage the locking attachment. Turn off the electrical power at both the Pulper and Hydra-Extractor[®].
4. Open the drain valve on the Pulper.

5. Refer to the applicable Pulper and Hydra-Extractor[®] maintenance sections of this manual for daily, weekly and long term shutdown cleaning procedures and maintenance instructions.

SPECIAL OPERATING CONDITIONS - While applications vary widely the following conditions could occur and should be watched for:

- A. Overfeeding - The SOMAT[®] Pulper is designed as a continuous process machine. In general, the feed rate should not exceed one tenth of the rated hourly capacity in any six minute period. Exceeding this will cause the machine to bog down and operate under its rated capacity.
- B. Foaming - this is caused by contaminants in the water, or by certain materials in the waste, such as glue in corrugated cardboard. Add a defoamer, such as Somat[®] Neutro Plus, or any of a number of commercial preparations.
- C. Corrosion - If the water and/or the waste is acidic or alkaline, use a buffering agent to neutralize the water. Regular testing is recommended, since rapid corrosion due to acidic or alkaline conditions can result in costly repairs.
- D. Freezing - All equipment and piping should be protected from freezing. Insulation and heating cable are often used where equipment is exposed.
- E. Non-Pulpables - The SOMAT[®] Pulper is designed to handle a limited amount of non- pulpable material. The lighter items are eventually ground and the heavier material is discharged into the junk box. However, the SOMAT[®] Pulper is not designed to handle heavy masonry materials or tramp iron and other materials of this nature. Such items will break away the cutting teeth and seriously reduce the machine's ability to handle material of any kind.

OPERATING INSTRUCTIONS

Occasionally, the amounts of non-pulpables may become excessive and, due to their slower processing rate, create a material build-up in the Pulper tank. Safely stop the Pulper, scoop out the non-pulpable matter, and then re-start the Pulper.

- F. Wear - Moving parts, and their mating surfaces, will wear with service, especially those which are part of cutting mechanisms. Your routine maintenance and inspection, as described in the applicable component sections, will disclose which parts are wearing and provide an indication as to when replacement will be necessary. The maintenance plan should include pre-ordering of spare parts and scheduled replacement.

CLEANING INSTRUCTIONS

After feeding waste to the SOMAT[®] System has been completed for the day, the equipment should be thoroughly cleaned. The cleaning operation requires only a few minutes daily and, if properly done, will keep the machine free of odor and at top-operating efficiency. A regular cleaning program will eliminate costly maintenance and unsatisfactory operation.

CLEANING THE PULPER:

With the system properly shut down, in accordance with the System "Shutdown Procedures", perform the following:



1. Clean the Junk Box of non-pulpable material



2. Wash the interior of the Pulper shell with a hose, suitable brush, detergent and deodorant or other cleaning solution. Exercise particular care in cleaning the underside of the upper shell flange.
3. Wipe down the equipment exterior.
4. Close the drain valve. The Pulper is now ready to be started as soon as the Som-A-Trol[®] panel is turned on.
5. Remove the standpipe by unthreading the vertical 12" nipple from the elbow near the base of the pulper tank. Clean the standpipe and nipple by suitable means. Reinstall the standpipe.

CLEANING THE HYDRA-EXTRACTOR[®]:

1. With high pressure hose, wash down screens and interior walls of Hydra-Extractor[®] housing. If necessary, a long-handled brush can be used.
- B. Long Term Shut Down Procedure** - If the Pulper is to remain idle for a relatively long period (four weeks or more), special procedures should be taken to protect the equipment. These procedures are as follows:

1. Perform the daily cleaning procedure, then circulate a solution of a cleaning and disinfecting agent through the lines to combat bacteria growth and odor.
2. Remove the impeller from the Pulper, (refer to Pulper Maintenance Section). Do not remove the mechanical seal. Using a hose and brush, thoroughly clean the mechanical seal, slurry chamber, and the underside of the impeller.

CLEANING COMPOUNDS

The ideal cleaning compounds available for use with SOMAT[®] equipment, combine four important functions: detergency, disinfection, pH buffering and odor counter action.

In order to help our customers overcome the problem of selecting chemicals for use with their SOMAT[®] System, we offer the chemicals that we believe will best meet their needs.

We offer:

SOMAT[®] NEUTRO PLUS (72000)

Designed for use in the SOMAT[®] System to keep it clean, to deodorize, and to reduce grease build-up. This is an industrial strength product. The surfactants in this detergent/deodorant are bio-degradable.

SOMAT[®] DEFOAMER (73000)

A neutral, liquid silicone emulsion specifically designed for suppressing and controlling undesirable foam. This is an industrial strength product. The surfactants in this defoamer are bio-degradable.

Dilution: Five (5) parts water to one (1) part defoamer.

Please direct all orders, whether by mail or by phone, to our SERVICE DEPARTMENT. If you have any questions, please feel free to contact us at this office.

CAUTION – CORROSION

In isolated cases, depending on local water supply characteristics and operating conditions, the mild steel components in the SOMAT[®] System can be subject to corrosion.

This condition is generally associated with food service machines. Corrosion may occur in steel piping, pulping tanks, fittings, and pump parts. Corrosion works very rapidly and the pitting of metal parts can cause early failure, requiring extensive repairs.

Acid corrosion is caused by low pH level in the system water, but it can be easily controlled by the addition of commercial grade soda ash. Soda ash is readily available and costs only a few cents a pound in bulk lots.

Alkaline Corrosion is caused by high pH level in the system water. While damages done by this condition does not occur as quickly as that of Acid corrosion, neutralizing agents should be added to the system to help eliminate potential corrosion problems. The proper pH level of the system water should be maintained at a minimum of 7.0 and not over 8.5. The pH level can be determined by a simple test using litmus paper indicators.

GENERAL TEST AND TREATMENT PROCEDURE

1. After the system is in operation under normal load conditions, dip litmus test paper in grinder slurry (or return water from Hydra-Extractor[®] and determine whether the liquid is acid or alkaline.
2. Neutral water is neither acidic nor alkaline and will have a pH of 7.0. An acid liquid will have a pH of less than 7.0, as is indicated by the color change of the litmus paper.
3. If the liquid is neutral (a pH of 7.0) no treatment is required.

NOTE: SOMAT Company cannot be responsible for failure due to corrosion resulting from improper water conditions.

ILLUSTRATED PARTS BREAKDOWN

PURPOSE:

The Illustrated Parts Breakdown in each section provides information on components, assemblies and detail parts for identification, determination of needed replacement parts and an illustration of assembly and disassembly relationships.

GROUP ASSEMBLY PARTS LIST:

The Group Assembly Parts List consists of those components, assemblies and detail parts which comprise the specific piece of equipment. Each assembly listed is followed immediately by its detail parts, properly indented thereunder to show their relationship to the assembly; for example, a part listed under indenture "2" is a component of the assembly listed under indenture "1" immediately above it. Items used to attach parts or assemblies to each other designated "(ATTACHING PARTS)" and are listed immediately following the item or items they attach: The symbol ---*--- denotes the end of attaching parts. The quantity required or "REQ" column lists the quantity of the item required in one assembly of which it is a component. It is, therefore, not necessarily the total quantity of the part required in the complete equipment. Items indicated by an asterisk (*) in the "REQ" column *are recommended spare parts to be kept on hand by the customer*. The term "Ref", if required, denotes that the assembly has been previously listed in the breakdown and at that point reflected the quantity required. The 5-digit numbers shown in parenthesis (00000) are SOMAT[®] part numbers and *should be used when ordering parts*.

PARTS ORDERING INFORMATION:

Include the following information when ordering parts.

1. The correct, complete description of the part required
(see Group Assembly Parts List.)
2. The serial number of the unit on which the part is to be used.
3. Complete shipping instructions.

The above information will help expedite the delivery of your needed parts.
When ordering spare or replacement parts, direct the above information to:

**SERVICE DEPARTMENT
SOMAT COMPANY
555 Fox Chase, Suite 107, Coatesville, PA 19320
Telephone (610) 384-7000 * Fax (610) 380-8500
1-800-23-SOMAT (1-800-237-6628)**



SP-50AS PULPER DESCRIPTION

GENERAL - The SOMAT® Pulper:

The main body of the Pulper is composed of the shell weldment and the slurry chamber, Figure 1 (A). A drive motor (B) is mounted to the underside of the slurry chamber weldment. The drive shaft is fitted with a mechanical seal (C) that prevents slurry liquid from leaking into the drive motor. Above the mechanical seal an impeller assembly (D) is keyed to the drive shaft. The impeller is surrounded by a perforated stainless steel sizing ring (E). This ring controls the particle size of the solids entering the slurry chamber. A stainless steel junk box (F) is located inside the Pulper shell. The entire Pulper assembly is supported by stainless steel legs (G) with threaded adjustable feet.

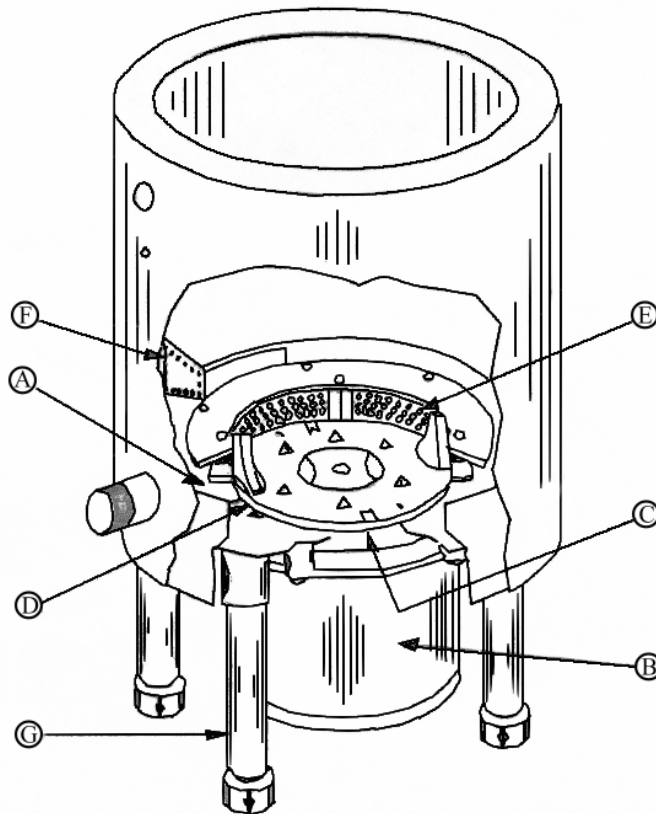


FIGURE 1. TYPICAL PULPER GENERAL ARRANGEMENT

PERIODIC MAINTENANCE AND INSPECTION

These procedures consist primarily of regularly scheduled cleaning and inspections. The time intervals cited are based on normal use of the SOMAT® unit; approximately **six hours per day**, seven days per week. Equipment operating more than this or in severe service will require more frequent inspection/maintenance.

Particular attention should be paid to cutting blades and grinding teeth as these will sustain the highest degree of wear. Continued adherence to these inspections will provide adequate lead time when ordering spare parts, thereby minimizing unnecessary and costly equipment downtime.

PREVENTIVE MAINTENANCE INSPECTION SCHEDULE

	DAILY	WEEKLY	MONTHLY	QUARTERLY
1. GENERAL				
a. Check shell and slurry chamber for wear.			X	
b. Check exterior finish for corrosion.			X	
c. Check airline for leaks and clogs.		X		
d. Check standpipe for leaks and clogs.		X		
2. IMPELLERS				
a. Check impeller blades for wear.		X		
b. Check stationary blades for wear.		X		
c. Check impeller teeth for wear.		X		
d. Check security ring for wear.		X		
3. DRIVE				
a. Check seal for leakage.	X			
b. Check bearings for noise and wear.				X

TROUBLE SHOOTING AND ANALYSIS

The following table provides probable causes and appropriate corrective action relative to system malfunctions.

SYMPTOM	POSSIBLE CAUSE	CORRECTIVE ACTION
<p>Not enough water in Pulper.</p>	<ol style="list-style-type: none"> 1. Water make up shut-off valve closed. 2. Obstructed air line from air pump to Pulper shell (pinched, kinked or blocked). 3. Misadjusted pressure switch. 4. Faulty operation of solenoid valve (see equipment schematic for location). 5. Plugged Strainer (see equipment schematic for location). 	<ol style="list-style-type: none"> 1. Open valve. 2. Straighten the line to remove kinks, bends or pinches. Blow high pressure air or water through the line from pump end to rid the obstruction or replace with new line. Clean the standpipe (see section 5) of internal buildup. 3. The pressure switch controls the circuit to the solenoid valve. Too low a pressure setting would tend to hold the solenoid valve closed too long preventing water from entering the Pulper. Adjust the pressure switch to correct the problem. 4. Check for loose electrical connections. If the valve plunger is stuck or the coil is burned out, replace with a new valve. 5. Remove strainer from fresh water line. Clean housing interior and clean strainer element with a stiff bristled brush and replace.

SYMPTOM	POSSIBLE CAUSE	CORRECTIVE ACTION
<p>Too much water in Pulper.</p>	<ol style="list-style-type: none"> 1. Leakage from air line. 2. Misadjusted pressure switch. 3. Faulty operation at valve. (see equipment schematic for location.) 4. Air pump failure. 5. Overflow fitting and line clogged. 	<ol style="list-style-type: none"> 1. Tighten air line connections. Check for leakage through splits or cuts in the line; if present, replace the line. 2. The pressure switch controls the circuit to the solenoid valve. Too high a pressure setting would tend to hold the solenoid valve open too long letting too much water into the Pulper. Adjust the pressure switch to correct the problem. 3. Repair or replace solenoid valve. 4. If pump fails there is no back pressure on the switch contacts that hold the solenoid open. Replace pump. 5. Clean fitting and line.

SYMPTOM	POSSIBLE CAUSE	CORRECTIVE ACTION
<p>Pulper operates but pulping rate is low.</p>	<ol style="list-style-type: none"> 1. Plugging of sizing ring. 2. Worn or missing impeller blades. 3. Worn or missing stationary blades. 4. Excessive foaming. 5. Sluggish vortex due to: <ol style="list-style-type: none"> a. Too little water in Pulper. b. Overload of waste. 6. Clogged or worn pump. 7. Clogged slurry lines. 	<ol style="list-style-type: none"> 1. Check stationary blades and ears. If dull, replace. Refer to Pulper maintenance section. Check water level control - it may be adjusted too low. See previous section. 2. Refer to Pulper maintenance section for replacement procedure. 3. Adjust or replace blades in accordance with Pulper maintenance section of manual. 4. Add a defoamer or any other suitable commercial preparation. (See Section 5.) 5. (See below) <ol style="list-style-type: none"> a. See Previous section. b. Revise waste feeding rate (see Feeding Instructions, Section 4). 6. See pump section for require corrective action. 7. Check individual cleanouts for loss of pressure to locate blockage. Remove blockage.

SYMPTOM	POSSIBLE CAUSE	CORRECTIVE ACTION
<p>Pulper stops frequently.</p>	<ol style="list-style-type: none"> 1. Overloaded by feeding. 2. Rotation of impeller restricted by buildup of foreign material around circumference or underneath of impeller. 3. Incorrect or defective fuses or thermal overloads. 	<ol style="list-style-type: none"> 1. Revise the waste feeding rate; see Waste Feeding Instructions, Section 4. 2. Inspect cutter blades and impeller for breakage. Follow repair and replacement instructions as specified in The Pulper Maintenance Section. If necessary, remove impeller in accordance with Component Removal and Replacement in the Pulper Maintenance Section. Thoroughly clean away debris from the impeller and sizing ring. 3. Check electrical wiring diagram (supplied with the system equipment) for proper amperage requirements. Replace incorrect or defective parts as specified.

SYMPTOM	POSSIBLE CAUSE	CORRECTIVE ACTION
Hydra-Extractor [®] stops frequently.	<ol style="list-style-type: none"> 1. Worn Screw. 2. Pulp is too dry. 	<ol style="list-style-type: none"> 1. Replace screw. 2. See Hydra-Extractor[®] Maintenance Section for action required.
Heavy flow from overflow pipe.	<ol style="list-style-type: none"> 1. Excessive foaming 2. Blockage of return line. 3. Improper Return water flow. 	<ol style="list-style-type: none"> 1. Add a defoamer. (See Section 5) 2. Check individual cleanouts to locate blockage. Locate blockage. Remove blockage. 3. Readjust throttling valves.
Excessively wet pulp discharge from Hydra-Extractor [®] .	<ol style="list-style-type: none"> 1. Blockage of screen. 2. Adjustment of Hydra-Extractor[®] plug cutter required. 3. Worn screw and brush. 	<ol style="list-style-type: none"> 1. Clean the Hydra-Extractor[®] screen. Refer to Hydra-Extractor[®] Maintenance Section of the manual. 2. See Hydra-Extractor[®] Maintenance Section for action required. 3. Send worn screw back to SOMAT Company for repair. Remove screw and replace. Refer to Hydra-Extractor[®] Maintenance Section of this manual.

COMPONENT REMOVAL AND REPLACEMENT - The following steps are required in the removal and replacement of major components, assemblies, or piece parts necessary for corrective action.



CUTTING MECHANISM REMOVAL - See the Cutting Mechanism Section of this manual.

DRIVE MOTOR REMOVAL -

- After turning the circuit breaker off, remove cover on drive motor junction box and disconnect motor leads.
- Remove conduit from motor junction box.
- Remove the drive motor (4) from the slurry chamber assembly by removing four machine screws (5 & 6).

MECHANICAL SEAL REMOVAL -

- Remove spring and upper seal ring prior to removing motor.
- With motor removed push upward on Ni-Resist Seal until it can be removed.

MECHANICAL SEAL INSTALLATION -

- Clean the seal cavity and moisten the o-ring of the Ni-Resist Seal with oil.
- Tap the Ni-Resist Seal in the cavity with seal installation tool (part number 89711). The unpolished side of the seal (marked with an X) must face down.
- Lubricate the upper seal ring and slip it over the drive shaft.
- Slide the retainer spring onto the shaft.

SEE CUTTING
MECHANISM
MANUAL SECTION

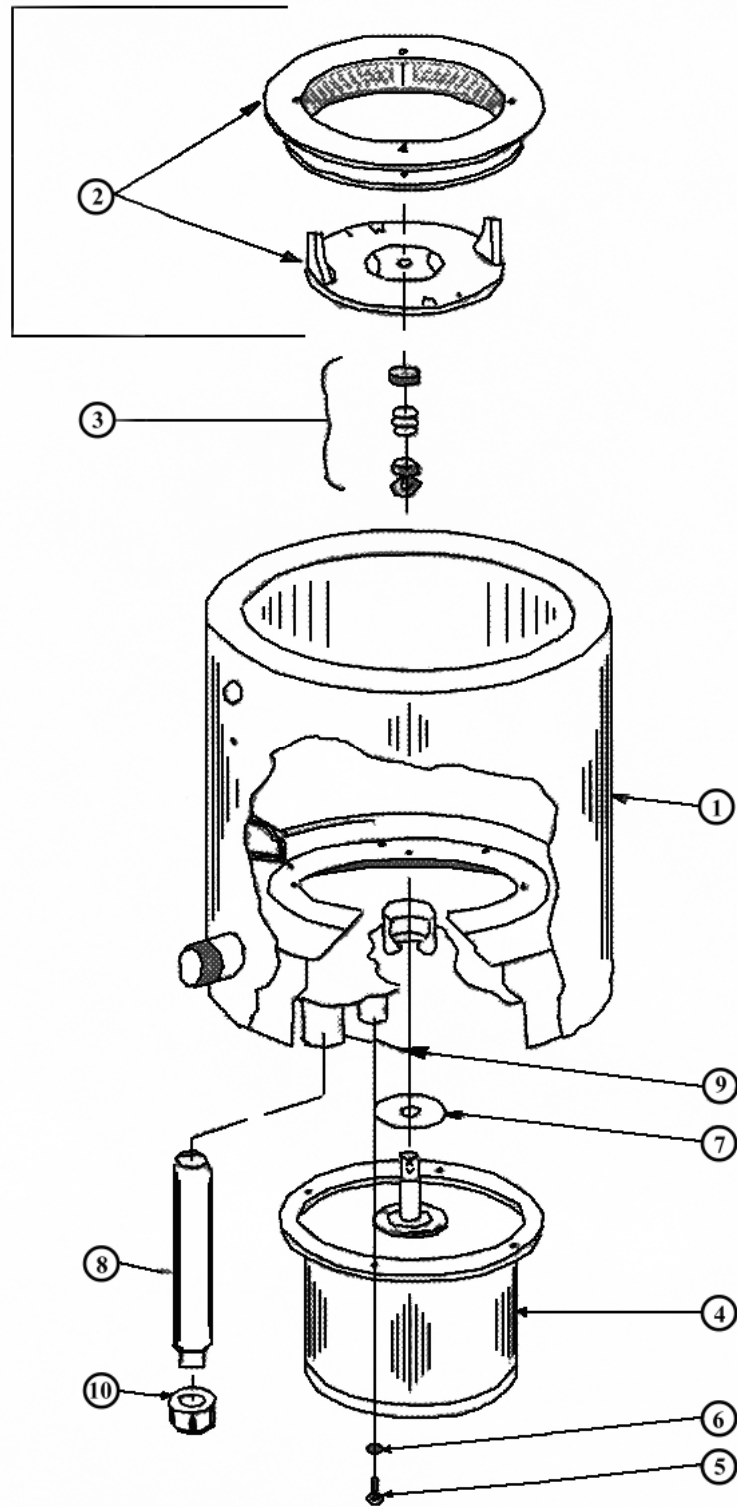


FIGURE 2. SP-50AS PULPER, EXPLODED VIEW

**FIG. &
ITEM
REQ.**

DESCRIPTION

2-	<i>PULPER ASSEMBLY MODEL SP-50AS</i>	
-1	SHELL AND SLURRY CHAMBER	1
	---*---	
-2	CUTTING MECHANISM: <u>SEE CUTTING MECHANISM SECTION</u>	1
	---*---	
-3	SEAL, Mechanical Ni-Resist (54311)	1*
-4	MOTOR, 5HP, ODP (41679), TEFC (41680) (ATTACHING PARTS)	1
-5	SCREW, Hex Hd., 7/16-14 X 1" Lg., Cad. Pl.	4
-6	LOCK WASHER, 7/16 I.D., Split Type, Cad. Pl.	4
	---*---	
-7	FLINGER, Drive Motor (32450)	1
-8	LEG, Adjustable (39706) (ATTACHING PARTS)	4
-9	SET SCREW, Socket, 1/4"-20 X 3/8" Lg., Cad. Pl.	6
-10	VIBRATION ISOLATOR, Rubber (16200)	4
	ITEMS NOT SHOWN:	
	HIGH TANK ONLY	
	Lid Latch (35202-1)	2
	Lid Handle (35220)	1
	Lid Gasket (53410)	1
	Lid Stop (84770)	1
	Limit Switch, Magnetic Prox (54999-1)	1*
	Hi Energy Magnet (55007)	1*
	UDT ONLY	
	UDT Lid (84769)	1
	UDT Gasket (33900)	1
	UDT Cone (57320)	1
	Limit Switch, Magnetic Prox. (59942)	1*
	Pipe Cap, Square, 1/2" NPT, 316 S/S (20469)	1
	Nipple, 1/2" NPT x 4" lg., 316 S/S (43041)	1
	Elbow, 1/2" NPT, 316 S/S (26850-1)	1
	TRAY ONLY	
	Curtain (23011)	1
	Tray Gasket (33915)	1
	TROUGH ONLY	
	Trough Gasket (82781)	1
	OPTIONAL ITEMS:	
	Dam (81880)	1
	SPECIAL TOOLS:	
	Impeller Puller (84150)	1
	Seal Installation Tool (89711)	1
	* Recommended Spare Parts	

**COMPONENT LIST
& ITEM NO'S.**

	DESCRIPTION	REQ.
3-	<i>PIPING COMPONENTS FOR SP-50AS PULPER</i>	
	SP-50AS FRESH WATER ASSEMBLY	
-1A	Gate Valve, 1/2" (64803)	1
-2A	Backflow Preventor, 1/2" (11310)	1*
-3A	Shock Arrestor, 1/2" (11303)	1
-4A	Solenoid Valve, 1/2" (64710-2)	1*
	SP-50AS DRAIN ASSEMBLY	
-5A	Drain Valve, 2" (64840)	1
	SP-50AS SLURRY ASSEMBLY	
-6A	Check Valve, 2" (64870)	1
-7A	Flex Connector, 2" (22237)	1
	SP-50AS RETURN WATER ASSEMBLY	
-8A	Gate Valve, 1-1/2" (64825)	1
-9A	Gate Valve, 1" (64805)	1
-10A	Motor Operated Valve, 1-1/2" (64735-4)	1
-11A	Flex Connector, 2" (22237)	1
	SPC-50AS FRESH WATER ASSEMBLY	
-1B	Gate Valve, 1/2" (64803)	1
-2B	Backflow Preventor, 1/2" (11310)	1
-3B	Shock Arrestor, 1/2" (11303)	1
-4B	Solenoid Valve, 1/2" (64710-2)	1*
	SPC-50AS DRAIN ASSEMBLY	
-5B	Drain Valve, 2" (64840)	1
	SPC-50AS RETURN WATER ASSEMBLY	
-6B	Gate Valve, 1" (64805)	1
	SPC-50AS OVERFLOW	
-7B	Bushing, 1-1/2" X 1" (51650)	1
-8B	Bushing, 1" X 3/4" (51645)	1



HY POINT CUTTING MECHANISM

DESCRIPTION

GENERAL - The SOMAT® Hy Point Cutting Mechanism:

The Hy Point Cutting Mechanism consists of a security ring (A) with stationary cutter blocks (B), and an impeller assembly (C), with replaceable cutter ears (D). The SOMAT® Hy Point Cutting Mechanism has been designed to out perform all other cutting mechanisms to date, and is especially efficient at processing large quantities of disposable items (plastics, paper, foil packs, cardboard).

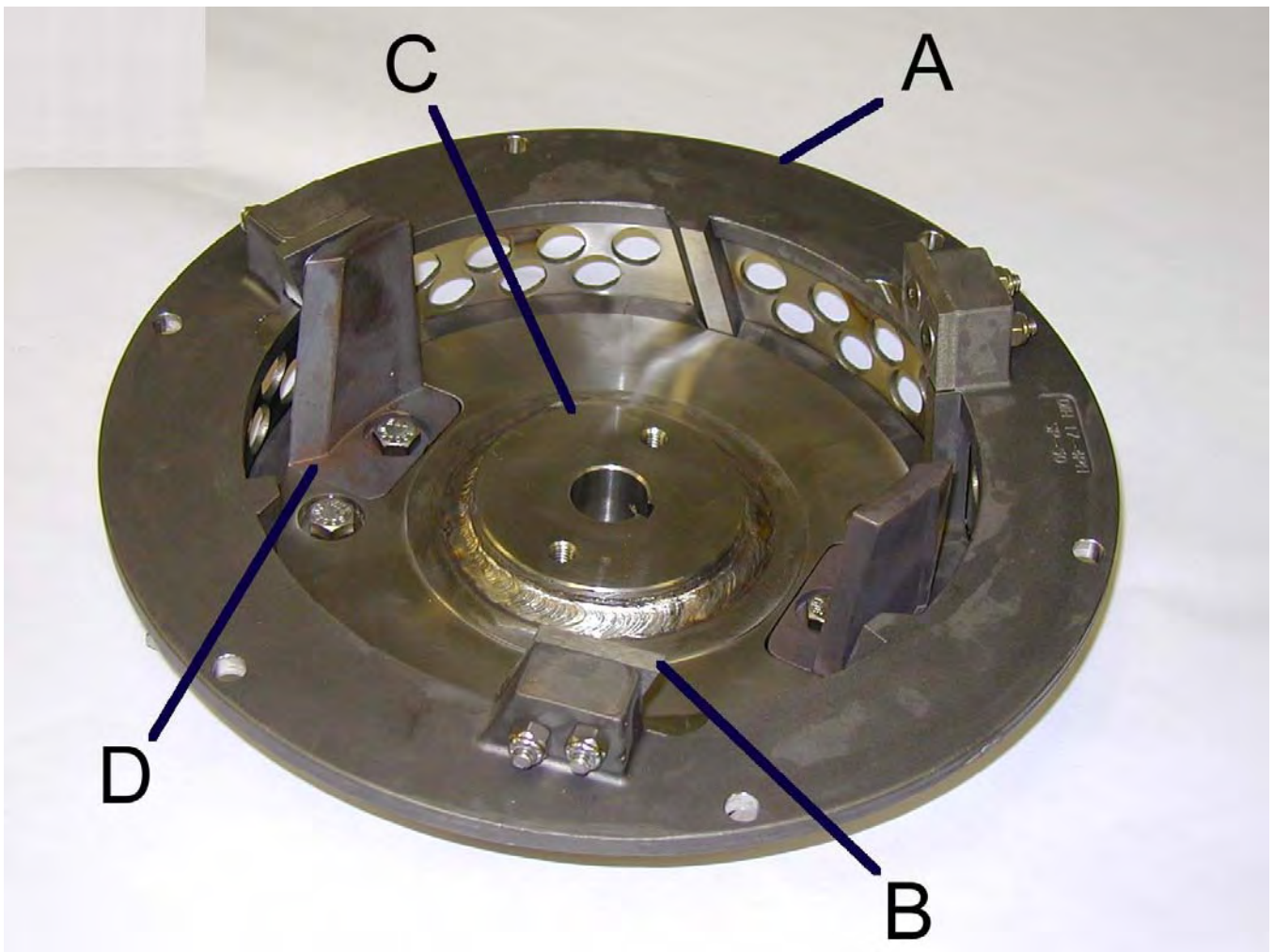


FIGURE 1. HY POINT CUTTING MECHANISM

PERIODIC MAINTENANCE AND INSPECTION - These procedures consist primarily of regularly scheduled cleaning and inspections. The time intervals cited are based on normal use of the SOMAT® unit: approximately six hours per day, seven days per week. Equipment operating more than this or in severe service will require more frequent inspection/maintenance.

Continued adherence to these inspections will provide adequate lead time when ordering spare parts, thereby minimizing unnecessary and costly down-time.

INSPECTION CHART

	DAILY	WEEKLY	MONTHLY	QUARTERLY
1. GENERAL (Overhaul yearly)				
a. Check cutting mechanism for nonpulpable object impact damage.	X			
b. Check bolts for tightness.			X	
c. Check stationary cutter block to impeller cutter ear clearance.			X	

TROUBLESHOOTING AND ANALYSIS - Common cutting mechanism malfunctions, probable causes and corrective actions are as follows:

SYMPTOM	POSSIBLE CAUSE	CORRECTIVE ACTION
Decreased pulping rate or excessive unpulped material left in Pulper tank after shut down.	Dull stationary cutter block or impeller cutter ear, or excessive clearance between the two.	Replace the dull stationary cutter block and impeller cutter ear and/or shim the impeller cutter ear so that the proper clearance is maintained.
Impeller jams when Pulper is stopped and will not restart.	The clearance between the security ring and the impeller assembly is excessive.	Replacement of the impeller assembly and/or the security ring is required.
Slight clicking sound when machine is operating.	Impeller cutter ear may be loose.	Tighten the hex head bolts that hold the impeller cutter ear. Use Loctite red.

COMPONENT REMOVAL AND REPLACEMENT - The following steps are required in the removal and replacement of major components, assemblies, or piece parts necessary for corrective action. **NOTE: Loctite #271 must be used during re-assembly on all hardware of the cutting mechanism assembly.**



SECURITY RING REMOVAL -

- Remove mounting nuts and lift Security Ring Assembly (8) out of machine.

REPLACEMENT OF SECURITY RING STATIONARY CUTTER BLOCK -

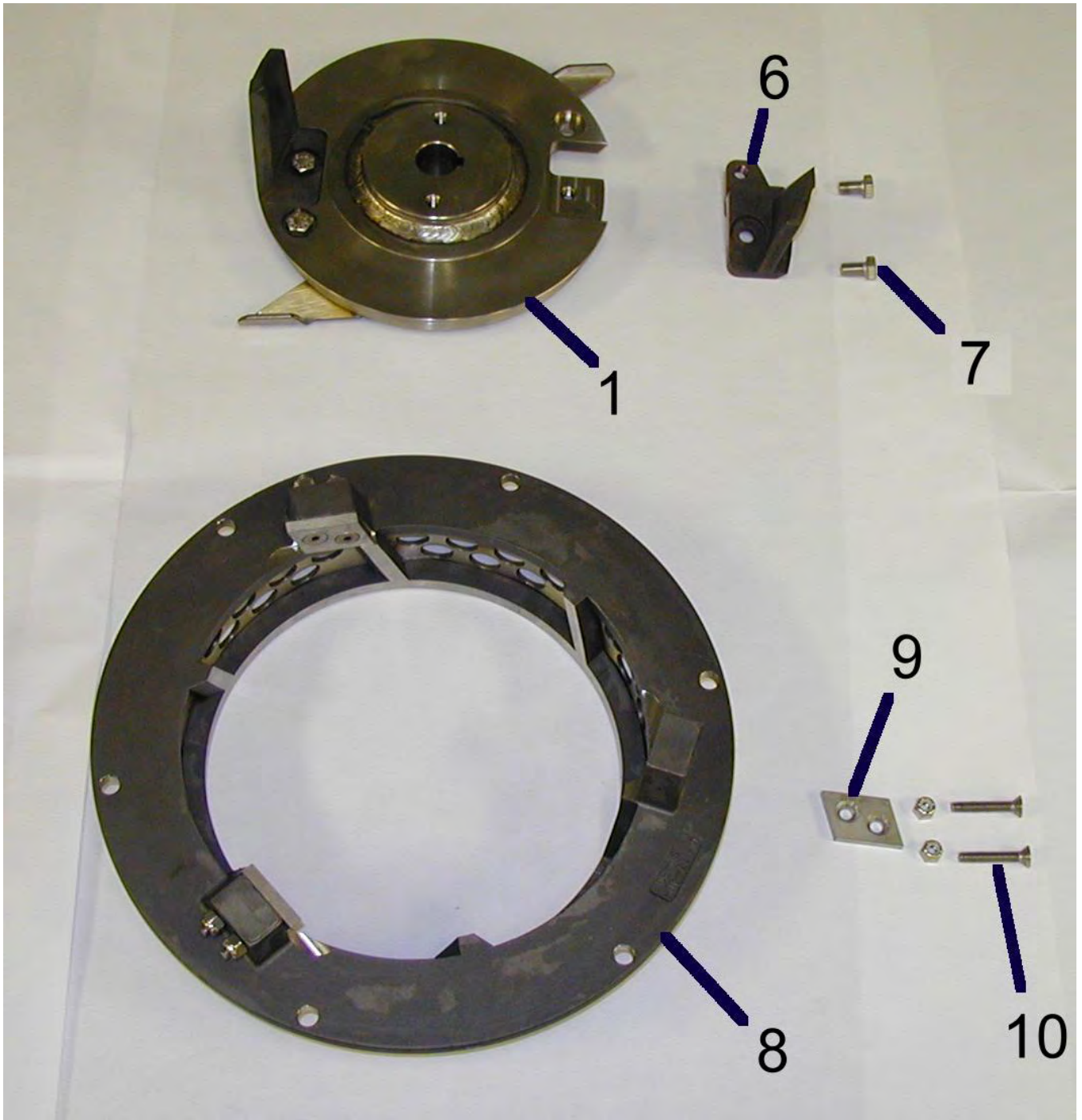
- Remove stationary cutter block mounting screws (10) and replace stationary cutter block (9). Shim if needed to a clearance of 0.005" to 0.010".

IMPELLER REMOVAL -

- Remove impeller hold down bolt (2) and carefully remove the impeller assembly (1) from the motor drive shaft with an impeller puller (Somat® P/N 84150). Remove key (5) from shaft.

IMPELLER CUTTER EAR REPLACEMENT -

- Remove two screws (7) that hold impeller cutter ear (6) to impeller (1).
NOTE: Screws may be loosened by gently heating with a propane torch.



HY POINT CUTTING MECHANISM EXPLODED VIEW

ITEM #	DESCRIPTION	QTY.
<i>HY POINT CUTTING MECHANISM</i>		
-1	Impeller (85555 for SP-50AS; 85576 for SP-75S) (ATTACHING PARTS)	1
-2	Screw, Hex Head, 3/8"-16 X 3/4" Lg., S/S, (not shown)	1
-3	Washer, Lock, 3/8" Split, S/S (not shown)	1
-4	Washer, Flat, 3/8" Special, S/S (89201) (not shown)	1
-5	Key, 1/4" X 1/4" X 1" (not shown) ---*---	1
-6	Impeller Cutter Ear (24950 for SP-50AS; 24975 for SP-75S) (ATTACHING PARTS)	2*
-7	Screw, Hex Head, 3/8"-16 X 5/8" Lg., S/S ---*---	4*
-8	Security Ring (87067 for SP-50AS; 87075 for SP-75S)	1
-9	Stationary Cutter Block (with shim stock) (80988)	3 (SP-50AS)*
	(ATTACHING PARTS)	4 (SP-75S)*
-10	Screw, Flat Head-Socket Head, 1/4"-20 X 1-1/2" Lg., S/S w/Nyloc nut ---*---	6 (SP-50AS)*
		8 (SP-75S)*

*Recommended Spare Parts



HYDRA-EXTRACTOR[®] HE-6S-3

DESCRIPTION

GENERAL - The SOMAT Hydra-Extractor[®]:

The shell weldment, Figure 1 (Item A) serves as the basic structure of the Hydra-Extractor[®]. An access cover (Item B) is provided for cleaning and inspection. The head assembly (Item C) is secured to the top of the shell. The screw assembly (Item D) is supported by a bushing and pin at the bottom of the shell, and by a bearing in the head assembly. The screw is surrounded by a perforated screen (Item E) which permits water to drain as pulp is conveyed upwards. A plug cutter (Item F) is located on the upper end of the screw assembly. The screw is driven by a TEFC motor (Item H) and speed reducer (Item G). The complete Hydra-Extractor[®] and return pump (Item J) are supported on a stand (Item I).

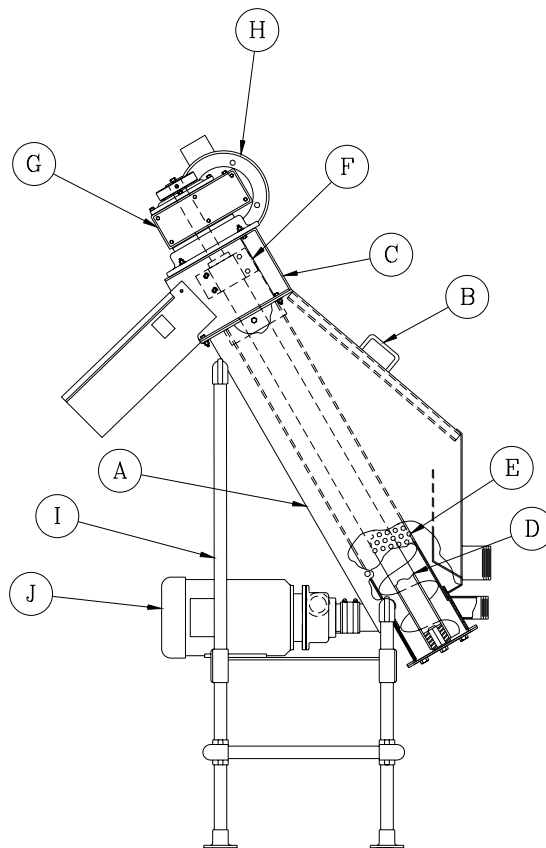


FIGURE 1. HYDRA-EXTRACTOR[®] GENERAL ARRANGEMENT

MAINTENANCE

PERIODIC MAINTENANCE AND INSPECTION - These procedures consist primarily of regularly scheduled cleaning and inspections. The time intervals cited are based on normal use of the SOMAT[®] unit: approximately **six hours per day**, seven days per week. Equipment operating more than this or in severe service will require more frequent inspection/maintenance.

Continued adherence to these inspections will provide adequate lead time when ordering spare parts, thereby minimizing unnecessary and costly down-time.

LUBRICATION CHART

UNIT	FREQUENCY	TYPE OF FITTING	LUBRICANT
Hydra-Extractor [®] Speed Reducer.	6 months to 1 year	Oil fill plug	Amer. Worm Gear Oil (Amoco) Gear Oil 629 (Mobil)
Hydra-Extractor [®] top bearing	Once per month	Zerk fitting	Water repellent grease

INSPECTION CHART

	DAILY	WEEKLY	MONTHLY	QUARTERLY
1. GENERAL (Overhaul yearly)				
a. Check exterior finish for corrosion.				X
2. EXTRACTING UNIT				
a. Check screw and brush for wear.				X
b. Check screen for wear.				X
3. DRIVE				
a. Check reducer for noise and leakage.				X
b. Check bearing and screw shaft for wear.				X

TROUBLESHOOTING AND ANALYSIS - Common Hydra-Extractor[®] malfunctions, probable causes and corrective actions are as follows:

SYMPTOM	POSSIBLE CAUSE	CORRECTIVE ACTION
<p>Hydra-Extractor[®] stops frequently</p>	<ol style="list-style-type: none"> 1. Worn screw. 2. Overloading due to pulp being too dry. 3. Incorrect or defective thermal overloads & fuses. 	<ol style="list-style-type: none"> 1. Replace screw. 2. Check with ammeter, <u>raise</u> plug cutter until drive motor runs within 10% of rated amp load under normal operating condition. (See sketch). <div data-bbox="954 537 1318 856" style="text-align: center;"> </div> <ol style="list-style-type: none"> 3. Check electrical wiring diagram for proper amperage requirements. Replace incorrect or defective parts as required.
<p>Excessively wet pulp discharge from Hydra-Extractor[®]</p>	<ol style="list-style-type: none"> 1. Clogged screen 2. Adjustable plug cutter too high. 	<ol style="list-style-type: none"> 1. <ol style="list-style-type: none"> a. Clean exterior of screen thoroughly. b. If problem persists, check brush on screw for wear. Replace screw if required. 2. <u>Lower</u> plug cutter. Check with ammeter as described in section above.

COMPONENT REMOVAL AND REPLACEMENT - The following steps are required in the removal and replacement of major components, assemblies, or piece parts necessary for corrective action.



DRIVE MOTOR REMOVAL -

- After turning the circuit breaker off, remove cover on drive motor junction box and disconnect motor leads.
- Remove conduit from motor junction box.
- Remove the drive motor (1) from the head assembly by removing four machine screws (3 & 4).

SPEED REDUCER REMOVAL -

- Remove bolt, (6 & 7) and four machine screws (8, 9, & 10,).
- Loosen four setscrews in collar of reducer (5) to free it from the screw shaft (19).
- Access to the bottom two set screws can be gained by turning the reducer until the setscrews line up with the openings in the side of the reducer. The reducer can now be lifted off the screw shaft.

SCREEN AND SCREW REMOVAL -

- After removing four machine screws (12, 13, & 14), from head assembly (11), lift head with screen (15) and screw assembly (19) attached, from the Hydra-Extractor[®] shell (27).
- By removing a machine screw (23, 24, & 25) the plug cutter (22) can be removed from the screw assembly.
- Remove the screw assembly from the screen assembly by pulling the screw assembly through the bottom opening of the screen, while turning bottom of screw counter-clockwise with a pipe wrench.
- After removing the screw assembly, remove two button head machine screws (16, 17, & 18) from the screen and slip the screen from the head assembly.

BOTTOM PIN REMOVAL -

- Remove six machine screws (37, 38 & 39)
- The bottom pin plate (34) with bottom pin (32) attached can now be removed.
- Remove screw (35, & 36). The bottom pin can now be separated from the bottom pin plate.

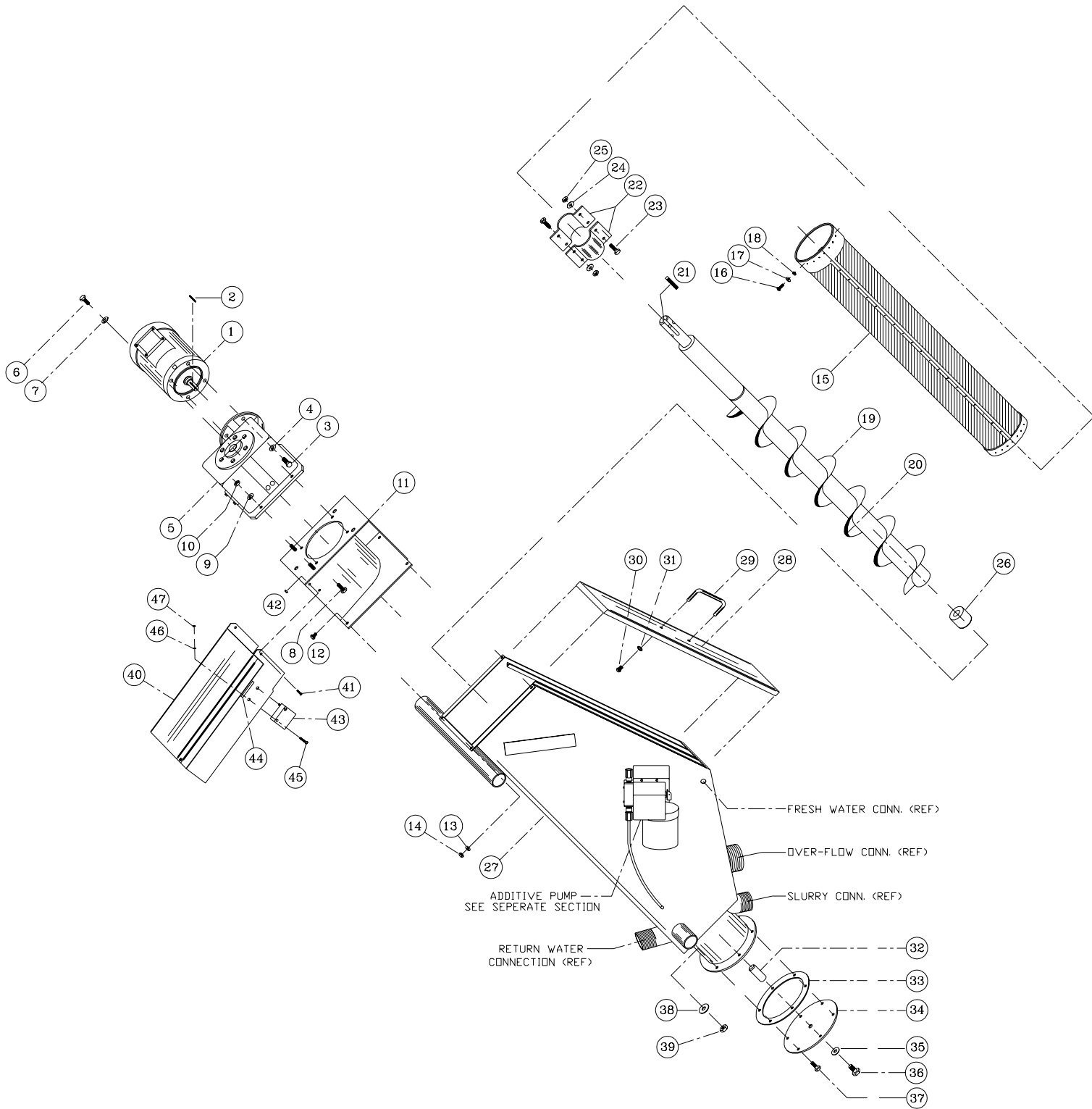


FIGURE 2. HYDRA EXTRACTOR[®], MODEL HE-6S-3, EXPLODED VIEW

FIG & INDEX NO.	DESCRIPTION	REQ.
2-	HYDRA-EXTRACTOR[®], MODEL HE-6S-3	
-1	Drive Motor 3 HP (41670) (ATTACHING PARTS)	1
-2	Key, 3/16" X 3/16" X 1-5/8" Lg.	1
-3	Bolt, Hex Head, Cad Pl., 3/8-16 X 3/4" Lg.	4
-4	Washer, Lock, Cad Pl., 3/8" ID ---*---	4
-5	Reducer 3 HP (51689-3) (ATTACHING PARTS)	1
-6	Bolt, Hex Head, Cad Pl., 3/8-16 X 2-3/4" Lg.	1
-7	Washer, Flat, 3/8" ID X 2" OD (89200)	1
-8	Screw, Machine, Hex Head, Cad Pl., 3/8-16 X 1-1/4" Lg.	4
-9	Washer, Lock, Cad Pl., 3/8" ID	4
-10	Nut, Hex, Cad Pl., 3/8-16 ---*---	4
-11	Head Assembly, S/S (89370) (ATTACHING PARTS)	1
-12	Screw, Hex Head, 5/16-18 X 1/2" Lg., S/S	4
-13	Washer, Lock, 5/16" ID, S/S	4
-14	Nut, Hex, Cad Pl., 3/8-16 ---*---	4
-15	Screen Assembly (54005) (ATTACHING PARTS)	1*
-16	Screw, Button Head, Socket Type, 5/16-18 X 1" Lg., S/S	2
-17	Washer, Lock, 5/16" ID, Split Type, S/S	2
-18	Nut, Hex, 5/16-18, S/S ---*---	2
-19	Screw Assembly, Extractor (86820)	1*
-20	Brush, Nylon (16000)	1
-21	Key, 3/8" X 3/8" X 3" Lg.	1
-22	Plug Cutter, Adjustable, Two Piece (80110-1) (ATTACHING PARTS)	1
-23	Screw, Machine, Hex Head, 3/8-16 X 1-1/2" Lg., S/S	4
-24	Washer, Lock, 3/8" Split Type, S/S	4
-25	Nut, Hex, 3/8-16, S/S ---*---	4
-26	Bushing, Lower, Screw Shaft (81350)	1*
-27	Shell Weldment (89370)	1
-28	Cover, Access (80015)	1
-29	Handle, Aluminum (35220) (ATTACHING PARTS)	1
-30	Screw, Round Head, #10-32 X 1/2" Lg., S/S	2
-31	Washer, Lock, #10 Split Type, S/S ---*---	2
-32	Pin, Bottom, S/S (81055)	1*

FIG & INDEX NO.	DESCRIPTION	REQ.
-33	Gasket, Bottom Pin (82786)	1
-34	Bottom Pin Plate (81025)	1
	(ATTACHING PARTS)	
-35	Washer, Flat, 1/2" ID, Cad Pl.	1
-36	Screw, Hex Head, Machine, 1/2-13 X 1" Lg., Cad Pl.	1
-37	Screw, Hex Head, 3/8-16 X 1" Lg., Cad Pl.	6
-38	Washer, Flat, 3/8" ID, Cad Pl.	6
-39	Nut, Hex, 3/8-16, Cad Pl.	6
	---*---	
-40	Discharge Chute (81531)	1
	(ATTACHING PARTS)	
-41	Screw, Round, #10-32 X 3/4" Lg., S/S	2
-42	Nut, Hex, #10-32, S/S, Elastic Stop	2
	---*---	
-43	Magnetic Switch (54999-1)	1
	(ATTACHING PARTS)	
-44	High Energy Magnet (55007)	1
-45	Screw, Round Head, #6-32 X 2-1/4" Lg., Cad Pl.	2
-46	Washer, Flat, #6-32	2
-47	Nut, Hex, #6-32, S/S, Elastic Stop	2

*Recommended Spare Parts
S/S - Stainless Steel

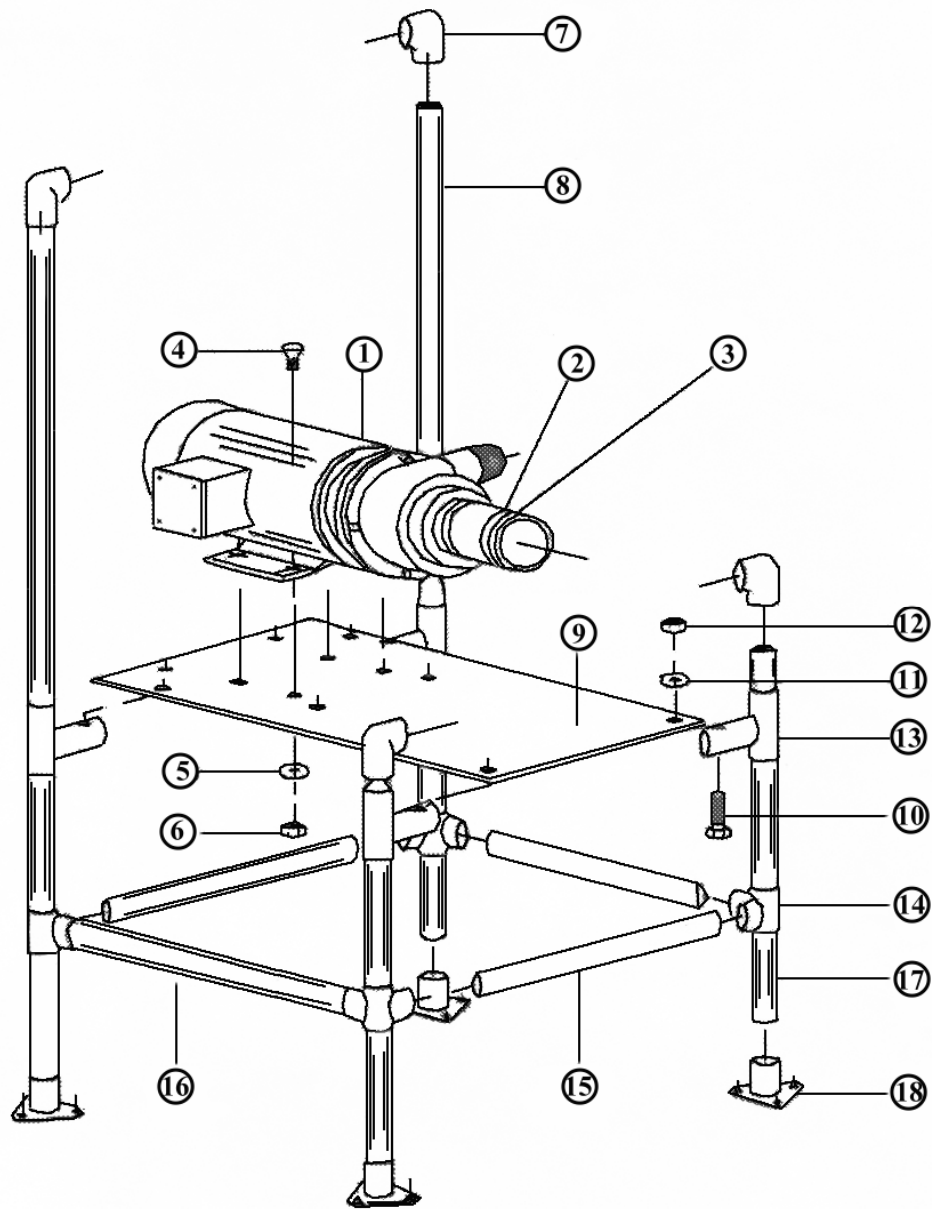


FIGURE 4. STAND ASSEMBLY, DIRECT DRIVE PUMP - EXPLODED VIEW

FIG. & INDEX NO.	DESCRIPTION	REQ.
4-	<i>STAND ASSEMBLY, DIRECT DRIVE PUMP</i>	
-1	Pump, 3HP (85613), 5HP (85616) (See Pump Section for detailed parts break-down) (ATTACHING PARTS)	1
-2	Hose, 2-7/8" ID X 4" Lg. (36230)	1
-3	Clamp, #QS200M-48S, S/S (21870)	2
-4	Screw, Hex Hd., 5/16-18 X 3/4" Lg., Cad Pl.	4
-5	Washer, Lock, Cad Pl., 5/16" ID, Split Type Cad Pl.	4
-6	Nut, Hex, Cad Pl., 5/16-18 ---*---	4
-7	Fitting, Speed Rail, #3, 1 NPS (30900)	4
-8	Pipe, 1 NPS, SCH 40, 50-3/8" Lg. Alum.	2
-9	Plate, Pump Mounting, (80400) (ATTACHING PARTS)	1
-10	Screw, Hex Hd, 3/8-16 X 2-1/4" Lg. Cad Pl.	4
-11	Washer, Lock, Cad Pl., 3/8" ID, Split Type	4
-12	Nut, Hex, Cad Pl., 3/8-16, ---*---	4
-13	Swivel Fitting, 1 NPS (30910)	4
-14	Fitting, Speed Rail, No. 5 Tec, 1 NPS (30920)	4
-15	Pipe, 1 NPS, SCH 40, 14-1/4" Lg. Alum	2
-16	Pipe, 1 NPS, SCH 40, 16-1/2" Lg. Alum.	2
-17	Pipe, 1 NPS, SCH 40, 24-9/16" Lg. Alum	2
-18	Floor Flange, 1 NPS (30940)	4

FIG. & INDEX NO.	DESCRIPTION	REQ.
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PIPING COMPONENTS FOR HE-6S-3 HYDRA-EXTRACTOR

HE-6S-3 FRESH HOT WATER ASSEMBLY

Gate Valve, 1/2" (64803)	1
Backflow Preventor, 1/2" (11310)	1
Shock Arrestor, 1/2" (11303)	1
Solenoid Valve, 1/2" (64710)	1

HE-6S-3 RETURN WATER ASSEMBLY

Check Valve, 2" (64870)	1
Motor Operated Valve, 1-1/2" (64735-4)	1
Gate Valve, 1-1/2" (64825)	1

NOTE: ABOVE ITEMS NOT PICTURED



CHEMICAL ADDITIVE PUMP

OPERATION AND MAINTENANCE

STENNER



KW DIRECT DRIVE PUMP

DESCRIPTION

GENERAL - The K/W Pump is a direct drive, end suction centrifugal pump. The pump is driven by a C-face electric motor, see Figure 1 (A) which also acts as the pump base. The pump housing (B) mounts on a spacer ring (C) which in turn is mounted to the face of the motor and becomes an integral part of the motor frame. An open type impeller (D) is used to minimize clogging. The pump housing is provided with a mechanical seal (E) to prevent leakage from the pump housing into the motor frame.

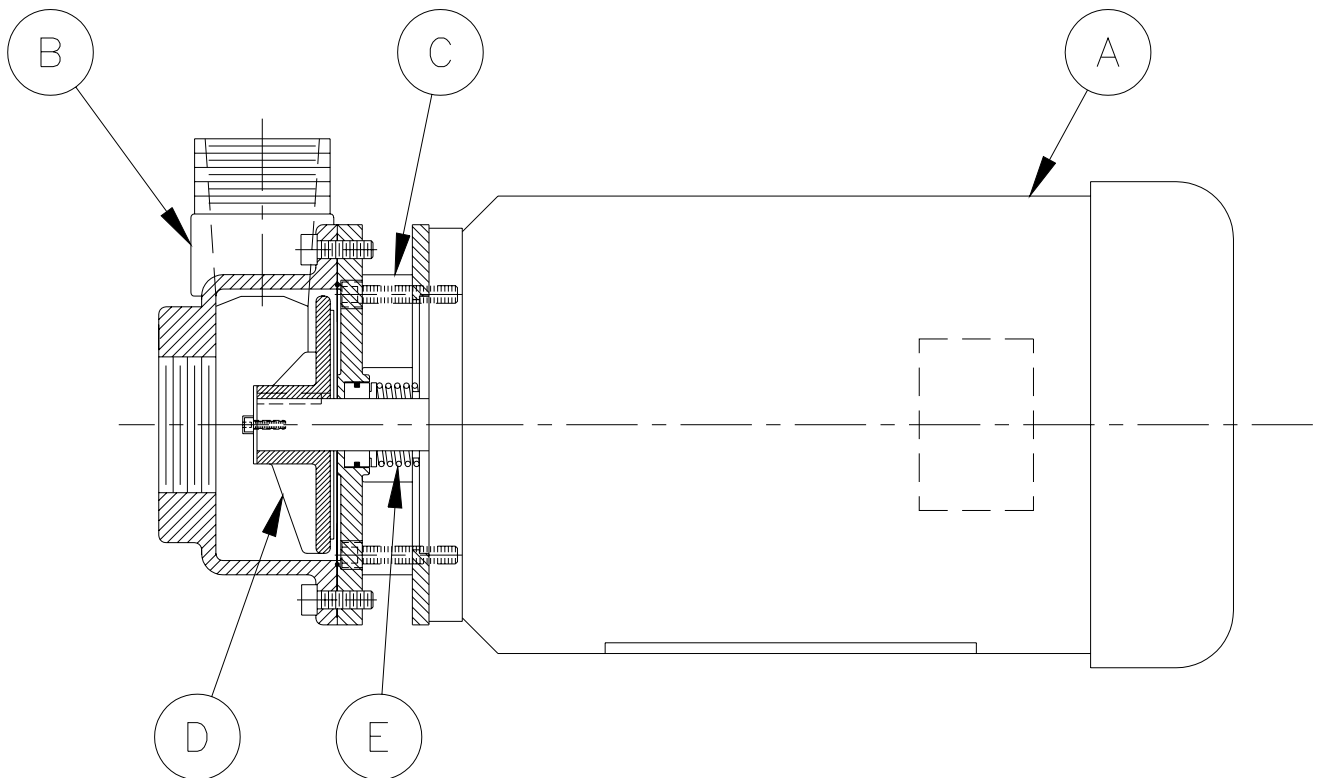


Figure 1. K/W Pump - General Arrangement

MAINTENANCE

PERIODIC MAINTENANCE AND INSPECTION - These procedures consist primarily of regularly scheduled cleaning and inspections. The time intervals cited are based on normal use of the SOMAT[®] unit; approximately **six hours per day**, seven days per week. Equipment operating more than this or in severe service will require more frequent inspection/maintenance.

Since the Drive Motor is a permanently lubricated, sealed unit, lubrication instructions will be considered not applicable.

Particular attention should be paid to impeller wear and seal leakage since this will affect the performance of the pump. Continued adherence to these inspections will provide adequate lead time when ordering spare parts, thereby minimizing unnecessary and costly equipment downtime.

INSPECTION SCHEDULE

	DAILY	WEEKLY	MONTHLY	QUARTERLY
1. GENERAL				
a. Check exterior finish for corrosion				X
b. Check pump casing for wear				X
c. Check impeller for wear				X
2. DRIVE				
a. Check seals for leakage	X			
b. Check bearings for noise and wear				X

TROUBLESHOOTING AND ANALYSIS

The following table provides probable causes and appropriate corrective action relative to pump malfunctions. When corrective actions require part or component replacement or a specific adjustment procedure, refer to the applicable part of this section.

SYMPTOM	POSSIBLE CAUSE	CORRECTIVE ACTION
No water delivered	<ol style="list-style-type: none">1. Impeller worn or clogged.2. Clogged lines	<ol style="list-style-type: none">1. Check impeller, clean or replace as required.2. Check individual cleanouts for loss of pressure to locate blockage. Remove blockage.
Seal Leaking	<ol style="list-style-type: none">1. Worn or damaged seal or motor	<ol style="list-style-type: none">1. Check seal and motor shaft. Replace as required.

COMPONENT REMOVAL AND REPLACEMENT - The following steps are required in the removal and replacement of major components, assemblies or piece parts, necessary for corrective action.



IMPELLER REMOVAL -

- Remove four screws (2) from pump housing (1).
- Separate pump housing from spacer ring (9).
- Lift "O" Ring (3) from groove in spacer ring.
- Remove the 10-32 x 5/8 long screw (6) from the end of the motor shaft (12).
- Remove impeller from motor shaft. (A gear puller may be required to remove impeller).
- Remove key (8) from motor shaft.
- Replace the impeller by placing it over the motor shaft with the keyways of the shaft and the impeller hub aligned. Tap the key in place using a lead or rawhide mallet. Replace socket head cap screw.

TROUBLESHOOTING AND ANALYSIS

MECHANICAL SEAL REMOVAL & REPLACEMENT -

- Perform all steps for impeller removal.
- Remove the four 3/8-16 X 1-3/4 long socket head cap screws (10) and remove the pump spacer ring (9) from the face of the drive motor (12).
- Tap the ceramic seal ring from the seal retaining ring using a strip of wood for a punch.
- Remove all pieces from the seal cavity and wipe the cavity clean with oil dampened cotton waste or suitable wiping material.
- Remove the retainer spring and seal ring from drive motor shaft.

- When replacing the seal ring, moisten the O-Ring of the ceramic seal with oil. Using a strip of wood for a punch, gently tap the ceramic seal ring into place and seat it squarely into the recess in the pump spacer ring.
- Slip the retainer spring over the motor shaft.
- Lubricate the upper seal ring and slip it over the motor shaft. Be certain the carbon portion of the ring faces away from the motor, and the opposite side engages the retainer spring.
- Slip the pump spacer ring with the ceramic seal ring installed over the motor shaft and seat on surface of drive motor.
- Replace four screws to complete the reassembly.

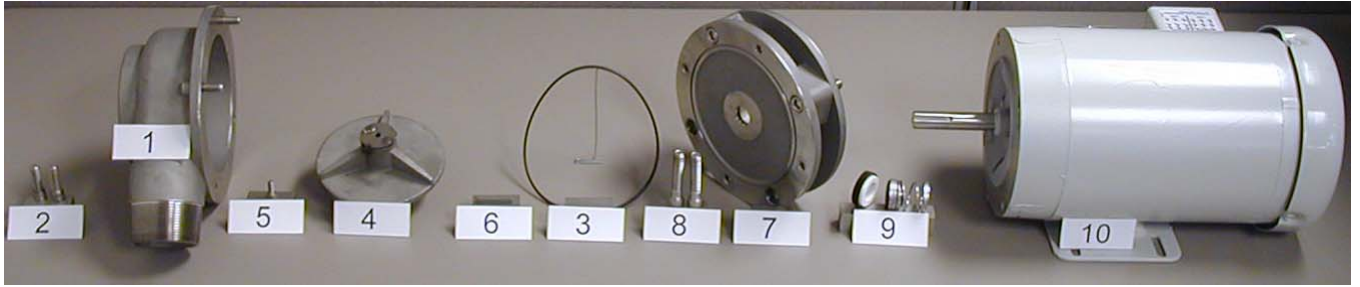


FIGURE 2. KW DIRECT DRIVE PUMP EXPLODED VIEW

FIG AND INDEX NO.	DESCRIPTION	REQ.
2-	<i>PUMP ASSEMBLY, K/W DIRECT DRIVE</i>	
-1	Housing, Pump (83200-2) (ATTACHING PARTS)	1
-2	Screw, Socket Head, 5/16-18 x 3/4" Lg. ---*---	4
-3	"O" Ring (45700)	1
-4	Impeller, 2HP (84153-2), 3HP (84152-2), 5HP (84151-2) (ATTACHING PARTS)	1*
-5	Screw, Socket Head, #10-32 x 5/8" Lg.	1
-6	Key, 3/16 x 3/16 x 1-1/8" Lg. ---*---	1
-7	Ring, Spacer, 2HP and 3HP (86300-2), 5HP (86301-2) (ATTACHING PARTS)	1
-8	Screw, Socket Head, 3/8-16 x 1-3/4" Lg. ---*---	4
-9a	Seal, Mechanical, 5/8" 2HP and 3HP (54300)	1*
-9b	Seal, Mechanical, 7/8" 5HP (54302)	1*
-10a	Motor, 2HP (41640)	1
-10b	Motor, 3HP (41652)	1
-10c	Motor, 5HP (41708)	1

* Recommended Spare Parts



SOM-A-TROL[®] PANEL

DESCRIPTION

GENERAL - SOM-A-TROL[®] control panels are designed to provide sequenced operation of the various equipment components that make up a SOMAT[®] Waste Handling System.

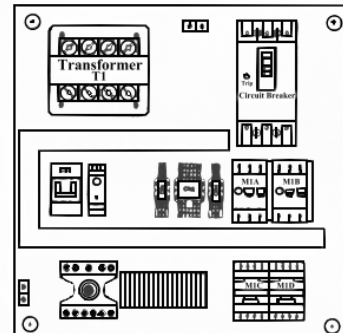
The enclosure contains a main disconnect (circuit breaker) that is mechanically interlocked with the handle on the panel door. All motors in the system are controlled by magnetic starters which are individually protected by thermal overloads on all three phases. The control circuit is provided with 110 volt current through a control transformer which is protected on the secondary by a circuit breaker. The water level control system employs a pressure switch for sensing the water level in the SOMAT pulper and adding fresh water make-up as required or temporarily stopping return water flow. All panel enclosures are wired in accordance with the National Electrical Code. All panels meet the requirements of the Underwriters Laboratory and are U/L listed.

Generally, a push button station, having “start” and “stop” buttons and an “empty run” selector switch to control Auto Rinse, is provided for mounting near the Pulper itself. Other control mechanisms such as photocells, timers, etc., may be included to meet the requirements of specific installation.

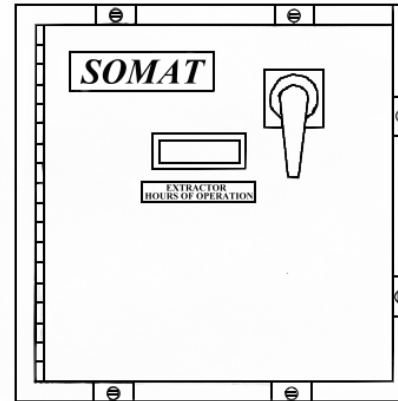
A detailed electrical drawing for the Som-A-Trol[®] panels, as well as a system wiring diagram, may be found inside the door of the Som-A-Trol[®] and in the pocket of this manual.

MAINTENANCE AND TROUBLESHOOTING

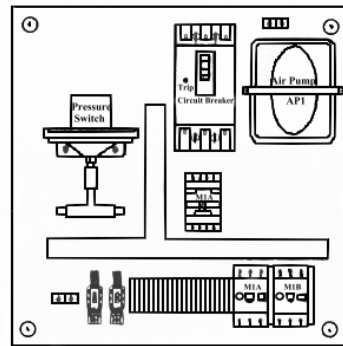
Because of the inherently involved and potentially dangerous nature of all electrical control equipment, Somat Company recommends maintenance and repair of the Som-A-Trol be performed by qualified personnel only. Qualified personnel should find the electrical drawings supplied to be sufficient guidance for troubleshooting.



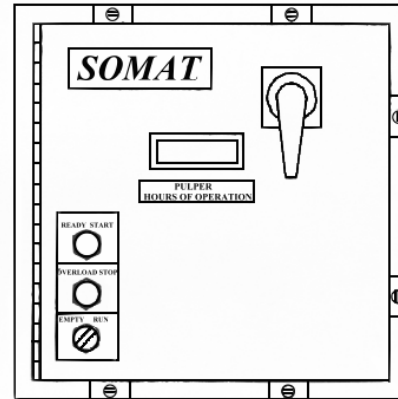
HYDRA-EXTRACTOR SOM-A-TROL DETAIL



HYDRA-EXTRACTOR SOM-A-TROL ENCLOSURE DTL

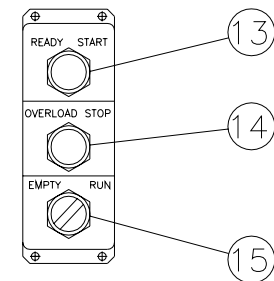
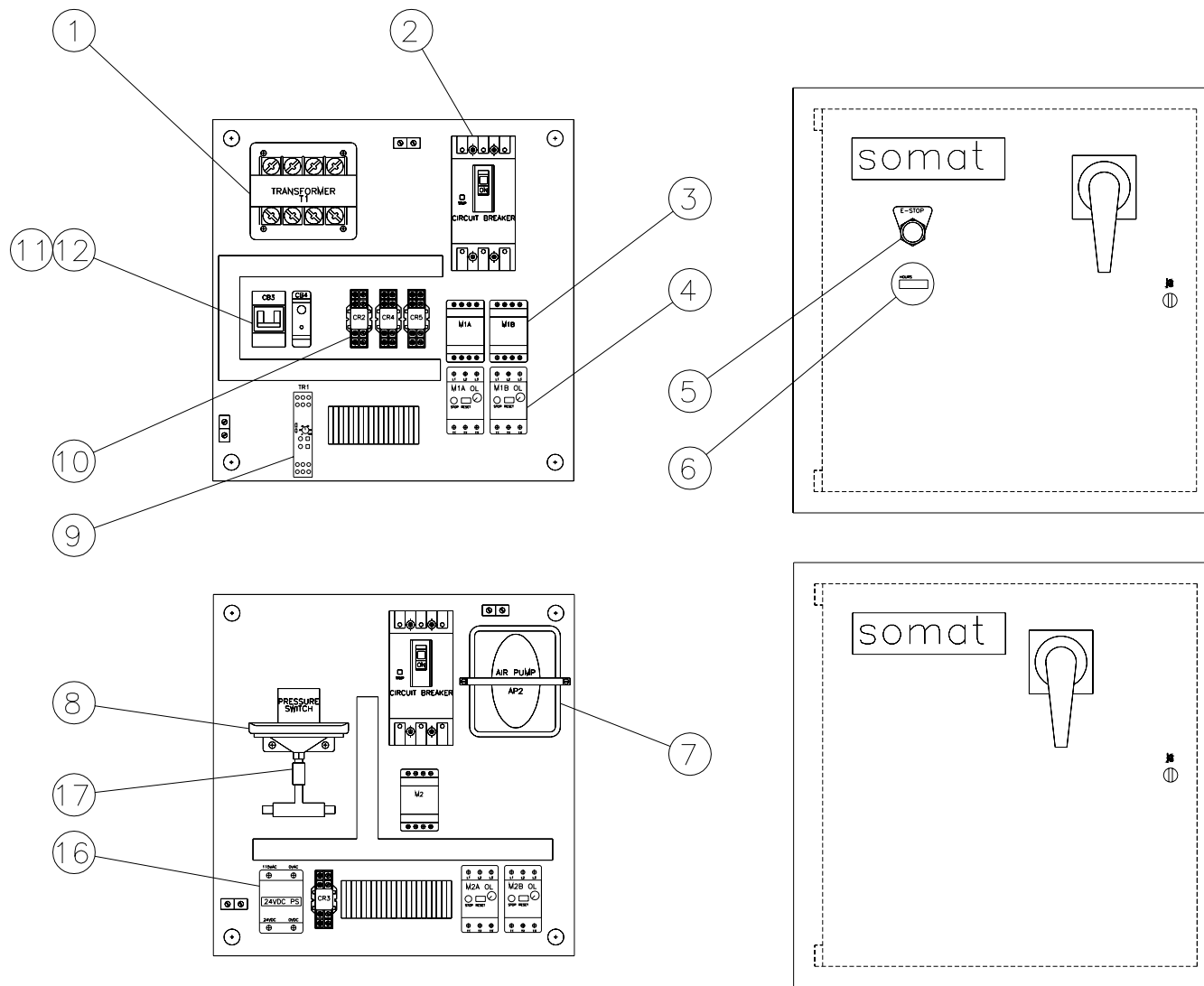


PULPER SOM-A-TROL PANEL DETAIL



PULPER SOM-A-TROL ENCLOSURE DETAIL

TYPICAL SP-50AS - HE-6S-3 CONTROL PANELS



TYPICAL SP-50AS - HE-6S-3 CONTROL PANELS

ITEM #	DESCRIPTION	PART #	QT.
-1	Transformer	62208	1
-2	Main Circuit Breaker – 15 Amp	15515-1	1
	- 20 Amp	15520-1	1
	- 25 Amp	15525-1	1
	- 30 Amp	15530-1	1
	- 35 Amp	15535-1	1
	- 40 Amp	15540-1	1
	- 45 Amp	15545-1	1
-3	Contactor, 25 Amp	22271-120	1
	“ “ , 50 Amp	22276-120	1
-4	Overload, Adjustable, 1.5 – 6 Amp	51888-SIEM	1
	“ “ “ , 6 - 25 Amp	51889-SIEM	1
-5	E – Stop Button	51017	1
-6	Hour Meter, (Round)	40048	1
-7	Air Pump	10302-1	1
-8	Pressure Switch (Water level)	59994-1	1
-9	Timer, adjustable	61341	1
-10	Control Relay, 2 Pole	51910-120	2
-11	Circuit Breaker, 2 Pole, 208 / 230 / 240v	15600	1
	“ “ “ “ , 460 / 480v	15594-2	1
-12	Circuit Breaker, 1 Pole, 4 Amp	15650	1
-13	Start, Push Button	51011	1
-14	Stop, Push Button	51010	1
-15	Empty / Run, Switch	59983	1
-16	Power Supply (UDT only)	62340	1
-17	Snubber	59998	1