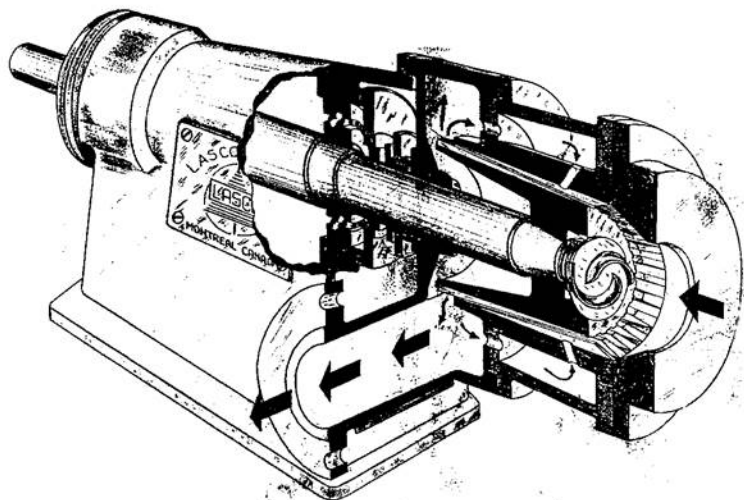


# Lascopener



## Instruction Manual

**LASCO LTD**

**MONTREAL CANADA**



**BULLETIN A-4**

## GENERAL INFORMATION

THE LASCOPENER RECEIVED ITS NAME FROM THE MANUFACTURER, LASCO LTD. AND ALSO FROM THE OPENING EFFECT IT HAS ON PULP AND PAPER FIBRES.

BASICALLY THE LASCOPENER WAS DESIGNED TO COMPLETE THE WORK OF PULPERS, AT A REDUCED COST PER TON. THE FIBRE-OPENING IS OF A GENTLE NATURE WHEN COMPARED TO CONVENTIONAL MACHINES, WITH THE RESULT THAT THE FIBRES ARE COMPLETELY DISPERSED WITHOUT CUTTING.

## GENERAL PRINCIPLES

THE PRINCIPLES OF THE LASCOPENER ARE SIMILAR TO THOSE IN A CAVITATION GENERATOR, PLUS HIGH FREQUENCY EFFECTS. THE FREQUENCY BEING GENERATED MECHANICALLY BY THE VIBRATIONS OF THE FIBRES THEMSELVES, DEPENDENT ON THEIR RESPECTIVE VARIATIONS IN LENGTH.

WHEN WATER IS SUBJECTED TO CAVITATIONS, THE PRESSURE IS REDUCED. THE REDUCTION IN PRESSURE CHANGES THE WATER TO VAPOUR. AFTER THE CAVITATION CONDITIONS ARE REMOVED THE WATER VAPOUR RETURNS TO WATER. IN SO DOING, SHOCK WAVES ARE EMITTED AT FREQUENCIES GREATER THAN 20,000 CYCLES PER SECOND. THESE VIBRATIONS ARE KNOWN AS ULTRASONIC WAVES. IT IS THESE WAVES THAT WORK ON THE FIBRES, WHEN EMITTED IN THE MEDIUM.

## PERFORMANCE

FIELD TESTS SHOW -

THE POWER CONSUMPTION VARIES FROM 1 TO 2 H.P./A.D.TON/DAY DEPENDING ON APPLICATION.

COMPLETE OPENING UP OF FIBRE BUNDLES, WITH LESS THAN 10% DECREASE IN CAN. STD. FREENESS.

INCREASE IN BULK, TEAR AND OTHER TESTS; THIS RESULTS IN GREATER MACHINE CAPACITY, DECREASE IN STEAM CONSUMPTION, AND IMPROVED DRAINAGE.

THE LASCOPENER IN ADDITION HAS A PUMPING CAPABILITY AT HIGH DENSITY OFTEN ELIMINATING THE NEED OF A PUMP.

## SPECIFICATIONS

CAPACITY:	"FIBRE OPENING" - MAX. 60 A.D.T./D
(DEPENDING ON	AV. 30 TO 40 A.D.T./D
APPLICATION)	PUMPING - MAX. 60 FT. TOTAL HEAD
	AV. 35 FT.

CONSISTENCY: FROM 3 TO 6% B.D.

MOTOR: NORMAL: 50 H.P., 3600 R.P.M., FRAME 364 US OR 365 US  
SPECIAL: 60 H.P., 3600 R.P.M., FRAME 364 US OR 365 US

PIPE CONNECTIONS: NORMAL: 6" MIN. FOR CONS. UP TO 4%.  
8" MIN. FOR CONS. ABOVE 4%.

SEAL WATER PRESS.: MIN. 10 P.S.I.G. ABOVE OUTLET CASING PRESSURE.

## LASCOPENER MODEL 4

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## GENERAL DESCRIPTION

THE CUT-AWAY VIEW SHOWS THE LOCATION OF THE VARIOUS COMPONENTS FORMING THE LASCOPENER. FROM THIS IT CAN BE OBSERVED THAT THE LASCOPENER CONSISTS MAINLY IN AN IMPELLER, A ROTOR, A STATOR AND RECIRCULATING ORIFICES.

### ROTOR

THE ROTOR IS OF THE CONE SHAPE TYPE TURNING AT 3600 R.P.M. ON THIS CONE ARE GROOVES MACHINED IN SUCH A WAY THAT THEIR DEPTHS GRADUALLY INCREASE FROM THE INLET TOWARDS THE OUTLET.

### STATOR

THE STATOR IS A HOLLOW CYLINDER, ALSO OF THE CONE SHAPE, WITH GROOVES MACHINED ON THE INSIDE SURFACE WHICH GRADUALLY DECREASE IN DEPTH FROM THE INLET SIDE TOWARDS THE OUTLET.

### GAP

AN ADJUSTABLE GAP EXISTS BETWEEN THE ROTOR AND STATOR. THIS GAP IS PRE-SET AT THE FACTORY FOR YOUR APPLICATION AND IS EASILY ADJUSTABLE FOR WEAR. SEE THE INSTRUCTIONS ON PAGE 15.

### IMPELLER

THE IMPELLER IS DESIGNED TO PLACE THE PULP INTO THE STATOR GROOVES AND KEEP THIS PULP UNDER PRESSURE.

### ORIFICES

DUE TO THE HIGH VACUUM CAPABILITY OF THE ROTOR TURNING AT HIGH SPEED AND AT CLOSE PROXIMITY TO THE STATOR, WATER LOCATED NEAR THE GAP IS FLASHED INTO VAPOUR WHICH COULD, IF THE FLASHING RATE WERE TOO HIGH, VAPOUR-LOCK THE LASCOPENER AND REDUCE THE STOCK FLOW. THESE ORIFICES PREVENT VAPOUR-LOCKS.

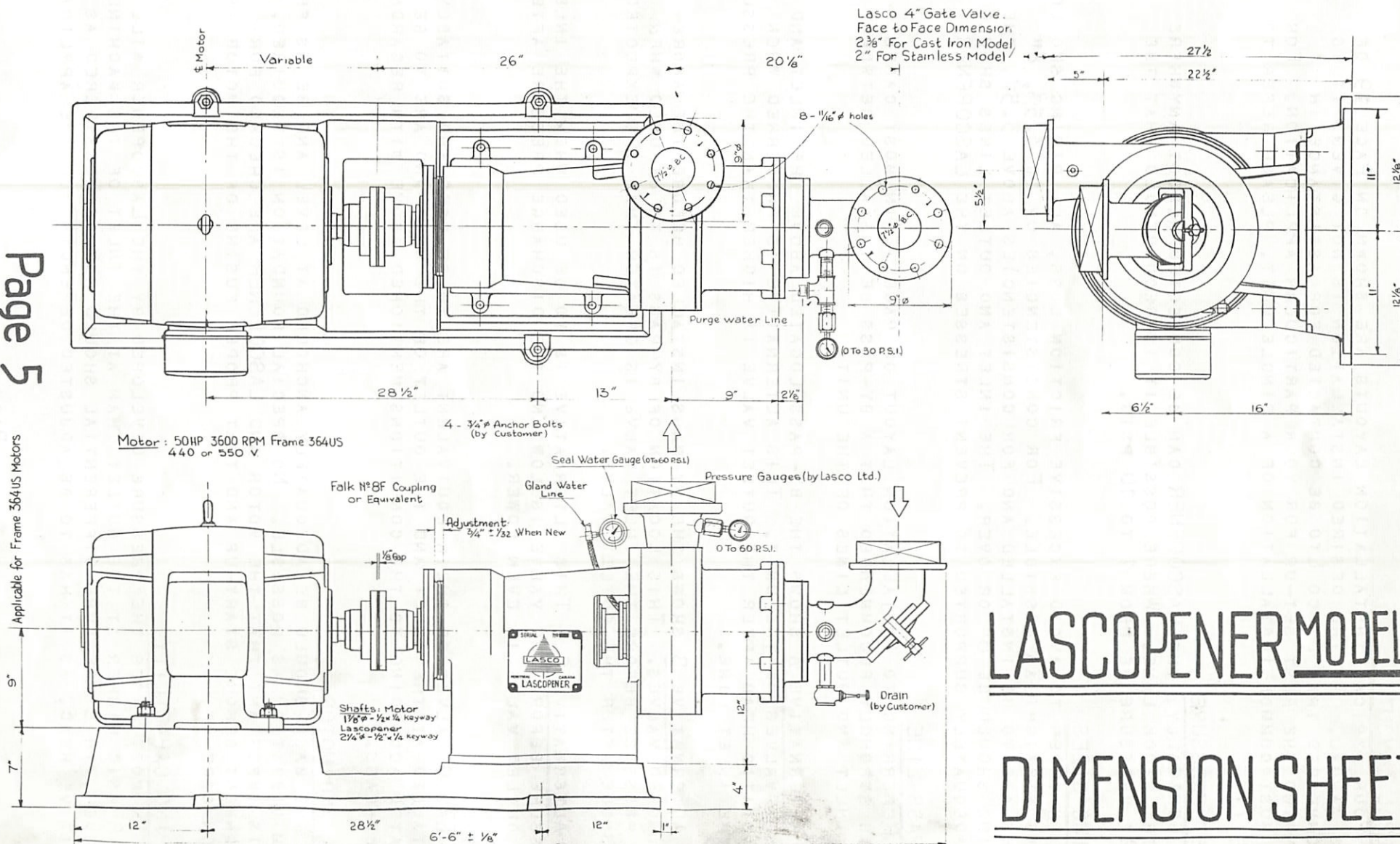
## OPERATION PRINCIPLES

TO ADJUST THE WORK DONE BY THE LASCOPENER, IT IS ESSENTIAL THAT THE BASIC PRINCIPLES BE KNOWN AND UNDERSTOOD. THESE PRINCIPLES AND THE DYNAMICS ARE EXPLAINED ELSEWHERE AND RESUMED AS FOLLOWS:

THE INLET SIDE OF THE ROTOR HAS NO GROOVES, AND THEREFORE THE STOCK MUST ENTER INTO THE STATOR GROOVES, WHERE IT IS PLACED BY THE IMPELLER.

SINCE THE STATOR GROOVES ON THE OUTLET SIDE ARE PRACTICALLY NON-EXISTENT, IT FOLLOWS THAT THE STOCK CANNOT GO DIRECTLY FROM THE INLET TO THE OUTLET WITHOUT BEING SUBJECTED TO THE GAP CLEARANCE.

AS THE OUTLET VALVE IS GRADUALLY CLOSED, A PRESSURE DEVELOPS IN THE OUTLET CASING FROM APPROXIMATELY 15 TO 22 PSIG HIGHER THAN THE INLET PRESSURE. THE HIGHER THE DIFFERENTIAL PRESSURE, THE LONGER THE STOCK IS KEPT IN THE WORKING ZONE.



# **LASCOPENER MODEL 4** **DIMENSION SHEET**

## INSTALLATION INSTRUCTIONS

### GENERAL LAYOUT

FOUR TYPICAL INSTALLATION LAYOUTS ARE SHOWN ON PAGE 19 OF THIS MANUAL. IF THE DESIRED INSTALLATION IS NOT GIVEN, IT IS RECOMMENDED THAT LASCO LTD BE CONTACTED FOR ASSISTANCE IN PLANNING THE BEST SET-UP FOR YOUR PARTICULAR APPLICATION. FOR THE MOST COMMON INSTALLATION OF A SINGLE UNIT, PLEASE REFER TO PAGE 7.

### INLET PRESSURE

GENERALLY, THE LASCOPENER CAN BE CONNECTED ALMOST ANYWHERE IN THE STOCK LINE. WHERE POSSIBLE IT IS RECOMMENDED THAT THE INLET PRESSURE BE FROM 1 TO 10 PSIG.

### PIPING SIZES

IN ORDER TO AVOID EXCESSIVE FRICTION LOSS, ALL PIPING SHOULD BE AS STRAIGHT AS POSSIBLE. FOR CONSISTENCIES UP TO 3.5%, 6" LINES ARE TO BE INSTALLED AND FOR CONSISTENCIES ABOVE 3.5%, THE PIPING SHOULD BE 8" OR OVER. THE INLET AND OUTLET LINES SHOULD BE ADEQUATELY SUPPORTED TO PREVENT STRESSES ON THE LASCOPENER.

### BY-PASS LINE

REFERRING TO INSTALLATION LAYOUT ON PAGE 7, IN MOST CASES IT IS STRONGLY RECOMMENDED THAT A BY-PASS BE INSTALLED BETWEEN THE INLET AND OUTLET LINES OF THE UNIT.

ALTERNATIVE A SHOWS THE BY-PASS LOCATED ABOVE THE INLET AND OUTLET VALVES OF THE UNIT. THIS ALTERNATIVE IS PREFERRED WHEN THE STATIC HEAD AFTER THE OUTLET VALVE IS HIGHER THAN THE PRESSURE OF THE INLET LINE.

ALTERNATIVE B SHOWS THE BY-PASS INSTALLED BEFORE THE AFORE-MENTIONED VALVES. THIS LOCATION OF BY-PASS IS TO BE USED WHEN THE PRESSURE BEFORE THE INLET VALVE IS GREATER THAN THE EXPECTED PRESSURE AFTER THE OUTLET VALVE.

ALTERNATIVE C. THIS ALTERNATIVE IS TO BE USED WHEN THE INLET PRESSURE BEFORE THE VALVE IS LOW AND THE DISCHARGE PRESSURE AFTER THE OUTLET VALVE IS EVEN LOWER.

### VALVES

LASCO VALVES OR THEIR EQUIVALENT ARE TO BE USED AND SUITABLY INSTALLED AT THE INLET AND THE OUTLET OF THE UNIT AND ARE TO BE LOCATED ACCORDING TO THE CONDITIONS MENTIONED ABOVE WITH REGARDS TO BY-PASS.

### BASE AND MOTOR

THE BASE SHOULD BE ADEQUATELY ANCHORED AT LEVEL AND BE AS FREE FROM VIBRATION AS POSSIBLE. NO SPECIAL FOUNDATION IS REQUIRED. IT IS IMPORTANT THAT THE MOTOR AND LASCOPENER ARE CHECKED FOR ALIGNMENT BEFORE START-UP AND THAT PROPER FUSING OF THE MOTOR IS TAKEN CARE OF.

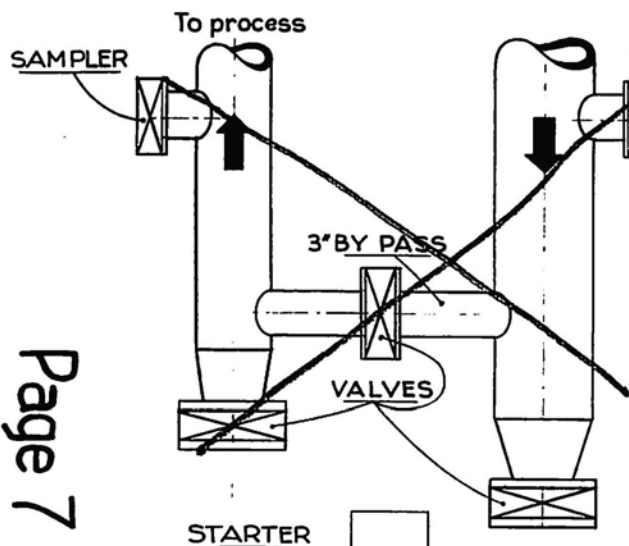
### PUMPING CAPABILITY

IN MOST CASES THE PRESSURE DEVELOPED BY THE LASCOPENER WILL BE 18 PSIG HIGHER AT THE OUTLET THAN AT THE INLET OF THE MACHINE. HOWEVER, THIS PRESSURE DIFFERENTIAL SHOULD NOT BE CONSIDERED AS A POSITIVE HEAD, AS IT HAS TO BE ADJUSTED DEPENDING ON THE APPLICATION.

# ALTERNATIVE A

OUTLET LINE

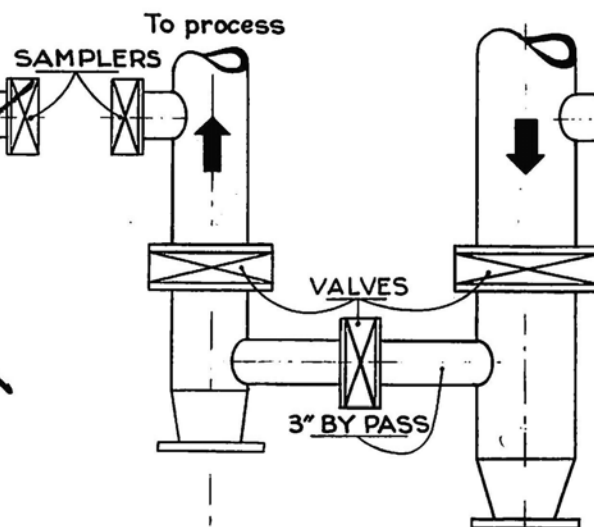
INLET LINE



# ALTERNATIVE B

OUTLET LINE

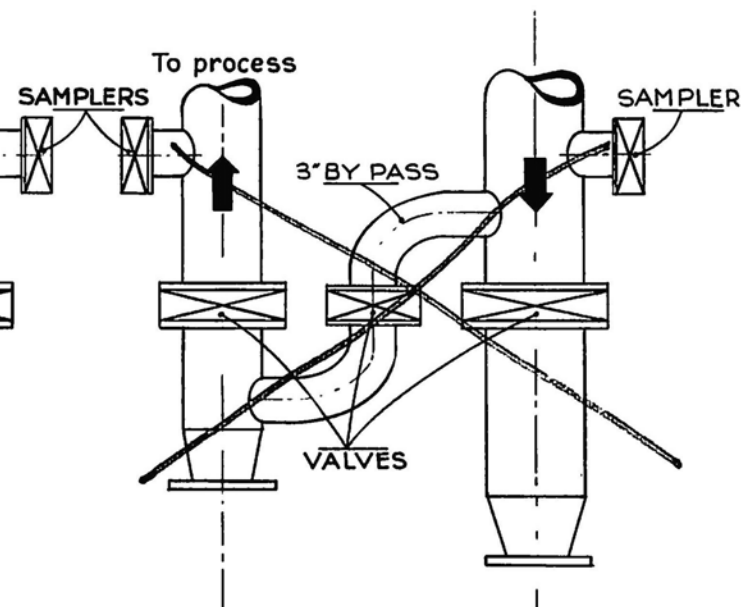
INLET LINE



# ALTERNATIVE C

OUTLET LINE

INLET LINE



Page 7

STARTER

MOTOR

BASE

COUPLING

GLANDWATER

OUTLET

PURGE WATER LINE  
INLET

ELBOW

COVER

DRAIN

INLET ADAPTOR

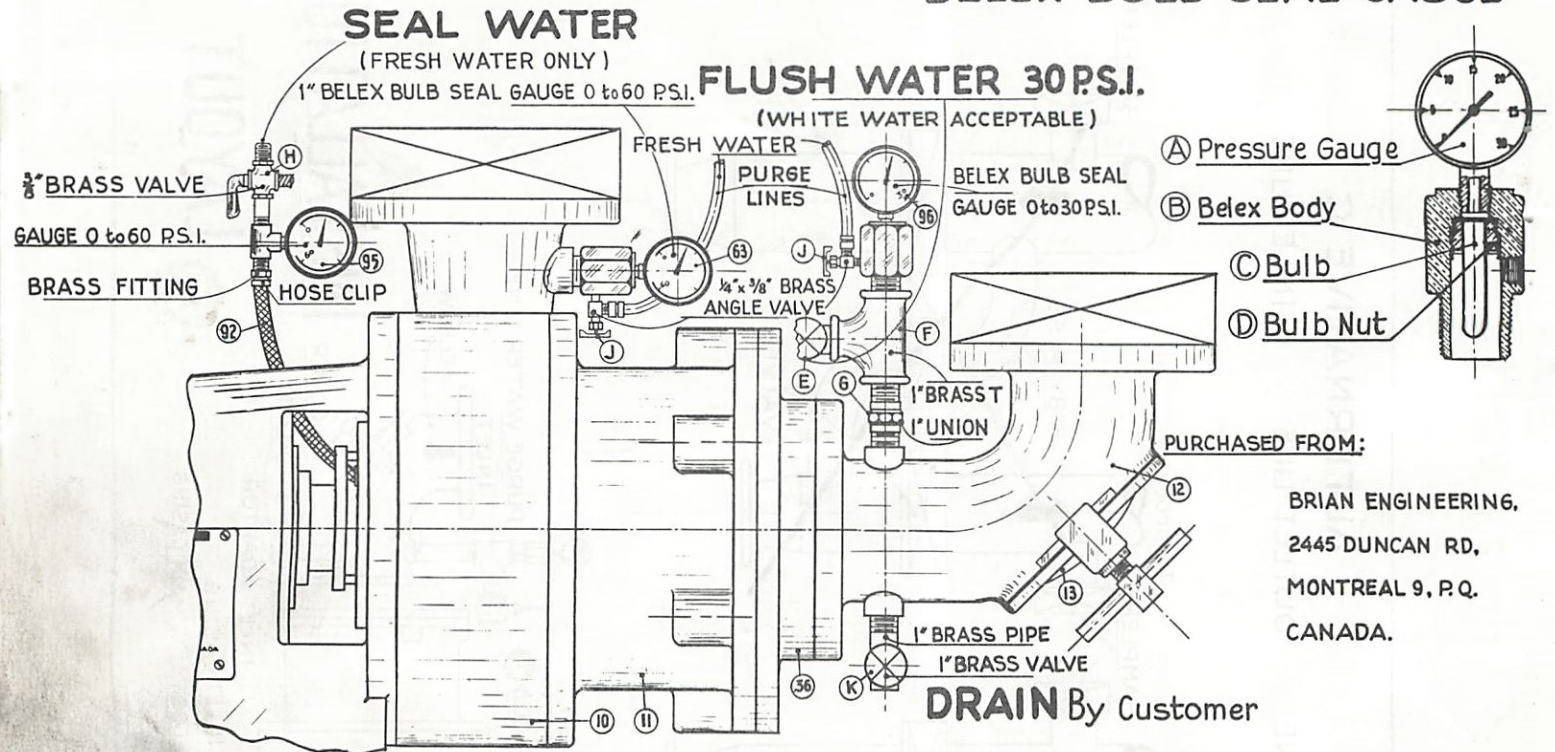
INLET CASING

PEDESTAL

MAIN CASING

INSTALLATION  
LAYOUT

## BELEX BULB SEAL GAUGE



PURCHASED FROM:  
BRIAN ENGINEERING,  
2445 DUNCAN RD.,  
MONTREAL 9, P.Q.  
CANADA.

# WATER & GAUGES CONNECTIONS

**FLUSH WATER LINE** - A 1" FLUSH WATER LINE EQUIPPED WITH A VALVE E IS CONNECTED TO A 1" BRASS TEE F WHICH IN TURN IS CONNECTED BY MEANS OF A UNION G TO THE INLET ELBOW 12. OPEN THIS LINE ONE OR TWO MINUTES BEFORE EVERY START-UP AND SHUT-DOWN.

**SEAL WATER LINE** - A FRESH WATER SUPPLY LINE EQUIPPED WITH A VALVE H IS CONNECTED TO THE 3/8" FLEXIBLE HOSE 92 SUPPLIED WITH THE UNIT. A 0 TO 60 PSI GAUGE 95, ALSO SUPPLIED BY LASCO, IS MOUNTED ON THIS LINE AS SHOWN. IT IS IMPERATIVE THAT A PRESSURE OF AT LEAST 10 PSI HIGHER THAN THE PRESSURE INDICATED OR ANTICIPATED ON GAUGE 63 BE MAINTAINED AT ALL TIMES; OTHERWISE, IT WILL SERIOUSLY IMPAIR THE PERFORMANCE OF THE MACHINE.

**GAUGES INSTALLATION** - TWO BELEX BULB SEAL GAUGES SUPPLIED BY LASCO LTD ARE TO BE MOUNTED ON THE SYSTEM AS FOLLOWS: THE 0 TO 30 PSI GAUGE 96 IS SCREWED IN TEE F FOR THE INLET PRESSURE READING, WHILE THE 0 TO 60 PSI GAUGE 63 IS MOUNTED IN PROPER LOCATION OF MAIN CASING 10. FRESH WATER CONNECTIONS WITH ANGLE VALVES J ARE CONNECTED TO BELEX GAUGE 63 AND 96 AT LOCATIONS PROVIDED FOR ON THE HEXAGON BODY OF THE GAUGES IN ORDER TO FLUSH THEM INTERMITTENTLY.

**DRAIN LINE** - IT IS RECOMMENDED THAT A 1" DRAIN LINE AND VALVE K BE INSTALLED AT PROPER LOCATION UNDER THE INLET ELBOW 12 AS SHOWN.

**BELEX BULB SEAL GAUGES** - THE BELEX BULB SEAL GAUGES ARE EQUIPPED WITH A NEOPRENE CAPSULE BULB C FILLED WITH DOW CORNING SILICONE AT 200 CENTISTOKES. THE SOCKET WRENCH TO REMOVE THE BULB NUT IS A SNAP-ON No. S-9540A. TO AVOID LOSS OF FILLING FLUID DO NOT DISMANTLE THE CAPSULE BULB C OR THE GAUGE A FROM THE MAIN HEXAGONAL BODY UNLESS OUT OF ORDER.

## PRE-START-UP INSTRUCTIONS

### 1. CHECK THE INSTALLATION

PLEASE REFER TO INSTALLATION LAYOUT PRINT FOR YOUR PARTICULAR APPLICATION, IF EXISTING. ASCERTAIN THAT ALL THE CONNECTIONS ARE MADE IN ACCORDANCE WITH THE RECOMMENDATIONS.

### 2. CLEAN THE SYSTEM

ON NEW INSTALLATIONS, METALLIC PIECES SUCH AS WELDING RODS, ETC., MAY BE ACCIDENTALLY DROPPED IN THE SYSTEM. THESE PIECES, UNLESS REMOVED, MAY LODGE IN THE LASCOPENER GROOVES AND PERMANENTLY DAMAGE THE ROTOR AND STATOR.

IF IN DOUBT ABOUT THE PRESENCE OF METALLIC PIECES, DISCONNECT THE LASCOPENER AND WASH PIPING TO REMOVE THEM.

### 3. ROTATION

THE MODEL 4 IS DESIGNED TO TURN IN A COUNTER CLOCKWISE DIRECTION WHEN VIEWED FROM THE INLET SIDE OF THE OPENER AND AS SHOWN BY THE ARROW ON THE OPENER HOUSING.

### 4. POWER SUPPLY

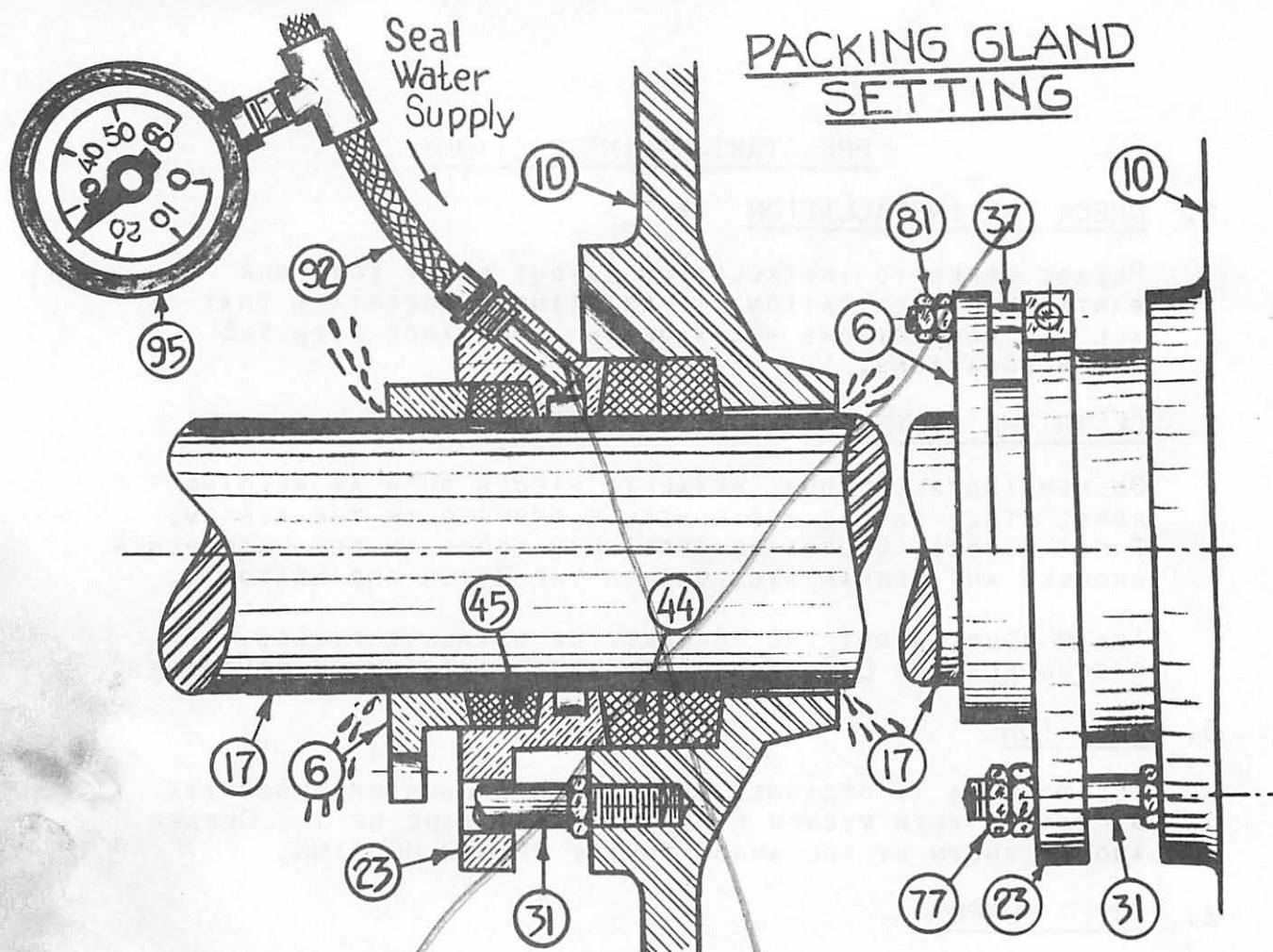
IN ORDER TO ASCERTAIN THAT THERE IS NO OVERLOAD BEFORE START-UP, THE POWER CONSUMPTION SHOULD BE CHECKED AGAINST THE NAME PLATE OF MOTOR.

### 5. CHECK THE COMPONENTS

- A) OPEN THE GLAND WATER VALVE AND OBSERVE THE AMOUNT OF WATER AT THE PACKING GLAND; IF NO WATER COMES OUT, THE WATER LINE MIGHT BE PLUGGED OR THE PACKING COULD BE TOO TIGHT. REFER TO THE INSTRUCTIONS ON HOW TO ADJUST THE PACKING GLAND ON PAGE 10.
- B) OPEN THE FLUSHING WATER VALVE AND OBSERVE THE PRESSURE BUILDING UP ON THE INLET AND OUTLET PRESSURE GAUGES. FOR THIS, THE OPENER INLET AND OUTLET VALVES SHOULD BE CLOSED. SHUT OFF THE FLUSH WATER BEFORE THE INLET PRESSURE GAUGE BECOMES OVER-RANGED. ANY DISCREPANCY BETWEEN THE INLET AND OUTLET PRESSURE GAUGES SHOULD BE NOTED. ANY LEAKS IN THE SYSTEM SHOULD BE ELIMINATED.

NOTE: THE LASCOPENER IS SUFFICIENTLY GREASED WHEN SHIPPED, FOR APPROXIMATELY ONE WEEK OF OPERATION. READ LUBRICATION INSTRUCTIONS ON PAGE 16. THE OPERATORS SHOULD BE MADE FAMILIAR WITH THE START-UP AND SHUT-DOWN INSTRUCTIONS ON PAGE 13 AS WELL AS THE ADJUSTMENT FOR WORK INSTRUCTIONS ON PAGE 14. THE MAINTENANCE CREW SHOULD BE MADE FAMILIAR WITH THE REPAIRS AND MAINTENANCE REQUIREMENTS.

## PACKING GLAND SETTING



THE GLAND ARRANGEMENT ON MODEL 4 PERMITS INDIVIDUAL CONTROL OF WATER FLOWING ALONG THE SHAFT 17 TO BOTH SIDES. A RELIABLE PURGE AND SEAL WATER SUPPLY LINE IS TO BE CONNECTED TO THE FLEXIBLE TUBING 92 ENTERING AT A 45° ANGLE ON THE LANTERN GLAND 23. THE SAID WATER MUST BE GRIT FREE AND HAVE A PRESSURE OF AT LEAST 10 PSIG HIGHER THAN THE EXPECTED MAXIMUM PRESSURE OF THE OUTGOING TREATED STOCK. A PRESSURE GAUGE 95 SUPPLIED BY LASCO LTD, IS TO BE INSTALLED ON THE PURGE WATER LINE NEXT TO THE FLEXIBLE TUBING FOR CONTROLLING THIS PRESSURE AND TO ASCERTAIN THAT WATER IS FLOWING THROUGH THE LANTERN GLAND.

IT IS POSSIBLE TO ADJUST THE FLOW OF WATER GOING INTO THE MAIN CASING 10 DISCHARGE CHAMBER, BETWEEN SHAFT 17 AND PACKING 44, BY REMOVING THE INSPECTION COVER OF THE INLET ELBOW AND OBSERVING THE FLOW WHICH SHOULD BE VERY SMALL, SAY APPROXIMATELY 6 DROPS PER SECOND... SHOULD THIS FLOW BE TOO GREAT, IT IS ADJUSTED BY TIGHTENING SLOWLY THE LANTERN GLAND 23 WITH THE USE OF THE TWO NUTS 77 ON GLAND STUDS 31. THE QUANTITY OF DRIPPING WATER FLOWING BETWEEN THE PACKING 45 AND SHAFT 17 PRESSED BY GLAND 6 IS ADJUSTED INDEPENDENTLY BY MEANS OF THE NUTS 81 ON THE SWIVEL SCREW 37. IT IS IMPORTANT THAT THE SAID FLOW IS GREAT ENOUGH TO PROVIDE FOR THE PROPER HYDRAULIC SEALING... THIS LATTER FLOW SHOULD BE 10 DROPS OR MORE PER SECOND AT ALL TIMES IN ORDER TO INSURE THAT THE UNIT IS FUNCTIONING PROPERLY. THE PACKINGS USED ARE JOHNS MANVILLE TYPE 2012, OR EQUIVALENT, AND THE TWO ROWS OF GLAND PACKINGS 45 ARE 3/8" SQUARE WHILE THE TWO ROWS OF CASING PACKINGS 44 ARE 5/8" SQUARE.

## INITIAL START-UP

IT IS TO BE NOTED THAT THE LASCOPENER IS EQUIPPED WITH AN INSPECTION COVER 13 MOUNTED ON THE INLET ELBOW 12. SHOULD ANY FOREIGN MATERIAL HAVE FALLEN INTO THE INLET LINE DURING THE INSTALLATION, IT COULD BE REMOVED THROUGH THIS OPENING. THIS INSPECTION HOLE IS ALSO USED FOR A BRIEF CHECK OF THE CLEARANCE BETWEEN THE ROTOR AND STATOR WHEN REQUIRED.

AFTER LASCO'S REPRESENTATIVE HAS INSPECTED THE INSTALLATION (PAGE 6), AND THE PROCEDURE OF PRE-START-UP HAS BEEN FOLLOWED (PAGE 9), THE MACHINE IS READY FOR INITIAL START-UP.

- 1: CLOSE ALL VALVES OF THE LASCOPENER'S SYSTEM.
- 2: OPEN SEAL WATER LINE TO THE ~~PACKING GLAND~~. *Mechanical Seal 8-10 Gal/h.*
- 3: SET THE OUTLET VALVE APPROXIMATELY HALF OPEN.
- 4: SET THE BY-PASS VALVE APPROXIMATELY HALF OPEN.
- 5: OPEN COMPLETELY THE FLUSH WATER LINE.  
*Start Oilmist*
- 6: PUSH START BUTTON FOR THE MOTOR.
- 7: GRADUALLY OPEN THE INLET VALVE UNTIL THE INLET PRESSURE GAUGE READS 2 TO 3 PSIG.
- 8: CLOSE THE VALVE ON THE FLUSH WATER LINE.

THE LASCOPENER IS NOW IN OPERATION. IN MOST CASES, A PRESSURE DIFFERENTIAL OF 18 PSIG. BETWEEN THE INLET AND THE OUTLET IS RECOMMENDED.

PLEASE NOTE THAT THE ABOVE INITIAL START-UP PROCEDURES APPLY FOR A SINGLE UNIT INSTALLATION ONLY. IN CASE OF MULTIPLE UNITS INSTALLATION IN PARALLEL, PROCEED AS ABOVE BUT NOTE THAT ONLY ONE BY-PASS LINE IS REQUIRED.

FOR FINAL WORK ADJUSTMENT, THE INLET AND OUTLET VALVES, AS WELL AS THE BY-PASS VALVE, WILL HAVE TO BE MANIPULATED, AND IT IS SUGGESTED THAT THE OPERATOR BE MADE FAMILIAR WITH THE WORK ADJUSTMENT INSTRUCTIONS ON PAGE 14.

SHOULD THE MACHINE BE SHUT DOWN FOR ANY REASON BEFORE THE FINAL ADJUSTMENT IS MADE, PLEASE MAKE USE OF INSTRUCTIONS ON PAGE 13. WHEN THE MACHINE IS READY TO START UP AGAIN, PLEASE FOLLOW THE SUBSEQUENT START-UP INSTRUCTIONS, ALSO ON PAGE 13.

OBTAIN SAMPLES OF THE STOCK BEFORE AND AFTER THE LASCOPENER, MAKING CERTAIN THAT THE SAMPLES ARE REPRESENTATIVE OF THE WORK DONE BY THE LASCOPENER. THESE SAMPLES WILL BECOME THE INITIAL GUIDE FOR FINAL WORK ADJUSTMENT, DEPENDING ON YOUR PARTICULAR REQUIREMENTS. PLEASE REFER TO SUGGESTED TESTING PROCEDURES ON PAGE 12.

## TESTING PROCEDURES

FOR CONVENIENCE, WE RECOMMEND THAT SAMPLERS BE INSTALLED ON THE INLET AND OUTLET LINES AS SHOWN ON PAGE 7. FOR PROPER ADJUSTMENT OF THE LASCOPENER, IT IS ESSENTIAL THAT THE RESULTS BE READILY KNOWN AFTER EACH ADJUSTMENT AND BE REPRESENTATIVE OF THE WORK DONE. SINCE STOCKS TREATED IN THE LASCOPENER ACQUIRE UNUSUAL CHARACTERISTICS, TEST RESULTS ARE TO BE REPORTED AS FOUND.

### 1: DEFLAKING

SAMPLES OBTAINED DURING THE INITIAL START-UP CAN BE CHECKED VISUALLY FOR BUNDLE AND CONTENT BY INSPECTION ON A BLUE GLASS OR BY ROTATING A SMALL DILUTED SAMPLE IN A CLEAR GLASS BOTTLE.

### 2: FREENESS

THE FREENESS CAN BE CHECKED BY THE USUAL FREENESS TESTING METHOD.

### 3: CONSISTENCY

FOR GOOD RESULTS IT IS ESSENTIAL THAT THE CONSISTENCY BE HIGHER THAN 3% B.D.

ON CERTAIN TYPES OF STOCK, THE CONSISTENCY INCREASE BY THE LASCOPENER'S ACTION IS APPARENT.

### 4: TEMPERATURE

THE BEST PERFORMANCE OF THE LASCOPENER IS NORMALLY OBTAINED WHEN THE STOCK TEMPERATURE IS BETWEEN 90° TO 110° F. TOO LOW STOCK TEMPERATURE IMPAIRS THE CAVITATION, WHILE TOO HIGH STOCK TEMPERATURE WILL CREATE FLASHING. IN THE CASE OF TOO HIGH STOCK TEMPERATURE, THE INLET PRESSURE MAY HAVE TO BE INCREASED.

THE FOLLOWING TESTS, WHICH ARE OF NO LESS VALUE, SHOULD BE CARRIED OUT FROM HAND SHEET AS SOON AS TIME PERMITS FOR FINAL ANALYSIS AND ADJUSTMENT.

A: TEAR TEAR TEST INCREASE IS OFTEN OBTAINED IN STOCK TREATED WITH LASCOPENER.

B: CALLIPER --BULK SINCE THE ACTION OF THE LASCOPENER ON THE FIBRES IS OF A SWELLING NATURE, ON CERTAIN TYPES OF STOCK AN INCREASE IN BULK WILL BE OBTAINED.

C: DRAINABILITY THE STOCK TREATED IN THE LASCOPENER USUALLY DRAINS MORE RAPIDLY THAN THAT TREATED IN CONVENTIONAL EQUIPMENT. THE DRAINABILITY WILL SHOW ON THE WIRE OR VAT AND ALSO IN A REDUCED STEAM CONSUMPTION FOR DRYING.

D: FORMATION THE INCREASED DRAINABILITY PERMITS THE USE OF LOWER CONSISTENCY AT THE HEAD BOX OR VAT, THEREBY PROVIDING BETTER FIBRE DISTRIBUTION AND FORMATION.

## SHUT DOWNS AND START UPS

### NORMAL SHUT DOWNS

EVERY TIME THE LASCOPENER HAS TO BE SHUT DOWN, THE FOLLOWING PROCEDURE IS TO BE CARRIED OUT:

1. OPEN THE VALVE ON THE FLUSH WATER LINE.
2. CLOSE THE STOCK INLET VALVE.
3. LEAVE THE FLUSH WATER LINE OPEN FOR 1 TO 2 MINUTES BEFORE PROCEEDING WITH THE NEXT STEP.
4. PUSH THE STOP BUTTON FOR THE MOTOR. *Stop oilmist*
5. CLOSE THE VALVE ON THE FLUSH WATER LINE.
6. CLOSE THE VALVE ON THE BY-PASS LINE.
7. CLOSE THE STOCK OUTLET VALVE.
8. CLOSE THE SEAL WATER LINE.

### ACCIDENTAL SHUT DOWNS

IN CASE OF POWER FAILURE OR ANY OTHER ACCIDENTAL OCCURENCES, IT IS RECOMMENDED THAT THE FOLLOWING MOVES BE CARRIED OUT:

1. CLOSE THE INLET, OUTLET AND BY-PASS VALVES IMMEDIATELY.
2. RELIEVE PRESSURE WITH DRAIN VALVE UNDER INLET ELBOW.
3. OPEN SLOWLY THE INSPECTION COVER ON ELBOW.
4. CLEAN THE INSIDE OF THE UNIT WITH ADEQUATE PRESSURE HOSE.
5. MAKE USE OF SPANNER SUPPLIED BY LASCO LTD TO FREE THE UNIT ENTIRELY.
6. PUSH START BUTTON OF MOTOR AND IF UNIT DOES NOT START, CHECK FOR ELECTRICAL FAILURES.
7. PUSH STOP BUTTON OF MOTOR.
8. CLOSE INSPECTION COVER. UNIT IS NOW READY FOR NORMAL START-UP.

### NORMAL START UPS

EVERY TIME THE LASCOPENER HAS TO BE STARTED, THE FOLLOWING PROCEDURE IS TO BE CARRIED OUT:

1. BE SURE THAT ALL VALVES ARE CLOSED.
2. OPEN SEAL WATER LINE TO ~~PACKING GLAND~~. *Mech seal (8-10 gal/h.)*
3. OPEN OUTLET VALVE TO REQUIREMENT.
4. OPEN BY-PASS VALVE TO REQUIREMENT.
5. OPEN COMPLETELY FLUSH WATER LINE.
6. PUSH START BUTTON FOR MOTOR. *start oilmist*
7. OPEN INLET VALVE TO REQUIREMENT.
8. CLOSE FLUSH WATER LINE.

## WORK ADJUSTMENT

VARIOUS FACTORS WILL AFFECT THE PERFORMANCE OF THE LASCOPENER, AND AMONGST THE MOST IMPORTANT ONES ARE: THE TYPE OF STOCK TO BE TREATED, THE PRESSURE DIFFERENTIAL BETWEEN INLET AND OUTLET, THE INLET PRESSURE, THE CONSISTENCY AND TEMPERATURE OF THE STOCK, AND THE DISCHARGE HEAD REQUIRED.

### PRESSURE DIFFERENTIAL

THIS FACTOR IS BY FAR THE MOST IMPORTANT ONE, BEING THE PRINCIPAL ADJUSTMENT FOR SPECIFIC WORK OR REQUIREMENTS. THE NORMAL PRESSURE DIFFERENTIAL BETWEEN INLET AND OUTLET IS 18 PSIG; HOWEVER, THIS FIGURE CAN BE RAISED OR EVEN LOWERED, DEPENDING ON REQUIREMENTS. FOR DEFLAKING ONLY, THIS FIGURE WILL NORMALLY BE HIGHER WHEN HARD TO DEFLAKE STOCK IS TREATED, WHILE IT CAN BE LOWER WHEN EASY TO DEFLAKE STOCK IS ENCOUNTERED.

UNDER NORMAL CONDITIONS, THE ADJUSTMENT OF THE PRESSURE DIFFERENTIAL CAN BE ACCOMPLISHED BY MANIPULATING EITHER OR BOTH THE OUTLET VALVE OR BY-PASS VALVE PROVIDING THE BY-PASS IS BEFORE THE VALVE. THE HIGHER THE PRESSURE DIFFERENTIAL, THE HIGHER THE DROP IN FREENESS AND FLOW. THE LOWER THE PRESSURE DIFFERENTIAL, THE LEAST WORK ON THE FIBRE WHILE NOT NECESSARILY INCREASING THE FLOW.

### INLET PRESSURE

IN NORMAL CASES IT IS PREFERABLE THAT THE INLET PRESSURE BE CONSTANT, AND THAT THE PRESSURE BE IN THE RANGE OF 2 TO 7 PSI WHILE HAVING THE INLET VALVE COMPLETELY OPEN.

WHEN A HIGH STATIC HEAD IS REQUIRED, THE INLET PRESSURE HAS TO BE INCREASED ACCORDINGLY IN ORDER TO MAINTAIN A NORMAL PRESSURE DIFFERENTIAL. HOWEVER, WHEN THE INLET PRESSURE IS MUCH HIGHER THAN THE NORMAL RANGE, THE CAVITATION EFFECTS WILL BE IMPAIRED, RESULTING IN REDUCED PERFORMANCE. THE HIGHER THE STOCK TEMPERATURE, THE HIGHER THE PERMISSIBLE INLET PRESSURE.

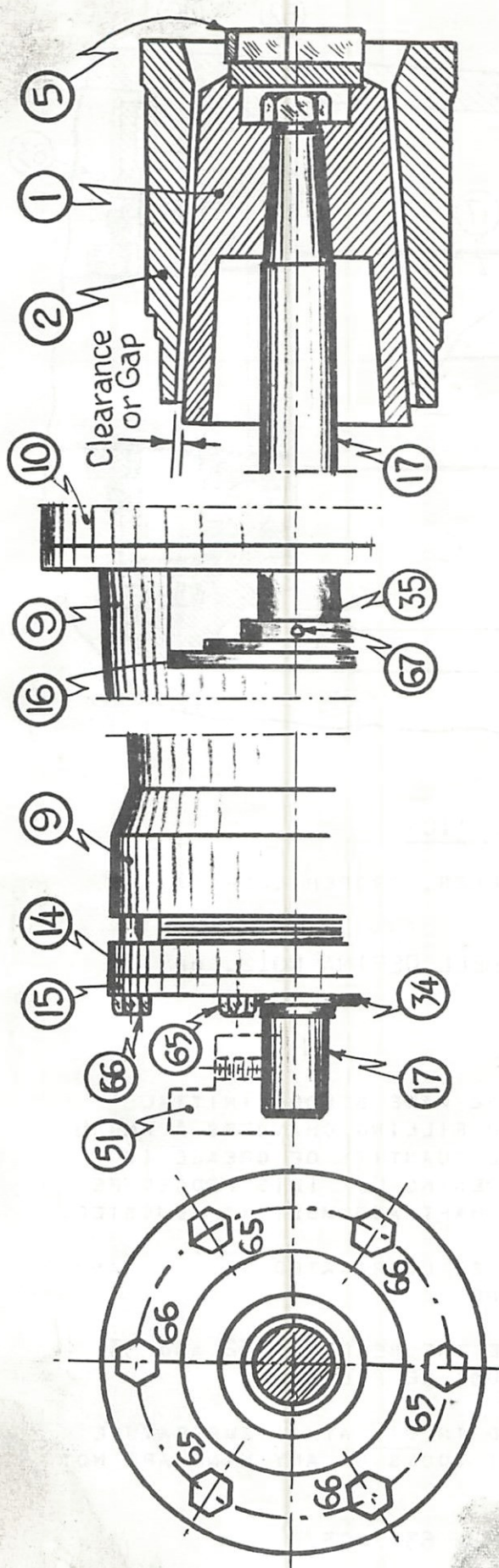
### STOCK FLOW

THE THROUGHPUT OF THE LASCOPENER IS FAIRLY CONSTANT. PROVIDING THE WORK DONE IS SATISFACTORY, THE THROUGHPUT CAN BE CONTROLLED BY MANIPULATING THE BY-PASS VALVE WITHOUT CHANGING DIFFERENTIAL PRESSURE IF THE INSTALLATION IS AS PER ALTERNATIVE B OR C ON PAGE 7.

NOTE THAT THIS MACHINE IS NOT TO BE CONSIDERED A PUMP.

### GAP CLEARANCE

LASCO'S REPRESENTATIVE WILL SET THIS CLEARANCE AT TIME OF INITIAL START-UP. AS THE LASCOPENER IS NOT A CONICAL REFINER, AND SHOULD NOT BE OPERATED AS SUCH, ADJUSTMENT OF THE CLEARANCE IS NOT A MAIN FACTOR FOR ADJUSTMENT OF THE WORK. OCCASIONALLY THE CLEARANCE IS ADJUSTED FOR WEAR. IN SPECIAL APPLICATIONS, THIS CLEARANCE HAS TO BE INCREASED. FOR PROCEDURE ON ADJUSTMENT OF THE CLEARANCE, PLEASE REFER TO PAGE 15.



### CLEARANCE ADJUSTMENT

IN NORMAL APPLICATIONS, THE CLEARANCE OR GAP BETWEEN THE ROTOR 1 AND STATOR 2 IS ADJUSTABLE FOR WEAR ONLY. THIS IS DONE BY MOVING THE ROTOR 1 IN THE STATOR 2. IN ORDER TO DO THIS PROPERLY, THE SET SCREWS ON THE COUPLING 51 MUST BE LOOSENED SO THAT THE SHAFT 17 CAN SLIDE INTO THE COUPLING. THE CENTER LABYRINTH 35 MUST ALSO BE FREE TO MOVE ON THE SHAFT 17 BY LOOSENING THE SET SCREWS 67.

TO MOVE THE ROTOR 1, TAKE OFF THE THREE (3) QUILL SCREWS 66, AND BY MEANS OF THE QUILL BAR WITH THE CENTER PIN IN AN EMPTY SCREW HOLE, ROTATE THE QUILL ASSEMBLY.

BY TURNING THE QUILL ASSEMBLY CLOCKWISE, YOU DECREASE THE CLEARANCE, AND BY TURNING IT COUNTER-CLOCKWISE, YOU INCREASE THE CLEARANCE.

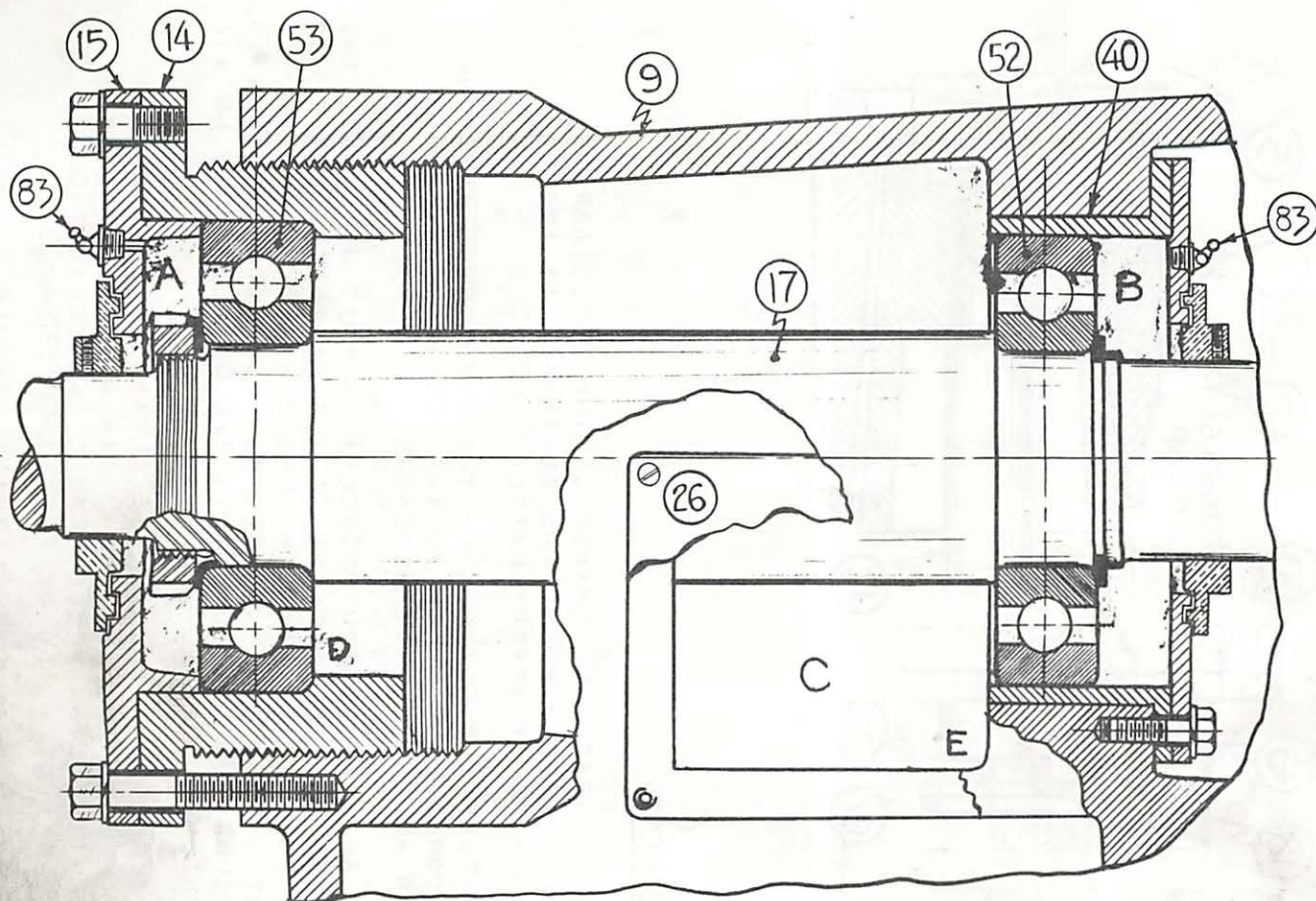
FOR EACH  $60^\circ$  CHANGE ON THE QUILL ARRANGEMENT, OR ONE TAPPED HOLE, THE CLEARANCE IS INCREASED OR DECREASED BY APPROXIMATELY 0.002".

TURN THE QUILL TILL THE ROTOR RUBS INTO THE STATOR AND BACK OFF TO THE REQUIRED CLEARANCE WHEN ADJUSTMENT IS NECESSARY.

AFTER THE REQUIRED CLEARANCE IS OBTAINED, THE SCREWS ON THE COUPLING 51 AND ON THE LABYRINTH 35 ARE TO BE TIGHTENED, MAKING CERTAIN THAT THE LABYRINTH'S WALL OR SHOULDER DOES NOT RUB INTO THE CLOSURE 16. BE SURE THAT THE QUILL SCREWS 66 ARE TIGHTENED EVENLY.

FOR QUICK CHECK, THE CLEARANCE BETWEEN THE ROTOR 1 AND THE STATOR 2 CAN ALSO BE CHECKED BY INSERTING LONG FEELER GAUGE BLADES IN THE GAP AT THE INLET SIDE OF THE LASCOPENER....

THE NORMAL GAP CLEARANCE SHOULD BE .006" TO .008" OF AN INCH.



### BEARINGS & LUBRICATION

DUE TO THE HIGH SPEED OF THE LASCOPENER, PROPER LUBRICATION IS EXTREMELY IMPORTANT...

THE TYPE OF GREASE RECOMMENDED IS SHELL <sup>DARINA</sup> DERINA NO.2, OR EQUIVALENT.

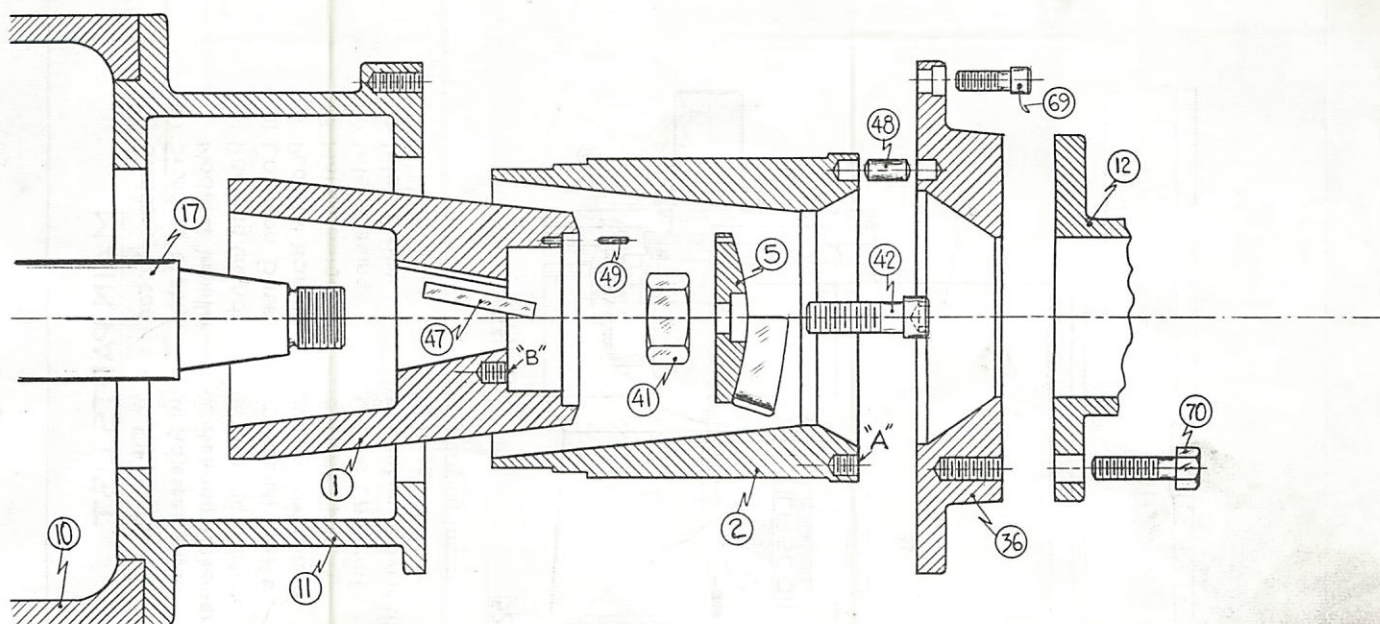
LUBRICATION OF THE BEARINGS SHOULD BE MADE BEFORE INITIAL START-UP BY REMOVING NAME PLATE 26, AND FILLING CHAMBERS A AND B THROUGH GREASE NIPPLES 83 UNTIL A SMALL QUANTITY OF GREASE IS OBSERVED EMERGING AT D AND E THROUGH PENING C. THIS PROCEDURE SHOULD ALSO BE FOLLOWED EACH TIME THE SHAFT ASSEMBLY IS ADJUSTED.

ONCE A WEEK THE TWO BEARINGS SHOULD BE LUBRICATED WITH A HAND GUN, APPROXIMATELY ONE OUNCE PER BEARING.

WHEN IT BECOMES NECESSARY TO REPLACE THE BEARINGS 52 AND 53, THE BEARING MANUFACTURER'S PROCEDURE MUST BE FOLLOWED.

**NOTE:** THE BEARINGS SHOULD BE HEATED IN OIL AT A TEMPERATURE OF 200°F AND INSTALLED BY HAND. IMPACT TOOLS OF ANY KIND ARE NOT TO BE USED.

BEARING 52 IS NUMBER 6316-C3 AND 53 IS 6317-C3.



### INSTALLATION OF NEW ROTOR & STATOR

1. DISMANTLE INLET ELBOW 12 AND INLET ADAPTOR 36 BY REMOVING SCREWS 69.
2. REMOVE STATOR 2 USING TWO TAPPED HOLES "A" AS A MEANS OF PULLING STATOR FROM INLET CASING 11.
3. REMOVE IMPELLER SCREW 42 AND IMPELLER 5.
4. REMOVE ROTOR NUT 41 AND ROTOR 1 BY MEANS OF A PULLER INSERTED IN TAPPED HOLES "B".

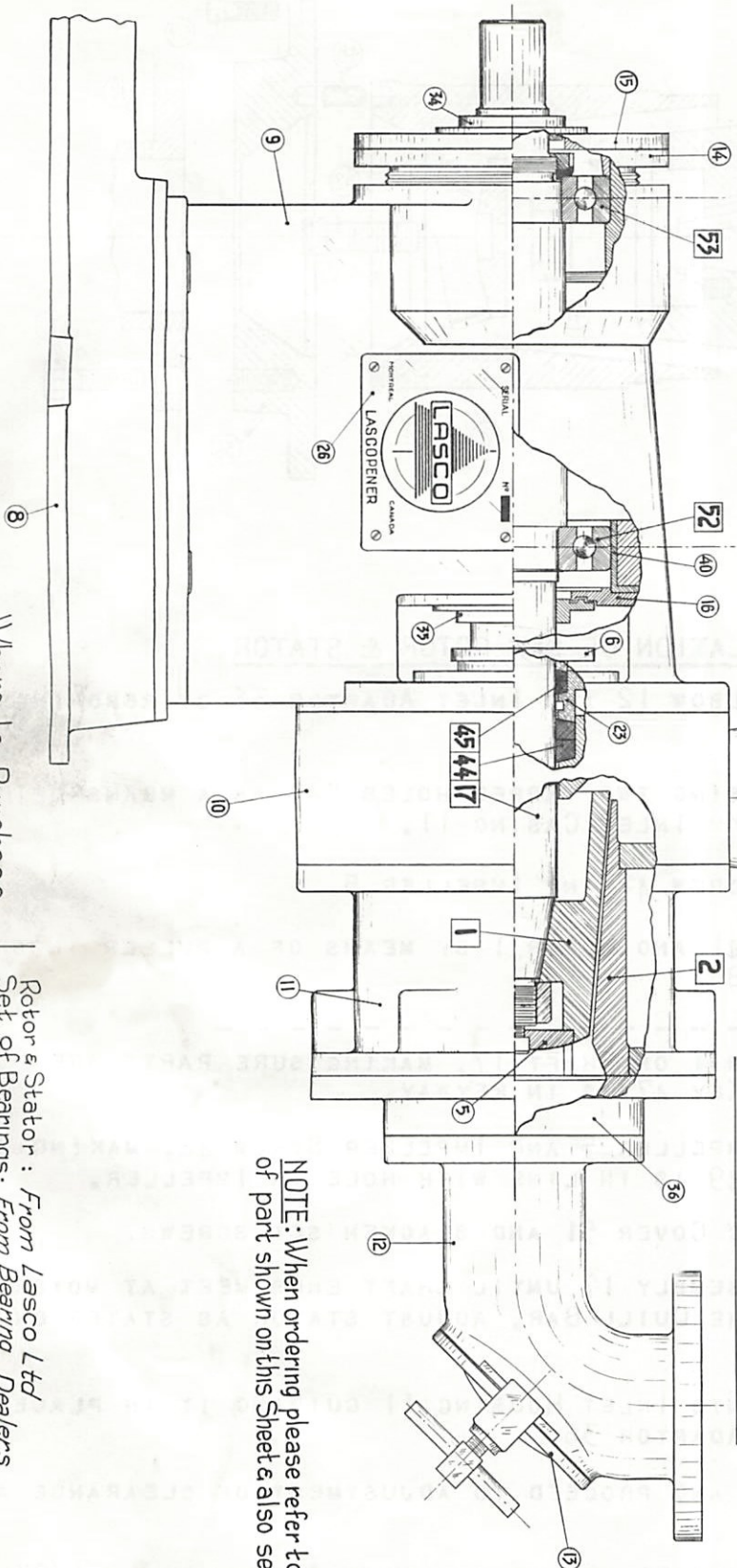
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1. ASSEMBLE NEW ROTOR 1 ON SHAFT 17, MAKING SURE PARTS ARE WIPED CLEAN, AND KEY 47 IS IN KEYWAY.
2. REPLACE NUT 41, IMPELLER 5 AND IMPELLER SCREW 42, MAKING SURE THAT LOCKING PIN 49 IS IN LINE WITH HOLE IN IMPELLER.
3. DISMANTLE COUPLING COVER 51 AND SLACKEN SET SCREWS.
4. BACK OFF SHAFT ASSEMBLY 17 UNTIL SHAFT ENDS MEET AT MOTOR. WITH THE USE OF THE QUILL BAR, ADJUST STATOR AS STATED ON PAGE 15.
5. INSERT STATOR 2 INTO INLET HOUSING 11 GUIDING IT IN PLACE WITH PIN 48 AND INLET ADAPTOR 36.
6. TIGHTEN SCREWS 69 AND PROCEED TO ADJUSTMENT OF CLEARANCE AS NOTED ON PAGE 15.
7. RE-ASSEMBLE COUPLING 51 AND ADJUST COUPLING FACES TO 1/8" CLEARANCE.

IF DIFFICULTY IS ENCOUNTERED IN ASSEMBLY, FITS SHOULD BE CHECKED. EXCESSIVE FORCE SHOULD NOT BE USED.

## MAIN PARTS LIST

- |                    |                    |
|--------------------|--------------------|
| ① Standard Rotor   | ⑬ Elbow Cover      |
| ② Standard Stator  | ⑭ Adjustable Quill |
| ③ Model 4 Impeller | ⑮ Bearing Retainer |
| ④ Packing Gland    | ⑯ Bearing Closure  |
| ⑤ Common Base      | ⑰ Opener Shaft     |
| ⑥ Pedestal Housing | ⑲ Lantern Gland    |
| ⑦ Main Casing      | ⑳ Name Plate       |
| ⑧ Inlet Casing     | ㉑ End Labyrinth    |
| ⑨ Inlet Elbow      | ㉒ Center Labyrinth |
|                    | ㉓ Inlet Adaptor    |
|                    | ㉔ Bearing Insert   |



## RECOMMENDED SPARE PARTS

One Set of Rotor ① and Stator ② Suitable for your Lascopener Serial Number. Normal Life: from 3 months to 2 years depending on application. These parts are available from Lascopener Ltd's Stock...

One Set of Deep Groove Ball Bearings including Brg. #6316-C3 and Brg. #6317-C3 (52) available from any dealer of RIV, Steyr, SKF, Fischer, New Departure or Equivalent...

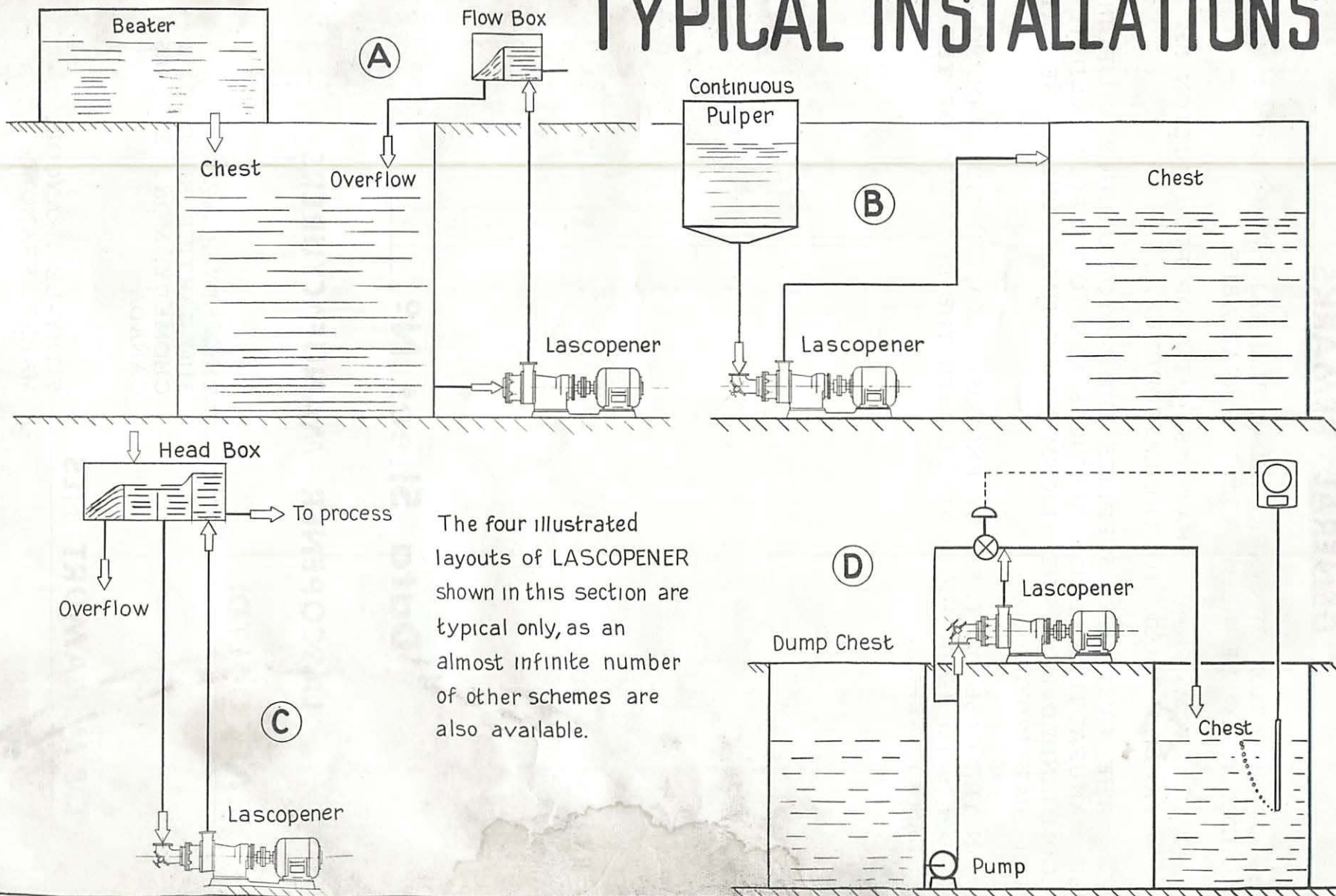
5/8" x 3/8" Sq. Johns-Manville White Asbestos, Teflon Braided Chempac Packing items (44) & (45) Quantity Required: Approx. 12" for each of the 4 rings. (#2012 or Equivalent)

NOTE: When ordering please refer to Item number of part shown on this Sheet & also serial number

## Where to Purchase

Rotor & Stator : From Lascopener Ltd  
Set of Bearings: From Bearing Dealers  
Gland Packings: From Packing Dealers  
Opener Shaft : From Lascopener Ltd

# TYPICAL INSTALLATIONS



## GENERAL REMARKS

THE COMBINATION SPANNER AND QUILL BAR SUPPLIED WITH THE MACHINE IS TO BE KEPT READILY AVAILABLE.

IT IS RECOMMENDED THAT A START-STOP PUSH BUTTON BE INSTALLED CLOSE TO THE LASCOPENER...

WHEN THE CUSTOMER SUPPLIES THE MOTOR AND/OR COUPLING, THE MANUFACTURER'S INSTRUCTIONS ARE TO BE FOLLOWED. IT IS RECOMMENDED THAT THE ALIGNMENT OF THE COUPLING BE MADE WITH DIAL INDICATOR.

IN THE CASE OF TOTALLY ENCLOSED MOTOR, THE COOLING FAN IS TO BE IN ACCORDANCE WITH THE ROTATION OF THE LASCOPENER.....

**Data Sheet N° \_\_\_\_\_**

### LASCOPENER MANUFACTURERS

**LASCO LTD.**

CHOMEDY PLAZA,  
3100 CARTIER BLVD.,  
CHOMEDY, MONTREAL DIST.,  
CANADA

**E.&M. LAMORT FILS**

VITRY-LE-FRANÇOIS,  
MARNE, FRANCE.