

# Suction Machine

## User's Manual



Model : TSA40



Model : TSA41



## ◆ SUMMARY FOR TSA-40 and TSA-41

THIS ELECTRICALLY POWERED SUCTION UNIT " TSA-40 / 41 " WAS DEVELOPED TO SATISFY USER.

TSA-40 / 41 WAS EQUIPPED WITH ADVANCED OIL-LESS PISTON VACUUM PUMP FOR MAINTENANCE FREE AND AUTOCLAVABLE DUAL COLLECTION JAR MADE FROM POLY CARBONATE FOR MAXIMUM USER'ED CONVENIENCE.

## ✳️ FEATURES

- THE WEIGHT OF MAIN CABINET MADE FROM ABLER PLASTIC IS VERY LIGHT AND CAN PROTECT USER AGAINST IN CASE OF ELECTRIC SHOCK FROM ACCIDENT OF ELECTRIC LEAKAGE.
- CAUSES OF BUILT IN POWERFUL OIL-LESS VACUUM PUMP
  - ★ TSA-40 CAN BE OPERATED OVER THAN 10 HOURS CONTINUOUSLY.
  - ★ TSA-40 DON'T PRODUCE OIL MIST .
  - ★ TSA-40 DON'T NEED MAINTENANCE AS REFILL OR EXCHANGE OIL.
- USING SILICON TUBE FOR NOT ONLY OUTER TUBING BUT ALSO INNER TUBING FOR MAXIMUM DURABILITY.
- FOR MAXIMUM USER'S CONVENIENCE , EQUIPPED WITH AUTOCLAVABLE POLY CARBONATE BOTTLE WHICH DECREASE USER'S TROUBLE.
- FOR SAFETY FROM CROSS(2ND) INFECTION , EQUIPPED WITH HIGH PERFORMANCE BACTERIA FILTER IN INNER TUBING SYSTEM.

## ■ NOTICE FOR INSTALLATION

- ★ MAKE SURE INSTALLATION ON FLAT FLOOR FOR STABILITY.
- ★ BEFORE USING , CONNECT THE POWER SUPPLY CORD AND THE CORD OF FOOT SWITCH FIRMLY.

## ■ HOW TO USE

- ① CONNECT THE POWER SUPPLY CORD ( SHAPED SQUARE ) AND THE CORD OF FOOT SWITCH ( SHAPED ROUND AND SCREW TYPE ) FIRMLY.
- ② CHECK THE POWER IN LAMP LIGHT.
- ③ MAKE SURE CONNECTING OUTER TUBING AND LID WITH JAR.
- ④ POWER IN LAMP LIGHT MEANS READY TO OPERATE.  
MAKE SURE SELECT SUCTION I OR SUCTION II USING KNOB ON TOP OF BODY.
- ☆ YOU CAN CHOOSE JAR FOR SUCTION.
- ⑤ FOR CONTINUOUS SUCTION , TURN TO " ON " THE OPERATION SWITCH.  
FOR INTERMITTED SUCTION , TURN TO " FOOT s/w " THE OPERATION SWITCH  
FOOT DOWN THE FOOT SWITCH.  
IN CASE OF USING FOOT SWITCH , IT COULD OPERATE , WHILE KEEPING FOOT DOWN THE FOOT SWITCH.
- ⑥ FOR GETTING REQUIRED VACUUM PRESSURE , ADJUST KNOB OF " VACUUM CONTROL " LOCATED ON CONTROL PANEL.  
☆ FOR INCREASING VACUUM PRESSURE , TURN THE KNOB TO CLOCK WISE DIRECTION  
☆ FOR DECREASING VACUUM PRESSURE , TURN THE KNOB TO COUNTER CLOCK WISE DIRECTION

## ■ TROUBLE SHOOTING

| TROUBLE  | CAUSE  | REMEDY   |
|--|--|--|
| EVEN THOUGH CONNECTING THE POWER SUPPLY CORD, "POWER IN" LAMP NOT LIGHT                                    | <ol style="list-style-type: none"> <li>1. NO POWER SUPPLY</li> <li>2. TROUBLE ON POWER SUPPLY CORD</li> <li>3. TROUBLE ON "POWER IN" LAMP</li> </ol>   | <ol style="list-style-type: none"> <li>1. ② CHECK POWER SUPPLY<br/>④ CHECK FUSE</li> <li>2. EXCHANGE POWER SUPPLY CORDS</li> <li>3. EXCHANGE "POWER IN" LAMP</li> </ol>  |
| CAN NOT OPERATE THOUGH "POWER IN" LAMP LIGHT   | <ol style="list-style-type: none"> <li>1. TROUBLE ON MOTOR</li> <li>2. TROUBLE ON INNER WIRING</li> <li>3. TROUBLE ON "OPERATION SWITCH" OR FOOT SWITCH</li> </ol>   | <ol style="list-style-type: none"> <li>1. REPAIR MOTOR OR EXCHANGE MOTORS IF REQUIRED</li> <li>2. CHECK AND REWIRING</li> <li>3. CHECK AND EXCHANGE SWITCHES WHICH IS DAMAGED</li> </ol>   |
| EVEN THOUGH MOTOR IS OPERATING, VACUUM PRESSURE DOES NOT INCREASE (VACUUM GAUGE FIXING AT "0")             | <ol style="list-style-type: none"> <li>1. DISCONNECTION OF INNER OR OUTER TUBING SYSTEM</li> <li>2. SHUT OFF BACTERIA FILTER</li> <li>3. VACUUM CONTROL KNOB ADJUSTED TO LOW POSITION</li> <li>4. LID IS OPENED</li> </ol> | <ol style="list-style-type: none"> <li>1. CHECK INNER AND OUTER TUBING SYSTEM AND MAKE SURE CONNECTION FIRMLY</li> <li>2. EXCHANGE FILTER. (PLEASE REFER PAGE 4)</li> <li>3. EXCHANGE VACUUM CONTROLLER</li> <li>4. MAKE SURE CLOSING OF LID FIRMLY</li> </ol> |
| EVEN THOUGH MOTOR IS OPERATING, VACUUM PRESSURE DOES NOT ENOUGH (LOW PRESSURE) (VACUUM GAUGE IS OPERATING) | <ol style="list-style-type: none"> <li>1. SOMETHING IS SUCKED INTO TUBING SYSTEM.</li> <li>2. ANTI OVER FLOW DEVICE IN JAR IS WORKING</li> </ol>   | <ol style="list-style-type: none"> <li>1. CHECK AND MAKE CLEAN INSIDE OF TUBE.</li> <li>2. TURN OFF POWER, AND MAKE CLEAN COLLECTION JAR AND ANTI OVER FLOW DEVICE AND TRY TO OPERATE AGAIN.</li> </ol>  |

## ■ CAUTIONS

- Suction Bottle is PC (Poly Carbonate) and it is very strong from external shock but not strong by Chemical reaction like various Disinfectant, Benzen or Sodium Hypochlorite (Bleach)
- Various chemical reaction could be made Crack or state of Poly Carbonate Bottle.
- The Suction Bottle should be washed as Water or Water with Neutral detergent only before autoclave or stocking.
- Suction Bottle should be sterilized under the 121 Celcius Degree after Cottorn Fabric Covering before Autoclave.

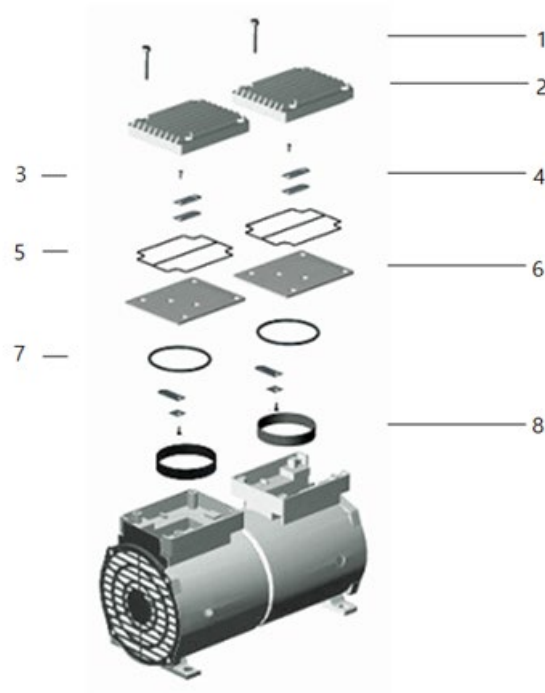
## ■ PLEASE REMEMBER BELOW

- WHILE USING , DO NOT COLLECT IT OVER THAN SCALED RANGE.
- AFTER USING , MAKE CLEAN INSIDE OF SUCTION TUBE THROUGH SUCKING CLEAN WATER.
- AFTER USING , WASH / STERILIZE BOTTLE SUCTION CANNULAS , AND THEN STORE THEM FOR NEXT USING.
- COLLECTION JAR ( SUCTION BOTTLE ), SUCTION TUBE AND LID CAN BE STERILIZED WITH HIGH PRESSURE AND TEMPERATURE STEAM STERILIZER , BUT ANTI OVER FLOW DEVICE CAN NOT BE.
- DO NOT STERILIZE ANTI OVER FLOW DEVICE IN STEAM STERILIZER.
- IN CASE OF NOT USING FOR LONG TIME, DISCONNECT THE POWER SUPPLY CORD FOR MAXIMUM SAFETY.
- WHILE DOING EVERY REQUIRED CHECKING AND REPAIRING DISCONNECT THE POWER SUPPLY CORD FOR MAXIMUM SAFETY.

## ■ HOW TO EXCHANGE AIR FILTERS

- DISCONNECT THE POWER SUPPLY CORD FIRMLY.
- USING "+" SHAPED DRIVER , REMOVE 8 SCREWS LOCATED ON BOTH SIDES OF BODY. ( 4 SCREWS ON EACH SIDE )
- USING "-" SHAPED DRIVER , REMOVE 8 WASHERS LOCATED ON BOTH SIDES OF BODY. ( 4 WASHERS ON EACH SIDE )
- REMOVE BACK CASE. ( JUST PULL )
- THEN YOU CAN SEE INSIDE , AND YOU CAN FIND VACUUM PUMP LOCATED IN LOWER INNER SPACE WITH TUBE.
- YOU CAN FIND WHITE COLORED AIR FILTER SIMILAR TO UFO CONNECTED TO NEAREST TO VACUUM PUMP.
- REMOVE USED FILTER. ( JUST PULL )
- INSTALL NEW FILTER ( JUST PUSH IN )
- ASSEMBLE ABOVE IN THE REVERSE ORDER.

## ■ HOW TO DIS-ASSEMBLE VACUUM PUMP



○ DIS-ASSEMBLE PUMP WITH REFERENCE NUMBERS ON ABOVE PICTURE, AND MAKE INNER PARTS CLEAN WITH THINNER

※ WARNING : DO NOT USE STEEL WIRE BRUSH FOR CLEANING.

IF ⑤,⑥,⑦ AND ⑧ ARE DAMAGED , MAXIMUM VACUUM PRESSURE MAY BE DECREASED.

※ ASSEMBLING IS IN THE REVERSE ORDER OF DISASSEMBLE.

※ REQUIRED TOOLS

"+" SHAPED DRIVER

"L" SHAPED HEX-WRENCH SPANNER (6 MM)

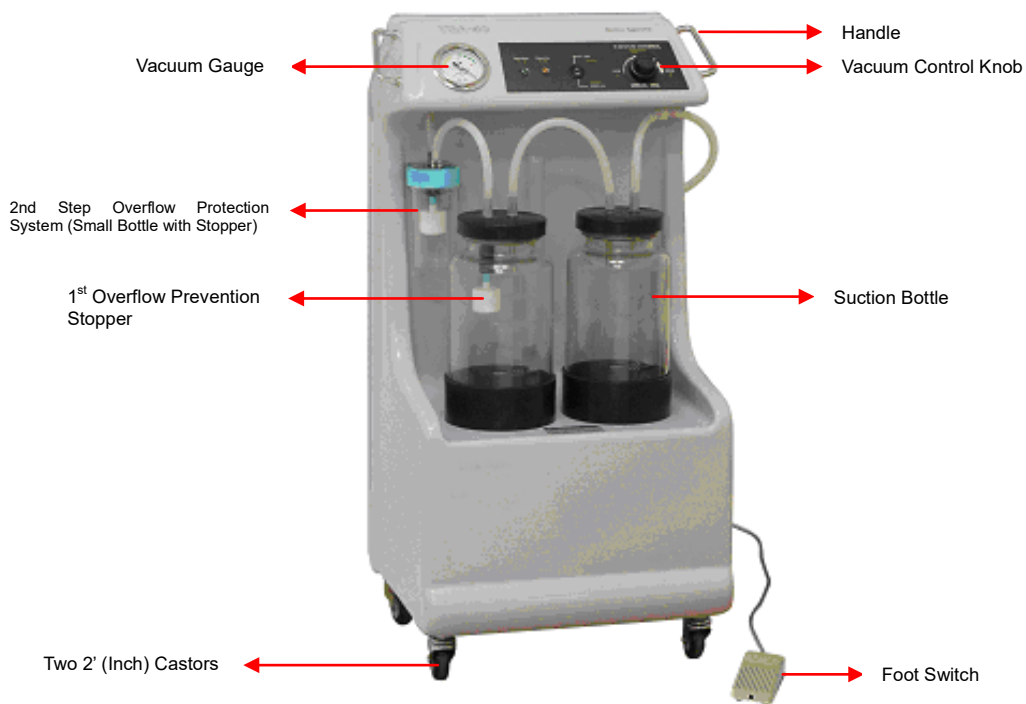
## ■ SPECIFICATIONS

|   |   |
|---|---|
| DIMENSIONS .....  | 420(W) X 360(L) X 840(H) mm (TSA-40)                    |
|   | 345(W) X 520(L) X 960(H) mm (TSA-41)                    |
| Max. Vacuum .....   | 735 mmHg  |
| Free Air Flow Rate .....  | 50 L/m at 60Hz  |
| 1 <sup>st</sup> Overflow Prevention Stopper .....                                 | 1 Each  |
| 2 <sup>nd</sup> Step Overflow Protection System (Small Bottle with Stopper) ..... | 1 Set   |
| Air Filter .....  | 1 Each  |
| Pump .....  | Oil-less Piston Pump                                    |
| Collection Bottle.....  | Autoclavable, Poly-Carbonate Material, 3,000CC X 2 Each |
| Tube .....  | Silicone Tube   |
| Power Source (Power Consumption) ...  | 220 VAC, 60Hz ( SPECIFY BEFORE ORDER ), 250 W           |
| Built-In Tray on the Top of Machine (For TSA-41 Only)                             |   |
| WEIGHT .....  | 22 KG (For TSA-40) / 25KG (For TSA-41)                  |

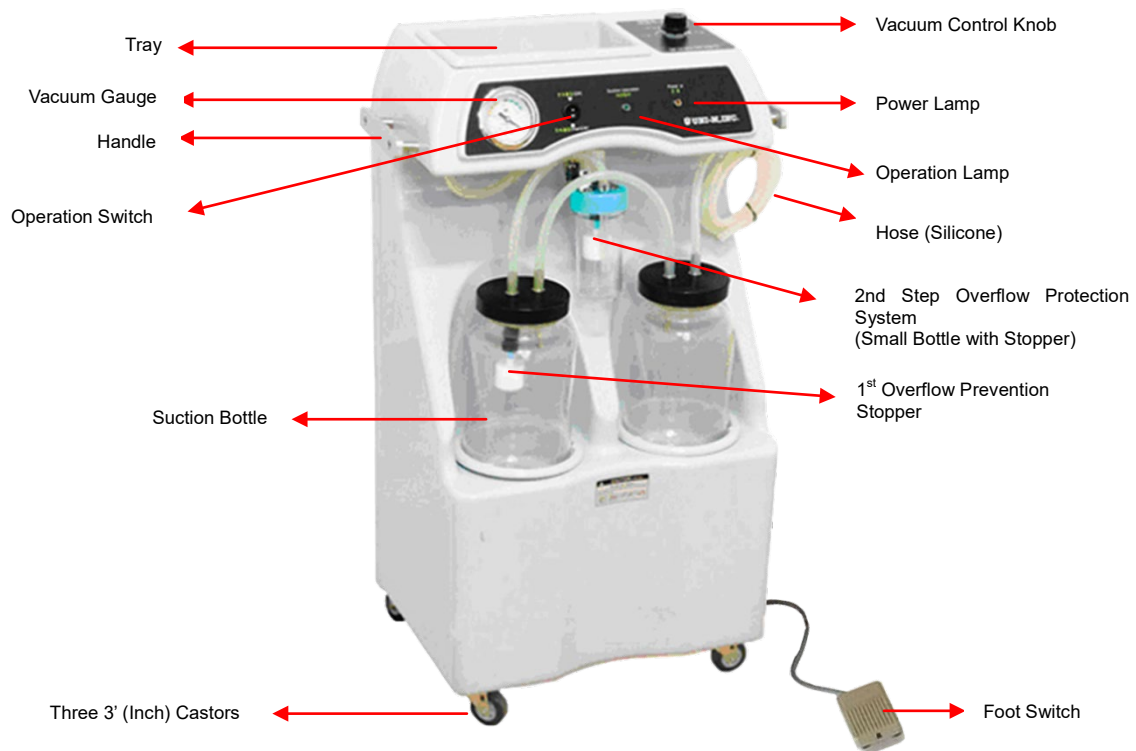
## ■ STANDARD ACCESSORIES

|   |
|---|
| Main Unit : 1 Set   |
| Power Supply Cord : 1 each  |
| Collection Bottle (3 Liter) : 2 each  |
| Silicone Hose : 1.5 meter   |
| Fixed Line Water-proof Foot Switch : 1 Set  |
| 1 <sup>st</sup> Overflow Prevention Stopper : 1 each                                |
| 2 <sup>nd</sup> Step Overflow Protection System (Small Bottle with Stopper) : 1 Set |
| Air Filter : 1 each   |
| Built-in Tray on the Top Table (For TSA-41 Only) : 1 Set                            |

■ **Figure of TSA-40**



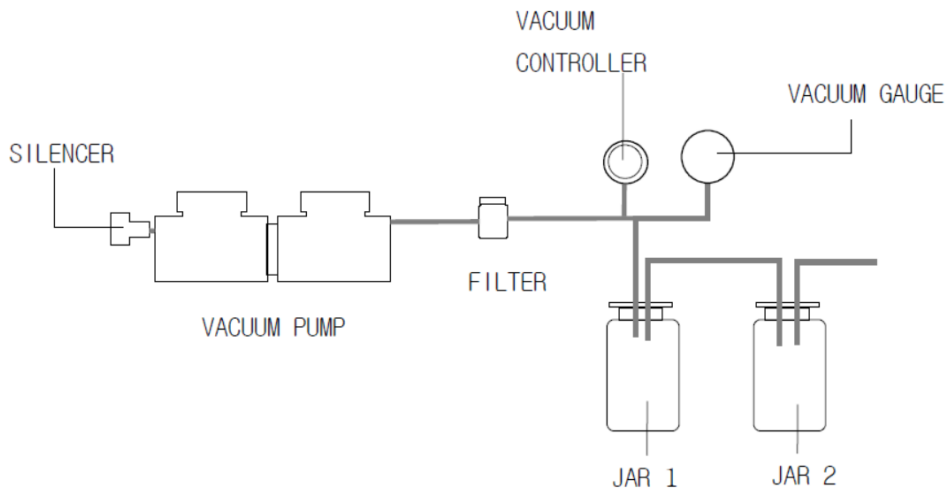
■ **Figure of TSA-41**



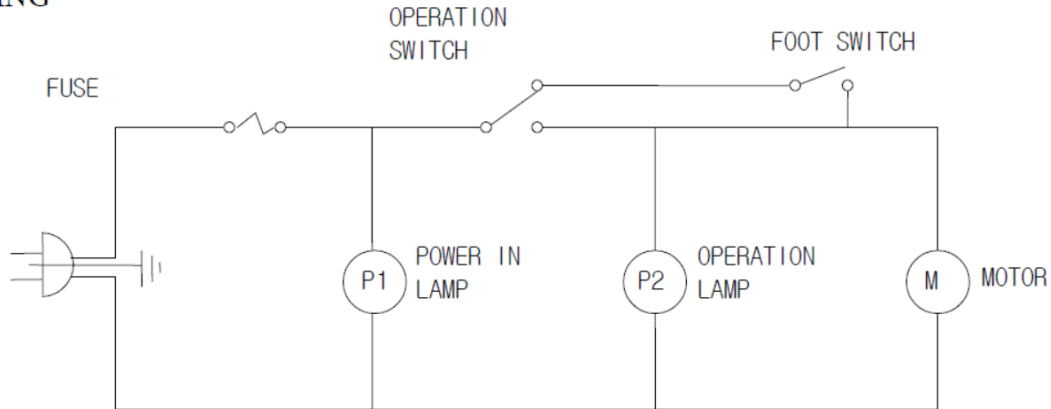


■ TUBING AND WIRING SYSTEM FOR TSA-40 AND TSA-41

◆ TUBING SYSTEM



■ WIRING



**ALOPS CO., LTD.**

(B, 3~4F) 186, LS-Ro, Gunpo-Si, Gyeonggi-Do, Republic of Korea

TEL : +82-31-456-3890 FAX : +82-31-456-3892

E-MAIL : intl@alops.co.kr

Web : www.alops.co.kr