



USER MANUAL

DC100N



UNI-RAM CORPORATION • ONTARIO • CANADA

Revision 2010-06

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INTRODUCTION

Uni-ram holds many patents on designs used in its innovative products. Every machine is tested for compliance with Quality Assurance standards. Follow the instructions on preparation, use and operation to operate this machine safely and effectively. Ensure that this manual is readily available to the operator at all times. If you have any questions about the operation of this machine, contact:

North America:
Uni-ram Technical Service
1-800-417- 9133
Other Continents:
Contact Your Supplier

CAUTIONS AND WARNINGS

- The operator should wear protective clothing in accordance with local safety and environmental regulations, with a minimum of face goggles and gloves along with an apron and respirator if required.
- Always disconnect the power source before performing maintenance.
- DO NOT SMOKE OR USE THIS EQUIPMENT NEAR A POTENTIAL SOURCE OF IGNITION SUCH AS SPARKS OR AN OPEN FLAME. This unit must be located at least 6 feet (1.8 m) from all potential sources of ignition including electrical receptacles, switches, pilot lights, fixtures and contacts when installed in a non - hazardous locations.
- The ambient temperature must be between 5°C (41°F) to 35°C (95°F).
- DO NOT RECYCLE NITROCELLULOSE WHICH IS EXTREMELY VOLATILE. IT AUTOMATICALLY IGNITES AT 135 °C TO 166 °C (275°F TO 330 °F). Do not install, operate or maintain this equipment where the auto ignition temperature of the solvent is lower than 250 °C (482°F).
- Do not install, operate or maintain this equipment where the auto ignition temperature of the hazardous atmosphere(s) is lower than 250 °C (482°F).
- Solvents that are recycled can be flammable. Establish and follow safe practices to store and handle solvents.
- Units must be installed by a qualified electrician.
- Install on a dedicated circuit with sufficient current capacity (see specifications section).

FEATURES AND SPECIFICATIONS

All Uni-ram Solvent Recyclers feature **rapid-start** direct electric heating of solvent and a **short cool-down time** due to high-efficiency condensers and air cooling with a motor driven fan.

SAFETY FEATURES

- This unit is certified under UL standard 2208 and CSA standards C22.2 No. 30 and No. 88 for use in non-hazardous locations as well as for use in hazardous locations Class 1, Division 1, Group D - T2A and Class 1, Division 2, Group D - T2A.
- **Explosion proof construction** and intrinsically safe electric circuitry.
- **Computer controlled** with many built-in safety programs including temperature control of all critical points including tank, condenser and fan motor.
- **Self Diagnostic** error messages are displayed on the Display Panel.
- **Dual lid** cover system.

Warranty: 1 year on unit, 2 years on pump.

SPECIFICATIONS	
MODEL	DC100N
VOLTAGE (V)	220/240*
RECOMMENDED CIRCUIT AMPS	30
MAX TEMPERATURE SET POINT	240°C
TANK SIZE	20 US GAL (80L)
CONDENSER AND FITTING	STAINLESS STEEL
LID GASKET	VITON
SHIPPING DIMENSIONS (WDH")	47 X 27 X 50
WEIGHT (LB/KG)	450/205

*Note on voltage:

Operating the unit at a lower voltage (eg: 208V) may result in reduced performance.

SOLVENT REQUIREMENTS

Dirty solvent to be distilled must meet **each requirement** described below. Be sure to read the MSDS (Material Solvent Data Sheet) on the properties of the pure solvent to be recycled.

- The BP (Boiling Point) of the dirty solvent must be less than 240°C (464°F). BP increases with greater contamination. **Note:** Recycle recently contaminated solvent only. Standing solvent can become acidic over time.
- The auto-ignition temperature of the solvent to be distilled must be higher than 250°C (482°F) for safe operation. Do not recycle Nitrocellulose. The auto ignition temperature is 135°C (275°F).

DEFINITIONS

Flash Point: The lowest temperature at which the vapor of a solvent can be made to ignite momentarily in air.
Auto-ignition temperature (often referred to as "ignition temperature" or "ignition point"): the temperature at which solvent ignites by itself.

DELIVERY INSPECTION

- Inspect the shipping carton for any sign of transport damage. Carefully remove the unit from the shipping carton and check the unit for damage. Report any transport damage immediately to the carrier and your vendor. Initiate a freight claim with the carrier. The manufacturer is not responsible for freight damage.
- Check for the parts listed and/or shown below. If any parts are missing, contact your supplier. Additional consumables and accessories are also listed.

ACCESSORY KIT CONTENTS

Manual
Door Handle & 2 Screws
Connection Hose Kits (see photo on right)
Lid Gasket

CONNECTION HOSE KITS



DIRTY SOLVENT IN

CLEAN SOLVENT OUT

LOCATION

This unit is certified for use in non-hazardous and hazardous locations Class 1, Division 1 Group D and Class 1, Division 2, Group D.

• **Non-hazardous Locations:**

If using a plug rated for non-hazardous locations, the unit must be located outside of a hazardous location. In such a location, we recommend that the receptacle be located a minimum of 6 feet from the unit and a minimum of 3 feet from the floor. We also recommend that the unit be located at least 6 feet from electrical receptacles, switches, pilot lights, fixtures etc. **To clarify the definition of an appropriate location, contact your local authority. This unit must be connected to the power supply only by a qualified electrician in accordance with an appropriate Electrical Code.**

• **Hazardous Location:**

In hazardous locations (Class 1, Division 1, Group D and Class 1, Division 2, Group D), the power cord must be connected to the main power supply only by a qualified electrician, in accordance with the National Electrical Code. This equipment must be properly connected to an explosion proof outlet (receptacle or hard wired).

Select a Location That Meets EACH AND EVERY Requirement, Described Below.

1) Comply with the instructions in the section: CAUTIONS AND WARNINGS.

2) **Make sure that the unit is placed in a in a location so that there is plenty of space to manoeuver the drums, especially when they are full.** There must also be enough space behind the unit to accommodate all the hoses, connections and required ventilation. Ensure that the safety lid and door opens fully. The unit must be in a location where people or equipment cannot disturb the cables or connections. The cord must be connected directly to the main power supply; an extension cord cannot be used.

SETUP AND CONNECTIONS

1. PLACEMENT OF CONTAINERS

Arrange the containers in a convenient way that does not block the free flow of air around the unit. **Note: the full containers will be very heavy. Make sure there is enough space to manoeuver them in a safe manner.**

2. POWER CONNECTION

Connect the unit to a dedicated branch circuit using one of the methods described in the Location section. **Note: operating the unit at a lower voltage (eg: 208V) may result in reduced performance.** On first power up and when the unit is ready to begin a new cycle, the Display Panel shows "READY S.P. = XXX°C". SP (SP = Set Point, XXX is the set point temperature)

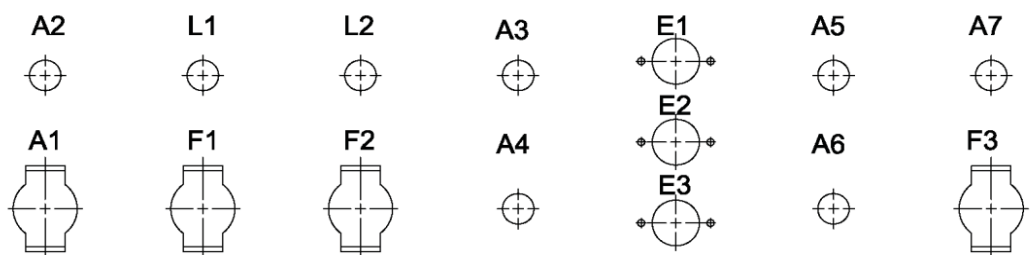
3. AIR CONNECTION

This unit is equipped with air operated Dual Diaphragm pumps and requires a supply of clean, dry air of at least 85 PSI (6 kg/cm²) and 2 CFM. **Note: If necessary , install a Moisture Filter.**

Apply teflon tape to the Air Inlet Fitting (1/4" NPT Female Threads) and connect the Moisture Filter to it, if necessary. Connect the air supply to the Filter. Make sure that there are no leakages at the connections. Also make sure that the air is free of dust, rust and other contaminants. Drain the Moisture Filter before each recycling.

4. HOSE CONNECTIONS

Using the diagram below as a guide, connect the various tubes and hoses to the correct connectors at the back of the unit.



A1	AIR SUPPLY INLET FITTING (1/4" NPT FEMALE	L1	NOT INSTALLED
A2	NOT INSTALLED	L2	LEVEL SENSOR FOR EXTERNAL SOLVENT RECEIVING DRUM (QCF1414
A3	NOT INSTALLED	F1	NOT INSTALLED
A4	NOT INSTALLED	F2	FLUID OUTLET CONNECTOR, DISTILLED SOLVENT OUTLET (LIQUID QC CONNECTOR
A5	AIR SUPPLY OUTLET FOR AIR AGITATION (QCF1414	F3	FLUID INLET CONNECTOR FOR WASTE SOLVENT INLET (LIQUID QC CONNECTOR
A6	NOT INSTALLED	E1	ELECTRIC SOCKET CONNECTOR FOR REMOTE PAT LIGHT (DN-4-4PINS
A7	NOT INSTALLED	E2	ELECTRIC SOCKET CONNECTOR FOR EXTERNAL AUTO START & STOP SIGNAL (DN-3-3PINS
		E3	NOT INSTALLED

5. GROUNDING WIRES

To prevent the build up of static electricity, any container containing solvent must be grounded. The hose for the dirty solvent and the clean solvent comes with green grounding wire. Connect one end to the grounding screw on the back of the unit and the other to, either the rim of the solvent container if it is metal or to the metal pickup rod, if the container is plastic use the "alligator clamp" provided on the container end of the wire to connect to the pick up tube.

OPERATING PARAMETERS

The computer is pre-set at the factory and the initial setup of the unit is usually done by a Uni-ram-certified technician. If the initial solvent mixture is changed or the initial settings need to be fine-tuned, changes can be made by the operator in SETUP mode, described below. For advice on changing the settings, or to correct a problem during the operation of the unit, call for service.

SETUP MODE

We recommend that only personnel with expert understanding of the unit adjust the settings. Adjust settings only when the display reads: "READY S.P. = xxx°C". To start SETUP, press and hold SETUP key and press START. Use + or - key to adjust setting. To move to the next parameter, press OK.

STEP	DISPLAY	KEY TO ADJUST	KEY TO ACCEPT	DESCRIPTION
1	LOW AIR PRESSURE	NA		Appears if Air supply is not yet connected.
2	READY S.P. = 200°C	NA		Indicates unit is ready and set to 200°C
3	SET-UP MODE	NA		Indicates SETUP mode is active
4	CYCLES # = 1	+ OR -	OK	Change to 2, see Example Scenario
5	SET-PT = 200°C	+ OR -	OK	Depends on BP of waste mixture
6	LO TEMP PWR = 100%	+ OR -	OK	Adjust together to compensate for excessively vigorous vapourization which can cause leakage at the Lid Gasket.
7	HI TEMP PWR = 80%	+ OR -	OK	
8	SWITCH TEMP = 200°	+ OR -	OK	
9	REF. TIME = 1H00M	+ OR -	OK	"Refill Time" = duration of Refill Cycle; Range: 1-24 hours; best setting is max without loss of output
10	POST HEAT = 0H00M	+ OR -	OK	Minimize to allow more Refill Time; best setting determined by Drain Temp, the nature of the waste content and the "DOWN SLOPE" setting (set at the factory or during initial setup).
11	DRAIN TEMP = 100°C	+ OR -	OK	Increase to lower the viscosity of the waste or to allow a shorter Post Heat setting or to reduce the Cool Down time; decrease if too much odour
12	READY S.P. = 200°C	NA		Indicates unit is ready and set to 200°C

OPERATION

A A typical setting is where CYCLES # = 2 cycles, each cycle is 12-15 hours each.) The operation consists of the following:

1. Press START

The unit will operate continuously for 24 -30 hours and drain the drum of dirty solvent producing clean solvent.

2. CHECK CONTAINERS HOLDING DIRTY SOLVENT AND CLEAN SOLVENT

At the end of the batch remove the dirty drum and clean solvent drum as necessary. Prepare drums for the next batch.

3. DISPOSE of WASTE INK

Clean the tank, lid and float and dispose of the waste ink residue in the regular waste ink drum.

4. CLEANING AND CHECKING THE DISTILLATION TANK, LID AND FLOAT AFTER EACH "BATCH"

To ensure maximum performance, it is extremely important to clean and maintain the Distillation Tank, Lid and Float system as follows:

- Wear protective clothing according to local regulations. A minimum of solvent resistant gloves, goggles and mask are recommended.
- Make sure the unit is in "READY" mode.
- Open Safety Cover fully.
- Unlatch and open the Tank Lid. Use **EXTREME CAUTION** to avoid damage to the Float System, • Using a cloth soaked in clean solvent, wipe the Tank Lid interior and the exposed part of the Lid Gasket.
- While supporting the Float System firmly with one hand, clean the float ball and stem with the other.
- When finished, check that the float moves freely and that all hardware is tight. If necessary, re-tighten any loose hardware.
- To help in the cleaning of the Tank interior, add solvent to the Tank automatically by activating the CLEANING MODE cycle: push and hold O.K. button then press STOP. The DISPLAY will read "CLEANING MODE ?".
- Press START to continue or STOP to cancel. If you continue, the drain is closed and the filling pump runs for about 10 seconds to add some solvent to the tank. This is followed by heating, if necessary.
- The DISPLAY will then read "READY TO CLEAN" for 5 seconds followed by "PUSH O.K. TO DRAIN". **Do not press O.K. yet.** Proceed with the cleaning.
- Using a cloth soaked in clean solvent, wipe the Tank walls and bottom. If the residue is baked on, scrape it off carefully so as to avoid damaging the Tank. **When finished, press the O.K. button** to drain the tank.
- When the Tank is fully drained, wipe the walls clean with a clean cloth.
- **IMPORTANT: Proper sealing of the Tank Lid is essential for both efficiency and safety. Check that the Lid Gasket is properly seated in the groove and that it is clean. Replace if damaged or worn (see Maintenance section). Also make sure that the Tank sealing surface is clean and free of debris.**
- Close the Tank Lid, latch it and lock it down.
- Check the **Lid Tension** (sealing tightness). If the Lid appears to be loose in any way or leaking solvent, read and follow the instructions given in the Maintenance Section of this Manual.
- Close the Safety Cover and check that the Locking Mechanism is working properly.

Notes: During the first cycle, check all connections for leaks and watch for any Error Messages. See the section Error Messages and Troubleshooting for more information on each Error Message.

OPERATIONAL STATUS MESSAGES

The following messages are displayed during normal operation.

DISPLAY	DESCRIPTION
READY S.P. = 200°C	Indicates unit is ready and set to 200°C
DRAIN VALVE CLOSED	Displays for about 5 sec.
AGITATE LEFT = xM	Counts down in minutes.
FILLING	Displays during filling.
HEAT ON	Displays for about 5 sec.
SET-PT = 200°C	Alternates with TANK = xxx°C and VAP EX. = xxx°C
*REFILL = xHxM	Displays during REFILL, counts down in hours and minutes.
*POST HEAT = xHxM	Displays during POST HEAT, counts down in hours and minutes.
TANK = xxx°C	Alternates with SET-PT = 200°C and VAP EX. = xxx°C
VAP EX. = xxx°C	Alternates with SET-PT = 200°C and TANK = xxx°C
COOLING	Alternate during COOLING.
T1 = xxx°C	
DRAIN VALVE OPEN	Displays for about 5 sec.
FINAL TRANSFER	Displays during TRANSFER.
READY S.P. = 200°C	Indicates unit is ready and set to 200°C
<p>*REFILL occurs first followed by POST HEAT. Note: the POST HEAT phase may continue for a while without displaying if the distillation process has been manually set to a longer time. COOLING will begin when POST HEAT is finished.</p>	

ERROR MESSAGES AND TROUBLE SHOOTING

If an abnormal condition is detected by the unit's Self-diagnostic System, the Display Panel shows one of the following error messages. To get help in correcting the problem note the message and call for service.

* *Light Warnings Only Available When PATLITE Is Installed*

MESSAGE	DESCRIPTION	REMARKS	LIGHTS & BUZZER
DISCONNECT POWER	Temperature at TC#1 continues to rise by more than 30°C within 10 minutes after Heater is turned off.	Defective Heater TRIAC is the most likely cause. Power supply must be disconnected as soon as possible.	RED FLASH & BUZZER
COND THERMOSTAT	Condenser Thermostat is open during initial fault monitoring cycle	Unit will not start when START button is pressed until the condenser cools down.	YELLOW STEADY*
CONDSR OVER-HEAT	Condenser Thermostat is open up to 10 min.	Automatically stop heater.	RED STEADY*
CHECK FAN	After 10 min.	Automatically stop process except Fan.	RED STEADY*
CHK TANK SENSOR	TC#1 has broken connection	Automatically stop process	RED STEADY*
CHK COND. SENSOR	TC#2 has broken connection	Automatically stop process	RED STEADY*
CHK BOILER FLOAT	If Float shows FULL, after draining Debris,	Automatically stop process	YELLOW FLASHING*
SEPARATOR FLOAT	One of Level Sensor Floats of Water Separator is stuck at full position. (Not closed in 90 seconds)	Automatically stop process. Check Level sensors and transfer pumps for defect. Press START to resume process from where stopped.	YELLOW FLASHING*
CHK HEAT CIRCUIT	Operation and Self-test message. There is opening in Heater circuit		YELLOW STEADY*
LOW AIR PRESSURE	Before and during air solenoid operation.	Automatically stop process. Pressure recovery will re-start from where it stopped.	YELLOW FLASHING*
LOW WASTE LEVEL	Filling time-out in Initial Filling. (Both Boiler Level Sensor #1 and #2 did not open.)	Process is terminated. Replenish waste source and press START button, operation will resume from where it stopped.	YELLOW STEADY*
REFILL TIME-OUT	Float Switch did not open within pre-set refilling time.	The process will be completed and this display will show at the end. Pressing STOP button will return to READY mode.	YELLOW STEADY*

ERROR MESSAGES AND TROUBLE SHOOTING - continued

MESSAGE	DESCRIPTION	REMARKS	LIGHTS & BUZZER
BOILING TIME-OUT	No vapor within factory pre-set time.	Automatically stop process	YELLOW STEADY*
LO VOLTAGE RESET	Low Voltage power supply happened during process.	Automatically stop process. Press "START" and it will resume from where it stopped.	YELLOW STEADY*
RESET OCCURRED	Power supply irregularity happened during process.	The process was automatically stopped. Press "START" and it will resume from where it was stopped.	YELLOW STEADY*
WAIT FOR READY	This message is displayed for 5 seconds when START button is pressed before READY mode.	After 5 seconds, display will return to COOLING T=XXXC.	N/A
OUTPUT DRUM FULL	Water Drum or Solvent Drum Level Sensor (NC Micro Switch) detects FULL level..	Automatically stop process. Replace the clean pail and press "START". It will resume from where it stopped.	YELLOW FLASHING*
DEBRIS PAIL FULL	Debris weight sensor (NC Micro Switch) detects FULL weight..	Automatically stop process. Empty the debris pail and press "START". It will resume from where it stopped.	YELLOW FLASHING*
WATCH DOG RESET	Software integrity has been temporarily halted.	Automatically stop process. Press "START". It will resume from where it stopped.	YELLOW FLASHING*
ILLEGAL OPCODE	Software malfunction happened and has been temporarily halted.	Automatically stop process. Press "START". It will resume from where it stopped.	YELLOW FLASHING*
ILLEGAL ADDRESS	Software malfunction happened and has been temporarily halted.	Automatically stop process. Press "START". It will resume from where it stopped.	YELLOW FLASHING*

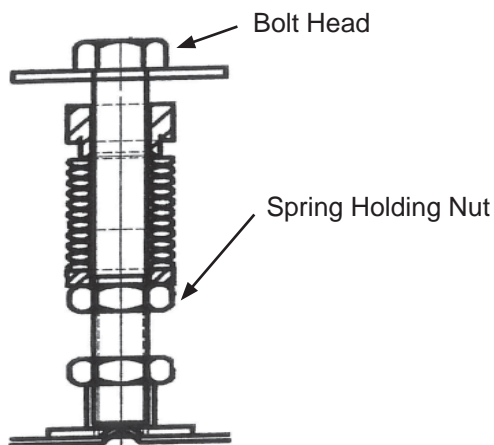
MAINTENANCE

CAUTION: Wear protective clothing according to local regulations. A minimum of solvent resistant gloves, goggles and mask are recommended.

CHECKING AND INCREASING LID TENSION (BY ADJUSTING THE SPRING BOLT)

Some decrease in tension or lid tightness is normal with average use. This procedure should only be done if the Lid is leaking solvent or there is excessive looseness.

Before following this procedure, check for a worn Lid Gasket or loose Hinge Bolts. Replace the Lid Gasket or tighten the Hinge Bolts as needed. If the Lid appears to be sealing tightly but is leaking solvent, the problem may be a blockage in the solvent flow path or a set point that is too high for the solvent being recycled. Call for service. If the Lid is not leaking solvent but still appears to be too loose, follow this procedure to increase the Lid tension.



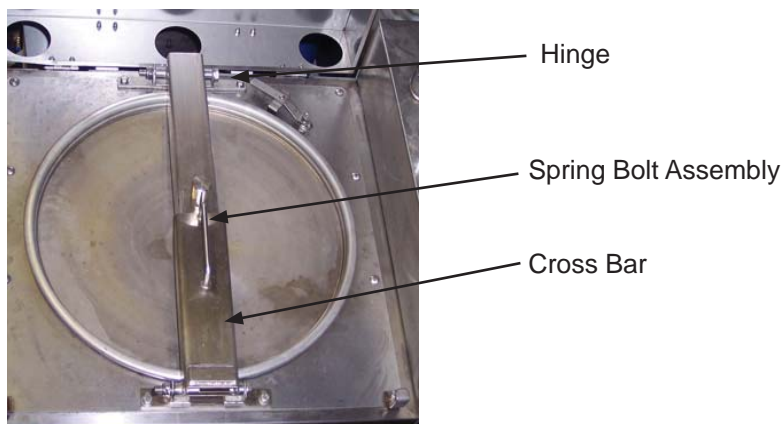
Spring Bolt Assembly

This procedure tightens the Lid by increasing the tension on the spring attached to the Lid Bar Spring Bolt Assembly. The Lid and Bolt Assembly is carefully designed as a Safety Pressure Relief system to prevent a dangerous build up of pressure inside the closed tank. **Do not adjust the Spring Holding Nut by more than 2 full turns maximum.** If 2 full turns do not solve the problem, call for service.

- While holding the Bolt Head with a wrench, turn the Spring Holding Nut no more than a 1/2 turn at a time. Turn in a counter-clockwise direction (as you look down on it).
- After each 1/2 turn, operate the unit normally and check for leaks.

REPOSITIONING LID and TIGHTENING HINGE BOLTS

The Hinge bolts can loosen over time, causing the lid to shift off center. This can lead to an inadequate seal and leaking around the Gasket. Loosen the bolts, reposition the lid and re-tighten the bolts.



MAINTENANCE

REPLACING LID GASKET

Remove the old gasket by prying it out gently with a screw driver. Place the new gasket in the groove and press in firmly all around.

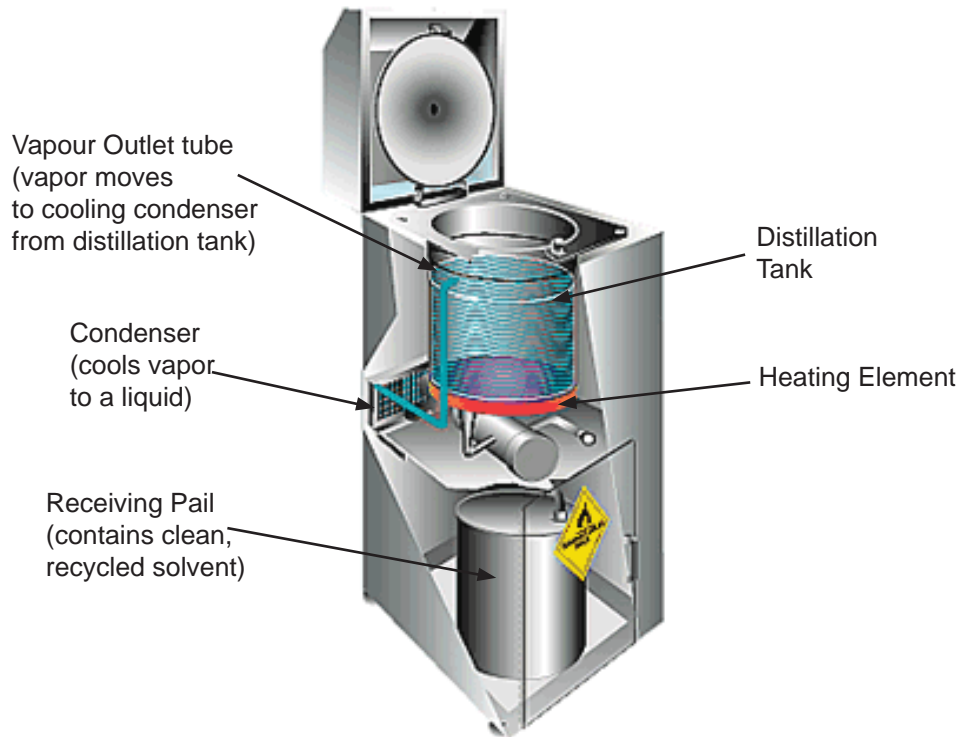
REPLACEMENT PARTS

DESCRIPTION	PART NO.
SAFETY COVER	960-3310
KEYPAD	900-3461
DIAPHRAGM PUMP, 2"	UDP2TS
DIAPHRAGM PUMP, 4"	UDP4TASS
LID GASKET, VITON	965-2150V
DOOR HANDLE & 2 SCREWS	120-318S & 99-404S
CONNECTION KIT, SOLVENT IN	960-4910
CONNECTION KIT, SOLVENT OUT	960-4920

THEORY OF OPERATION - DISTILLATION PROCESS

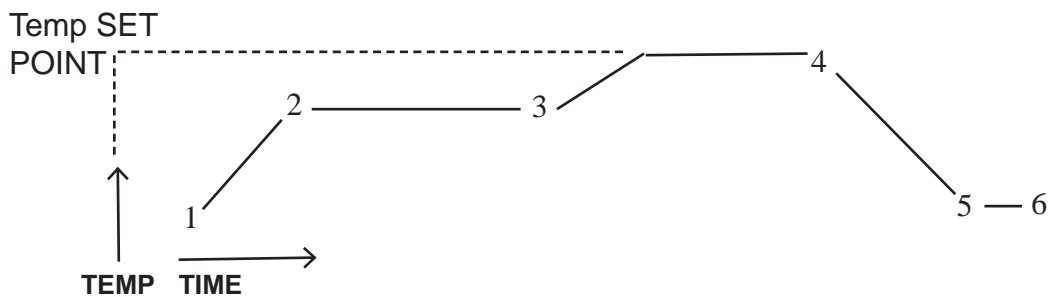
Waste solvent consists of the original solvent plus liquid and solid materials picked up during use of the solvent. Recycling separates the original solvent from the waste materials. During the recycling process, the distillation tank fills with dirty solvent and the heating element heats the mixture. The solvent mixture boils and the vapour passes through a cooling condenser where purified, clean solvent, ready for use condenses out. Waste materials in the dirty solvent boil at a temperature substantially above the Temperature Set Point so they remain in the distillation tank for disposal.

Solvent Recycling



Distillation Cycle

1. Heating starts, temperature rises
2. Vapourization starts
3. Vapourization ends, AUTO SHUT-OFF / BAKE TIME starts (see SETUP)
4. Baking finishes, cooling begins
5. Cooling is complete
6. Separation occurs



Full Product Warranty

These Uni-ram products have been engineered and manufactured to high performance standards. Each unit has been subjected to detailed factory testing before shipment.

This product comes with a one-year full warranty from the date of purchase. Uni-ram Corporation reserves the right to repair or replace the unit, free of charge, to the original purchaser if a part is found to be defective in material or workmanship as determined by factory service personnel. The items listed below under "Conditions of Warranty" as consumables are not covered.

Uni-ram reserves the right to direct the customer to ship the unit collect to the Uni-ram factory or to an approved Service Center for repair using the Uni-ram Return Goods Procedure or to repair the unit on-site. To prevent damage in transport, the purchaser must ship the unit in the original packaging or use alternate adequate packaging. All units must be shipped clean and free of solvent.

Conditions of Warranty:

As Uni-ram Corporation has no control over the working conditions or circumstances under which the purchaser stores, handles or uses the product, Uni-ram makes no warranty or claim, either expressed or implied with respect to this product's fitness for any purpose or the result to be obtained from its use. This condition applies to the sale of all products and no representative or distributor of Uni-ram Corporation has the authority to waive or change these conditions.

This warranty applies only to the original purchaser and does not apply if the unit has been misused, overloaded, neglected, altered or used for any purpose other than those specified in the operating and installation instructions. Deterioration due to normal wear is not covered by this warranty. Damage due to accident, transportation, fire, floods or acts of God is also not covered. Units whose serial numbers have been altered or removed are not covered. The warranty is invalid if unauthorized abrasives are used in this unit. Unauthorized attempts at self-repair or alterations by the owner also invalidate this warranty. Interior or exterior finishes are not covered by this warranty.

Consumable Items are not covered by this warranty.

This warranty replaces all other warranties expressed or implied by statute or otherwise.

To make a claim, call Uni-ram Service at 1-800-417-9133 and quote the serial number of the unit.

SERIAL NUMBER: _____

PURCHASE DATE: _____

PURCHASED FROM: _____