

INSTRUCTION BOOKLET

DIRECTIONS

AND

MAINTENANCE INSTRUCTIONS

OF THE

DISTILLER D12 A

INSIDE THE WASHING MACHINE

COMBI D

COMBI DR WITH RINSING

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FORMECO

SISTEMI RECUPERO SOLVENTE

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CE CONFORMITY CERTIFICATE

- GB CERTIFICATE OF CONFORMITY
- F CERTIFICAT DE CONFORMITE
- D KONFORMITÄTSBESCHEINIGUNG
- E CERTIFICADO DE CONFORMIDAD
- NL CONFORMITEITSCERTIFICAAT
- I CERTIFICATO DI CONFORMITÀ



FORMECO srl Via Cellini, 33 35027 Noventa Padovana (Pd) - Italy

- GB Declares in keeping with its responsibility that the distillation unit:
- F Déclare sous sa propre responsabilité que le Distillateur:
- D Erklärt in alleiniger Verantwortung, daß die Anlage:
- E Declara bajo su propia responsabilidad que el Destilador
- NL Verklaart onder haar eigen verantwoordelijkheid, dat het destillatie-apparaat:
- I Dichiaro sotto la propria responsabilità che il Distillatore:

GB	F	D	E	NL	I	
TYPE	TYPE	TYP	TIPO	TYPE	TIPO	D 12 A
SERIAL NUMBER	N° DE SERIE	SERIEN NR.	N° DE MATRICULA	SERIE NR.	MATRICOLA	
PRODUCTION YEAR	ANNEE DE PRODUCTION	HERSTEL-LUNGSJAHR	AÑO DE PRODUCCION	PRODUKTIE-JAAR	ANNO DI PRODUZIONE	2002

- GB Is in compliance with European directives concerning safety:
- F il est conforme aux normes de sécurité prévue de les directives Européens
- D In Übereinstimmung mit den europäischen Sicherheits-Richtlinien:
- E Está conforme a lo que prevén las normas Europeas de seguridad:
- NL In overeenstemming is met de Europese veiligheids-richtlijnen:
- I Risponde alle requisiti essenziali di sicurezza previsti dalle Direttive Europee:

98/37/CE - 89/336/CEE - 73/23/CEE

- GB And in compliance with the following regulations:
- F Et conforme aux suivantes normes harmonisées
- D Und konform mit folgenden Normen ist:
- E Y está conforme con las siguientes normas:
- NL En conform de volgende normen is:
- I Ed è conforme alle seguenti Norme armonizzate:

EN 292-1-2/92 - EN 294/93 - CEI EN 60204-1/98

CEI EN 50014/A1/A2/99 - CEI EN 50015/99 - CEI EN 50018/01 - CEI 64-2/01

- GB The General Manager
 - F Le Président Directeur général
 - D Der Präsident
 - E El Presidente
 - NL De algemeen directeur
 - I Il Presidente
- Signature
 - Signature
 - Unterschrift
 - Firma
 - Handtekening
 - Firma

WARRANTY CERTIFICATE

Company FORMECO declares to provide its apparatus with warranty, at the conditions and clauses specified here below:

1) Apparatus are warranted for a 12 months period from buying date certified by a delivery document issued by Reseller.

When claiming for an under warranty intervention, the user will be always obliged to mention the serial number of the apparatus.

2) Warranty covers the free of charges replacement or repair of the apparatus component parts that are recognised as origin faulty ones for faulty workmanship, and with no labour charge.

3) Under warranty interventions are carried out at manufacturer's works or at authorised Service Centres where apparatus must be delivered carriage paid and it will be returned at user's charge and risk.

For under warranty technical interventions at user's address, cost concerning move time, kilometric refund and all board and lodging expenses will be charged as per effective fares in Service personnel's possession.

Nothing is due for repair time and for materials replacement.

4) All serial production apparatus are made with a boiler and condenser of stainless steel Aisi 304 (on serial production apparatus of 7, 12, 25 and 60 litres copper condenser; on request of stainless steel Aisi 304).

Buyer has to verify the compatibility of these materials according to solvents to be treated.

Warranty does not cover: phenomena of corrosion due to alteration of solvents caused by a wrong use of apparatus; by the use of adulterated or non compatible solvents, or by the acidification during the process.

5) Manufacturer declines all responsibility for possible damages that, directly or indirectly, may be caused to persons or property as a consequence of the non-compliance with all the rules stated in the workbook and concerning, in particular, directions for apparatus placing, installation, use and maintenance.

This warranty does not entail any indemnity for direct and indirect damages due to the time of the possible apparatus inefficiency.

After-sales service is subject to the regularity of the current payments.

6) The manufacturer grants exclusively the technical and functional characteristics of the plant, but cannot assure the result or the constancy of the process results, even if the customer's samples have been tested preventively at the manufacturer's laboratory. In fact, the chemical composition variability of the product to be treated can determine different results from the ones obtained during the preliminary analysis.

Furthermore warranty does not cover:

- a) Boiler cover gasket;
- b) Possible Teflon coating of the boiler;
- c) As concerns item 4;
- d) All pumps supplied with the apparatus;
- e) All parts that should be faulty due to a wrong installation, negligence and carelessness in use, lack of maintenance, interventions carried out by non-authorized personnel, damages caused by transport and anyway by any other cause that cannot be imputed to apparatus faulty workmanship.

Furthermore technical interventions concerning installation and mains connection are not included in warranty.

TECHNICAL DATA		
GENERAL DATA	u.m.	Model D 12 A
PROCESS		Simple Distillation
OPERATIVE CYCLE		Discontinue
DISTILLABLE SOLVENTS		Flammable and not flammable
MAX. SURFACE TEMPERATURE	°C	240
BOILER		
GEOMETRICAL CAPACITY	dm ³	19
MAX. LOADING CAPACITY	dm ³	12
MATERIAL		Stainless steel AISI 304
HEATING		
SOLVENT HEATING		Indirect with diathermic oil
DIATHERMIC OIL CIRCULATION		Natural
DIATHERMIC OIL SUPPLY	dm ³	6
DIATHERMIC OIL HEATING		With electrical resistances
HEATING RESISTANCES		N° 1 x 1000 W
VAPOURS CONDENSATION		
VAPOURS CONDENSER		By means of air
MATERIAL		Copper
ELECTRICAL ASSEMBLING		
ELECTRICAL CONSTRUCTION		Explosion proof "EEx od IIB T2"
INSTALLED POWER	W	1010
NOMINAL POWER	A	4.5
NOMINAL TENSION	V	230
ELECTRICAL SUPPLY		Mono phase
SERVICE PLANT		
SOLVENT LOADING		Manual / by means of pump
PROCESS RESIDUE COLLECTION		By means of "RecBag"
VARIOUS		
AMBIENCE TEMPERATURE	°C	-10 +30
NOISE	DB A	64

DIMENSIONS AND WEIGHT OF THE "COMBI"	U.M.	VALUES
WEIGHT	Kg	170
HEIGHT	M	1.50
WIDTH	M	0.80
LENGTH	M	1.30

DISTILLER D 12 A

WITH WASHING MACHINE COMBI D-DR

INSTRUCTION BOOKLET

1 INTRODUCTION

The **Combi** is a washing machine/distiller, destined to the painters which allows programmed cleaning cycles. It is built from a washing machine and a distiller which allows the recycling of the polluted solvent.

The washing machine made of stainless steel is used to wash internally and externally the painting guns with its accessories; when the washing solvent is dirty, a membrane pneumatic pump pour the solvent into the distiller.

For the manual washing the Combi is equipped with a pump and atomizer that take clean solvent from a drum in the base of the machine. Used solvent then is recovered in the vessel of the washing machine

The present manual is an integral part of the product and has to be stored properly in good conditions and available for consultation during the entire working life of the Combi machine.

Proper washing machine operation, economy and durability depend on compliance with the instruction given in this manual.

The provisions contained in this manual are mandatory.

FORMECO Srl waives all liability for events that arise due to negligence or failure to comply with these instructions.

The distiller D 12 A is built according the directive 89/392/CEE and successive modifications and than is marked CE

2 INSTALLATION OF THE “COMBI” UNIT

Before to install the Combi, check that has not been damaged during the shipment. The appliance must be placed on a perfectly smooth and level surfaced area.



NOTICE

All the installation operations, regulating and testing have to be effected exclusively by qualified and responsible staff who can ensure that work will be done according to standard safety procedures applicable in the fields of mechanics.

Installing the Combi unit has to be checked the connections and/or has to be effected eventual adjustment of the connections services of the workshop. The pressure of the compressed feeding air has to be at least 6 bar. If is not possible provide a air collection tank in order to grant the minimum level for the operating of the Combi.



NOTICE

The max. pressure of the compressed air has to be limited to 10bar. If the safety valve of the air compressor of the workshop is regulated to a pressure higher to 10bar, it is compulsory to install a pressure reducer equipped with a pressure gauge, reducing the pressure to a value of 8 – 9 bar.

Then effect the following operations:

1. Remove the package and place the machines on desired places. Approach the two units keeping the distiller on the left of the washing machine.
2. In order to avoid accidental pouring on the floor due to the outlets of solvent from the collection tank of the washing machine it is advised to place a collection basin under the Combi.
3. By means of a duct with adequate section connect the ground connection of the washing machine with the distiller's earth connection. Connect these ones to the local grounding connection.

2.1 HYDRAULIC CONNECTION: WASHING MACHINE - DISTILLER

Open the right panel of the distiller unscrewing the 4 screws.

From the left side of the washing machine comes out 2 hoses of different diameter which has to be connected to the respective couplings internal to the distiller.

The thicker hose (10x12mm) has to be connected at the outlet of the vapours condenser of the distiller (pos. 50 fig. 2). The smaller hose (6 x 8 mm) has to be connected to the inlet of the polluted solvent on the boiler (pos. 53 fig. 2). If these hoses are too long has to be cut.

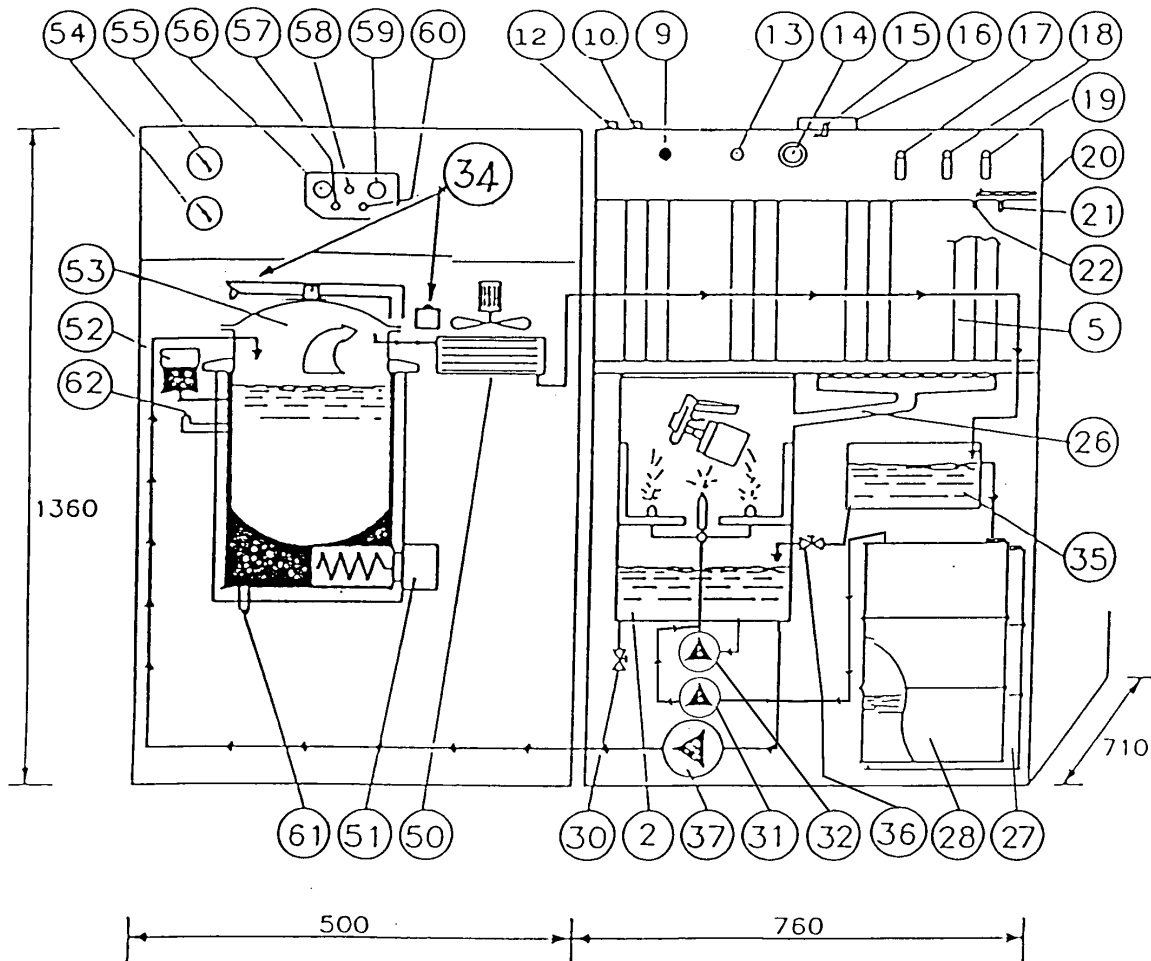
Connect the white Rilsan hose Ø4 est. (compressed air inlet) and the blue Rilsan hose Ø 4 est. (compressed air outlet) coming from the distiller to the respective colours coming from the washing machine. This connection allows to activate, by means of the push button placed on the side of the distiller cover, the automatic loading device of the solvent to be distilled.

2.2 ELECTRICAL CONNECTIONS

The electrical connection has to be effected only on the distiller. The distiller is equipped with a connection cable of aprox. 3 meters. Provide to the installation of an electrical box equipped of :

- Main's indicator light
- Exclusion general switch
- n° 2 fuses with a delivery higher than 40% (aprox.) the power absorbed from the distiller.

2.3 DISTILLER – WASHING MACHINE CONNECTION SCHEME



WASHING MACHINE

- 2 WASHING MACHINE AND VESSEL IN STAINLESS STEEL
- 5 CONVEYOR FOR SMOKES AND AIR
- 9 COMPRESSED AIR PRESSURE REGULATOR
- 10 AIR OUTLET FITTING FOR SPRY GUN
- 12 AIR INLET FITTING
- 13 FINAL WASHING BUTTON
- 14 COMMAND AND TIMER FOR WASHING MACH. ASPIR.
- 15 ASPIRATION NOZZLE
- 16 SMOKES UNLOADING TUBE
- 17 GENERAL COMMAND ASPIRAT. LEVER
- 18 ATOMIZER COMMAND LEVER
- 19 CLEAN SOLVENT PUMP COMMAND LEVER
- 20 DRY FILTER
- 21 WASHING MACHINE PUMP'S FOR THE SOLVENT
- 22 ATOMIZER FOR CLEAN SOLVENT
- 26 FLEXIBLE UNLOADING TUBE
- 27 USED SOLVENT TANK
- 28 CLEAN SOLVENT TANK
- 30 WASHING MACHINE UNLOADING TAP
- 31 SECOND FINAL AUTOMATIC WASHING PUMP

- 32 WASHING MACHINE PNEUMATIC PUMP
- 34 SOLVENT LOADING BUTTON OF DISTILLER
- 35 CLEAN SOLVENT COLLECTION CAN
- 36 VESSEL TRANSFERRING VALVE (2)
- 37 PNEUMATIC PUMP DISTILLER LOADING PUMP

DISTILLER

- 50 AIR CONDENSER
- 51 ELECTRICAL RESISTANCE
- 52 DIATHEERMIC OIL EXPANSION VESSEL
- 53 BOILER
- 54 DIATHEERMIC OIL THERMOMETER
- 55 VAPOURS THERMOMETER
- 56 THERMOSTAT
- 57 INDICATOR LIGHT (UNIT ON))
- 58 INDICATOR LIGHT (ALARM FOR HIGH TEMPERATURES)
- 59 TIMER
- 60 INDICATOR LIGHT (RESISTANCE ON)
- 61 DIATHEERMIC OIL LOADING TAP
- 62 DIATHEERMIC OIL LOADING TAP

Figure 2 – Connection Distiller – Washing Machine

3 OPERATING PRINCIPAL OF DISTILLER

The combined distiller allows the recycling of the flammable and not flammable solvents used for the washing, having an ebullition temperature between 50°C and 180°C.

Exploiting the principal of the simple distillation at atmospheric pressure the distiller separates the contaminants (resins, paints, pigments, oils, grease, etc.) from the original solvent, which can be recycled and re-used.

The contaminants remains into the reclamation bag called "Recbag", which can be removed easily from the boiler at the end of the distillation cycle.

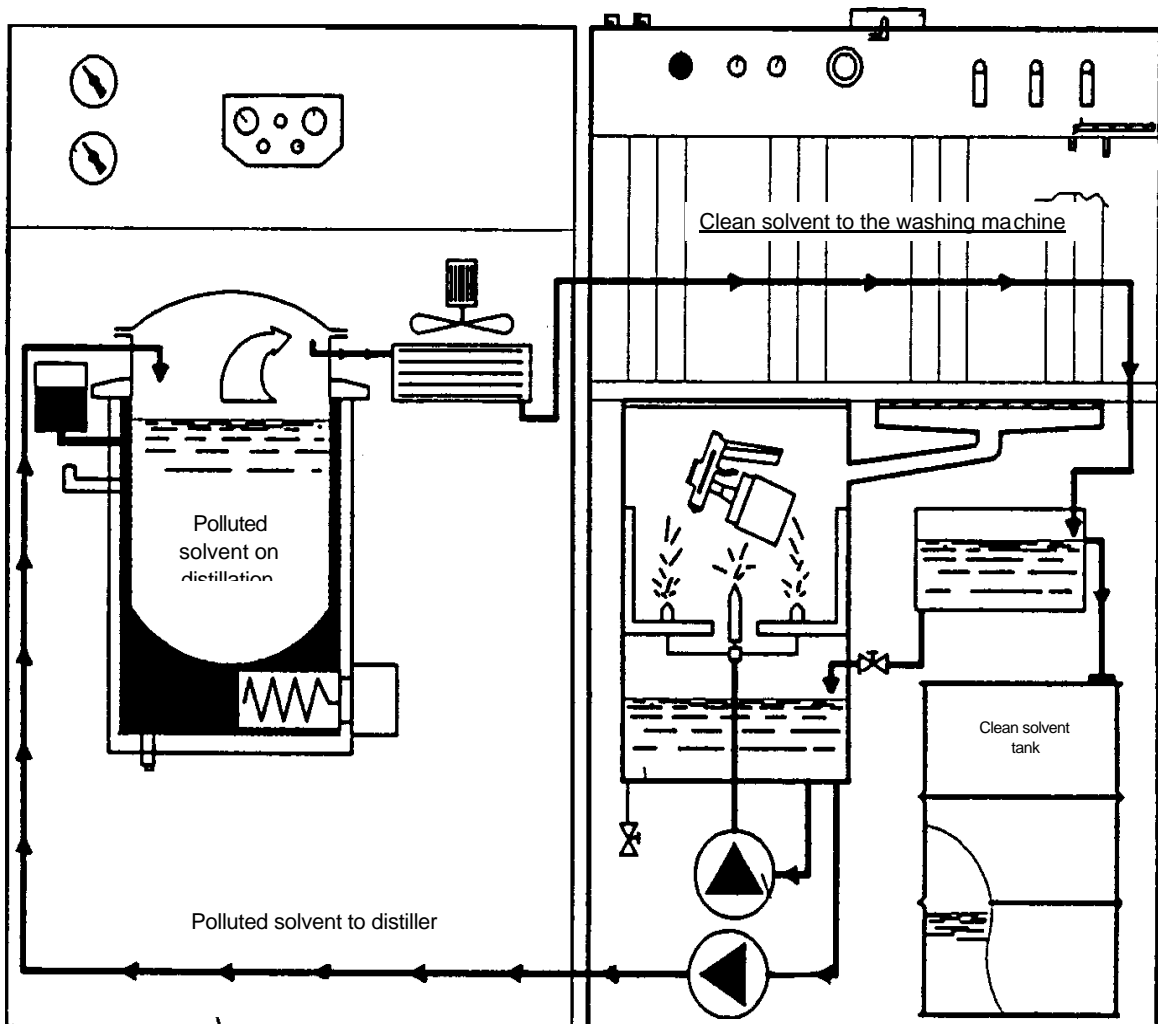
Through this procedure the nature of the solvent does not change; therefore the distillation processes can be effected infinitively.

The passage of the solvent from the washing machine to distiller is effected through a pneumatic pump placed inside the washing machine.

The ebullition of the solvent occurs inside a boiler integrated to a oil jacket containing diathermic oil heated by means of an electrical resistance.

The vapours produced are conveyed to a condenser cooled by air, and once returned to liquid phase, are recovered directly inside a proper condenser.

Operating scheme of the "Combi"



Distiller

Washing machine

4 IDENTIFICATION OF THE DISTILLER D 12 A

Each distiller is equipped with an identification tag which indicates (Fig.3)

- Trade mark of the manufacturer
- Name and address of the manufacturer
- Model
- Serial number
- Technical data

The data indicated on the manufacturer tag has to be shown in case of technical assistance request and/or supply of spare parts.

4.1 ADHESIVES AND WARNING NOTICES

The distiller is equipped with adhesives about potential risks due to an improper use. In the figure 3 are indicated the adhesives and warning notices where normally are placed. The adhesives has the following meaning:

- 1) - No smoking
- 2) - It is forbidden to light flames near the machine
- 3) - It is forbidden the use of water for the extinguishing of the fire.
- 4) - Do not open the cover before that temperature inside the boiler goes down under 50°C
- 5) - Wear solvent proof rubber gloves before to starting the work.
- 6) - Use the anti-fire pre caution in case of necessity
- 7) - Wear protective eyewear before starting to work

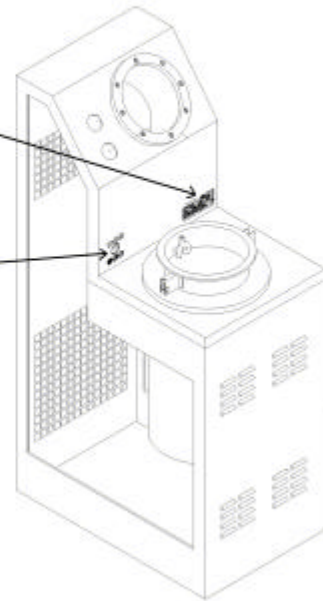


Figure 3 - ADHESIVES AND WARNING NOTICES

5 GENERAL SAFETY AND ACCIDENT-PREVENTION REGULATIONS

Pay attention to danger signal when these are indicated in this manual. Comply with all safety regulations.

There are three levels of danger signal:



NOTICE

This signal warns that improper performance of the procedures that are described can cause severe harm, death or long-term health risks.



CAUTION

This signal warns that improper performance of the procedures that are described can cause damage to the machine.



IMPORTANT

READ THE FOLLOWING INSTRUCTIONS CAREFULLY. FAILURE TO APPLY THEM CAN CAUSE HARM TO THE MACHINE OPERATOR, OTHER PERSONS, ANIMALS OR DAMAGE TO PROPERTY. THE ROSAUTO COMPANY WAIVES ALL LIABILITY FOR DAMAGE CAUSED BY FAILURE TO COMPLY WITH THE FOLLOWING SAFETY AND ACCIDENT-PREVENTION RULES AND REGULATIONS. THE ROSAUTO COMPANY ALSO WAIVES ALL LIABILITY FOR DAMAGE CAUSED BY IMPROPER USE OF THE SPRAY WASHER AND/OR CAUSED BY CHANGES BROUGHT TO THE MACHINE WITHOUT THE MANUFACTURER'S AUTHORIZATION.

5.1 CLOTHING

- The machine operator must wear solvent-proof rubber gloves to prevent contact between his hands and the products used for washing.
- The operator must always wear protective eyewear to prevent spatter from coming in contact with his eyes.
-

5.2 SAFETY USE

It is absolutely forbidden to use the Combi without red what indicated on the present booklet and on the booklet of the washing machine.

It is strictly forbidden to let the washing machine be used by persons who are not properly skilled or duly trained or are not in perfect health.

It is strictly forbidden to use welders or open-flame appliances or to manipulate incandescent materials in the room where the Spray Washer is installed.

It is compulsory to use exclusively solvents according to the norms.

It is strictly forbidden to use solvents containing chlorinated or carbofluoridated compounds such as, for example, 1.1.1. Trichloroethylene, Methyl Chloride or other substances with a halogenated hydrocarbon base It is essential, at the start of the wash cycle, to check that the solvent is not corrosive. Immediately stop washing and replace the solvent whenever you note signs of corrosion on the hoses inside the washer or on the work table.

Rinse with abundant water whenever the skin or eyes come in contact with wash products

Make sure all safety devices are in perfect operating condition before starting to use the Combi.

The combi must be installed in a perfectly ventilated work site

Be careful not to splash and spill their contents on the workshop floor when loading and unloading solvent

It is forbidden to drill holes in the machine with electric or pneumatic drills or to scratch or scrape the machine walls with metal objects that could create flammable sparks.

The following measures must be taken in the room where the Combi is to be installed before starting to work with the machine.

Suitable fire extinguishing systems must be installed depending on the conditions where they will be used. These systems must include portable fire extinguishers. These appliances must be kept efficient and inspected at least every six months by an expert.

The installation site must allow staff to easily and quickly move away from danger zones in case of an emergency.

It is prohibited to use water to extinguish fires. Burning materials, in contact with water, could generate noxious or flammable gases or greatly increase in temperature.

6 INSTRUCTION FOR THE USE OF THE DISTILLER

Before to start to operate with the Combi, it is compulsory to read the following instructions:



NOTICE

Read the indications reported on the chapter <GENERAL SAFETY AND ACCIDENT PREVENTION NORMS>

6.1 GENERAL DATA

The distiller allows the recovery and re-use of flammable and non-flammable solvents with a boiling point between 50 and 180 °C. Exploiting the principle of simple distillation, the unit separates the contaminations (such as resins, paints, pigments, ink, oil, grease, etc.) from the original solvent, which, once recycled directly into a tank, can then immediately be used again. The contaminants remains inside the bag called RECBAG which can easily be unloaded at the end of the cycle. The characteristics of the solvents will in no way be altered by the process if the instructions are followed carefully. The number of distillations can hence be repeated indefinitely.

6.2 OPERATING PRINCIPLE

The boiling of the polluted solvent takes place in a boiler surrounded by a cavity space containing diathermic oil heated by an electric resistance. The vapour is conveyed to an air cooled condenser and transformed back into a liquid state; the so condensed solvent is collected in a tank. (pos. 35 fig. 2) inside the washing machine. The passage of the solvent occurs by means of a pneumatic pump (pos. 37 fig. 2) placed inside the washing machine.

6.3 SAFETY DEVICES

- The unit works at atmospheric pressure
- Cases of abnormal high temperature increases or faulty operation of the condenser are signalled and the machine stops automatically.

6.4 THE USE

- The cycle is completely automatic.
- The intervention of the operator is only necessary for loading the solvent to be distilled, setting temperature and distillation time and unloading of the residues.

7 NOTICE

1. Clean the oil expansion vessel just with a wet rag in order to avoid sparks.
2. The opening of the cover before one hour from the end of the distillation cycle occurs the swelling of gasket.
3. Some solvents during the ebullition creates foams which do not allows the correct separation of the solvent from the contaminant; in that case the distillate will result still dirty. To avoid this fact the unit can be equipped with an antifoam kit.
4. Pay attention that during the drying of the residues; some contaminants at a certain temperatures could be decomposed or carbonised emitting smokes from the unit.

Se If that occurs set the timer to Zero immediately and stop the cycle.

5. the gasket supplied with the distiller is the Standard – black coloured – Formeco Code 359001) is for the general use and for mixture of solvents. If is not specified differently this gasket is the one mounted on the mass production.

8 USE OF THE DISTILLER COMBINED WITH THE WASHING MACHINE

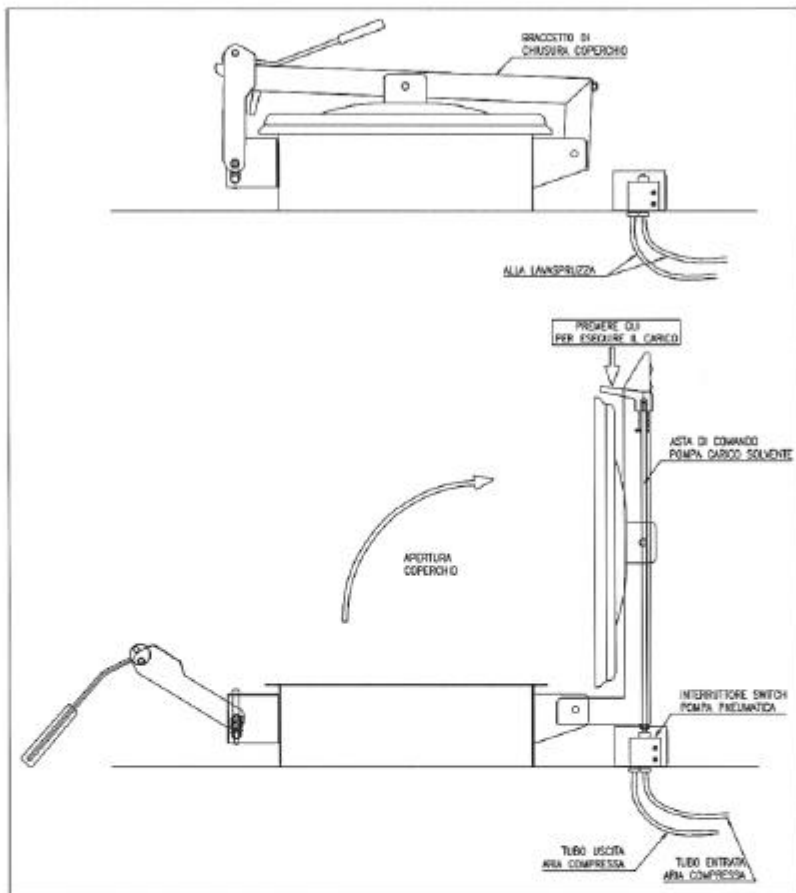
Verify that the oil in the oil expansion vessel is on the minimum level.

Note : The unit is supplied with diathermic oil ready for the use.

8.1 SOLVENT LOADING

Open the cover. Place the RecBag in the boiler paying attention the following :

- a) Pull the bottom corners inward.
- b) Assure that the bag adheres perfectly to the boiler wall. Avoiding the bubbles between the bag and the boiler surface have to be avoided.
- c) Block the RecBag using the stop ring 'Ring Bag'.
- d) hold the lever from the closure bar of the cover and place it in vertical position as indicated on the drawing. Press with the hand on the device placed on the upper extremity of the arm, which will act by pressing a button placed at the right side of the boiler cover in order to starts the transferring pump of the solvent. Releasing the pressing on the device and lowering the arm it is let button and the loading stops. In that way the dirty solvent inside the washing machine (pos. 2 fig.2) is pumped inside the boiler of the distiller. (pos. 53 fig. 2). Check the level of the solvent to not exceed the fixing ring of the Recbag. In the meanwhile clean the bottom of the cleaning machine. (pos. 2 fig. 2) and rinse it with used solvent.
- e) close the cover of the boiler of the distiller and proceed with the successive temperature regulating phase and the time of the working cycle. After a certain time of distillation the clean solvent which comes out from the distiller is conveyed by gravity inside the collection tank (pos. 35 fig. 2). The exceeding solvent comes down through the tube /pos. 38 fig. 2) on the tank (pos. 28. fig. 2)



8.2 REGULATING OF THE WORKING TEMPERATURE

For solvents or diluents in general it is enough to set the working thermostat on a temperature of 10-20°C higher than the ebullition temperature of the solvent to be distilled (see table of the solvent at pag. 45-46). In case of mixtures or synthetic solvents set the thermostat on 160°C. If it is desired to dry the residues set the thermostat to 170-180°C.

8.3 REGULATING OF THE WORKING CYCLE

The time for a working cycle changes according to the typology of the solvent to be distilled and type of the contaminant to which will be enough to add 15 or 30 minutes in case it is desired to dry the solid residues. Set then the timer to time for the desired cycle. The time indicated is not binding and are referred to a distillation cycle started with cold unit., the time for the successive cycles has to be reduced about 30 minutes.

8.4 START UP

Turn on the unit by means of general interrupter placed on the derivation box; the indicator light comes on.

Set the time for the cycle by means of the Timer; the green indicator light Main of the heating electrical resistance comes on. The cycle will start.

The solvent will start to comes out after 40-50 minutes.

At 30minutes before the end of the time set on timer, the heating will automatically stops. At the end of the time set on timer, automatically will stop the cooling motoventilator stopping in the same time all the unit.

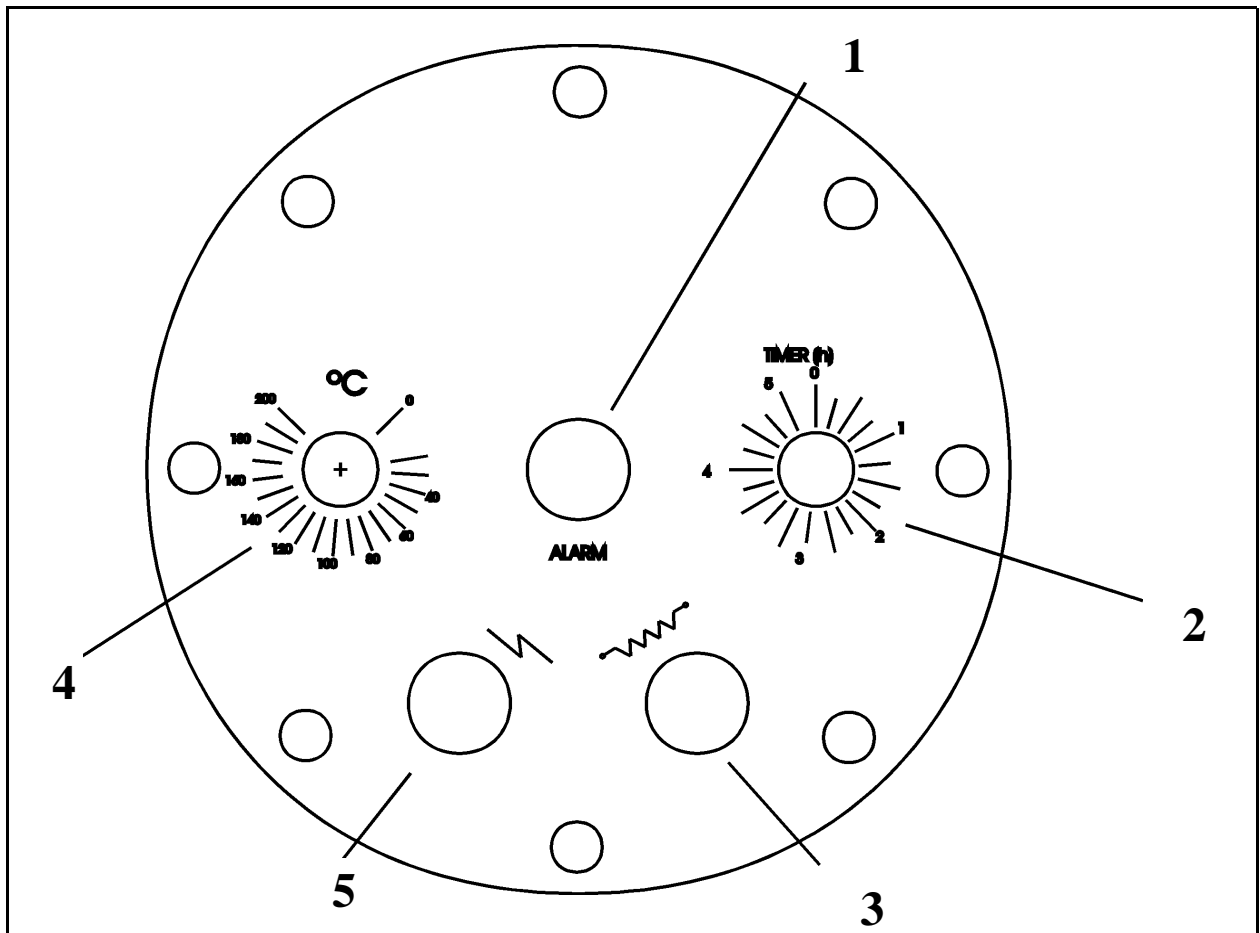
N.B. : For the manual stop set the timer to Zero

The distiller is equipped with 2 internal thermostats:

- A maximum thermostat fixed on 225°C with a manual reset.; This intervenes in case of damaging of the working thermostat, by cutting off the heating.
- A safety thermostat set at 40°C ; This intervenes by cutting off the resistance when the temperature of the distillate goes over the 50°C.

The red indicator light indicates the intervention of the max thermostat and/or safety thermostat

Provide immediately to remove the defect



CONTROL BOX	
N°	DESCRIPTION
1	ALARM RED INDICATOR LIGHT
2	TIMER
3	GREEN INDICATOR LIGHT HEATING ON
4	WORKING THERMOSTAT
5	GREEN INDICATOR LIGHT - MAINS ON

8.5 RESIDUES UNLOADING



NOTICE

In order to avoid inhalations of harmful smokes and the swelling of the gasket, it is compulsory to wait at least one hour before to open the boiler cover for the unloading of the residues.

- Shut down the power by means of general interrupter
- Open the cover and remove the ring and the Recbag

9 THE USE OF WASHING MACHINE IN COMBINATION WITH THE DISTILLER

Example : If the washing machine contains 20 litres of solvent to be distilled:

OPERATIVE METHOD:

- Set the RECBAG inside the boiler;
- Load 12 litres of solvent to be distilled inside the boiler;
- Start the distillation;
- Unload, through the tap (pos. 30 fig. 1), the rest of the dirty solvent container in the washing machine (about 8 lt.) in a separate can. This will be distilled successively ;
- Open the tap (pos. 36 fig. 1), transferring in that way the clean solvent from the tank (pos. 35 fig. 1) inside the washing machine (pos. 2 fig .1). For a correct operating transfer at least 10litres.

At that point the washing of the pieces inside the washing machine can start:

- manually charge the rest of the 8 litres of dirty solvent;
- effect the distillation;
- at the end of the distillation, extract the RECBAG to unload the residues

10 THE “COMBI” AS A DISTILLATION UNIT

The distiller of the Combi is a unit which can be used separately as a normal distiller The differences regards:

- The loading: This could be effected manually pouring the solvent to be distilled manually into the Recbag of the distiller;
- The recovery of the distilled solvent: This could be effected connecting the condenser outlet tube of the vapours directly to a tank for the collection avoiding to collect inside the tank of the washing machine. (pos.35 fig.1)

11 MAINTENANCE IN SAFETY

In order to grant a safety maintenance the following precautions has to be adopted:

- The maintenance of the Combi has to be effected only from qualified staff following the instruction given from the instruction booklet
- The maintenance has to be effected carefully, following the instructions indicated on the present manual and replacing the used or damaged parts. Use always original spare parts.
- Check periodically the integrity and operativity of the safety devices.
- It is absolutely forbidden remove or manumit the safety devices.
- The adhesives applied on the Combi give, in essential form, the opportune indications to avoid the accidents. They have to be conserved carefully and in case of damage has to be substituted. It is compulsory to not work with the Combi in case of lack of these adhesives.

11.1 PERIODICAL MAINTENANCE

NOTICE : Cut off the compressed air feeding.

Hereunder please find the following ordinary maintenance operations

A) CLEANING OF THE CONDENSER

Clean periodically the external of the vapour condenser with a jet of compressed air.

B) REPLACEMENT OF THE DIATHERMIC OIL IN THE DISTILLER

Replace the diathermic oil of the distiller every 2000 hours of operating

The operation has to be effected as follows .

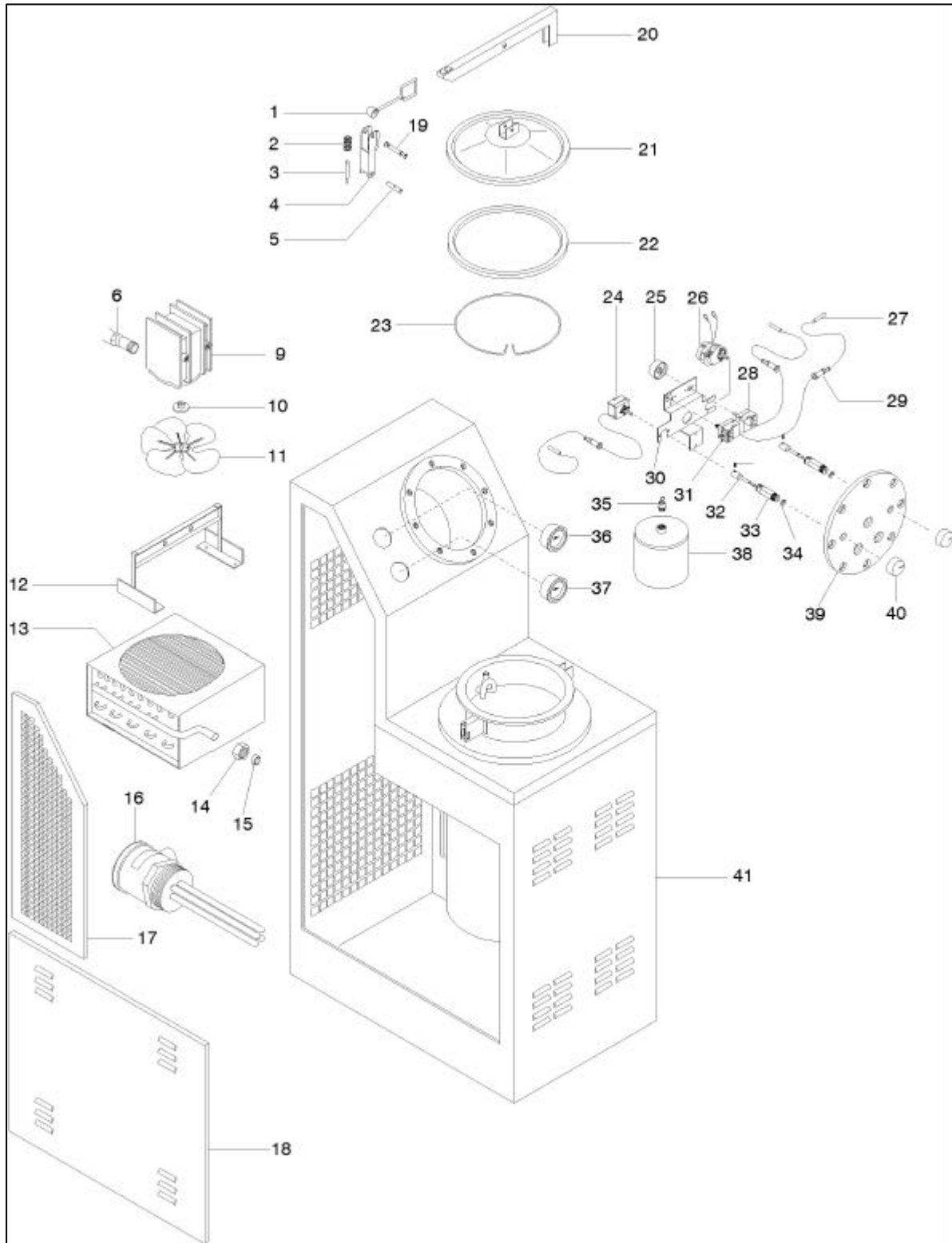
- Diathermic oil quantity : 6 litres
- Type : Formeco LT200 - Mobiltherm 605 - Essotherm 500 - ShellThermiaB - Total Seriola 2100.

For different brands, use diathermic oil with a cracking temperature higher than 320 ° C and a viscosity of about 31 cSt at 40 °C and 5,3 cSt at 100 °C.

Operations to be effected:

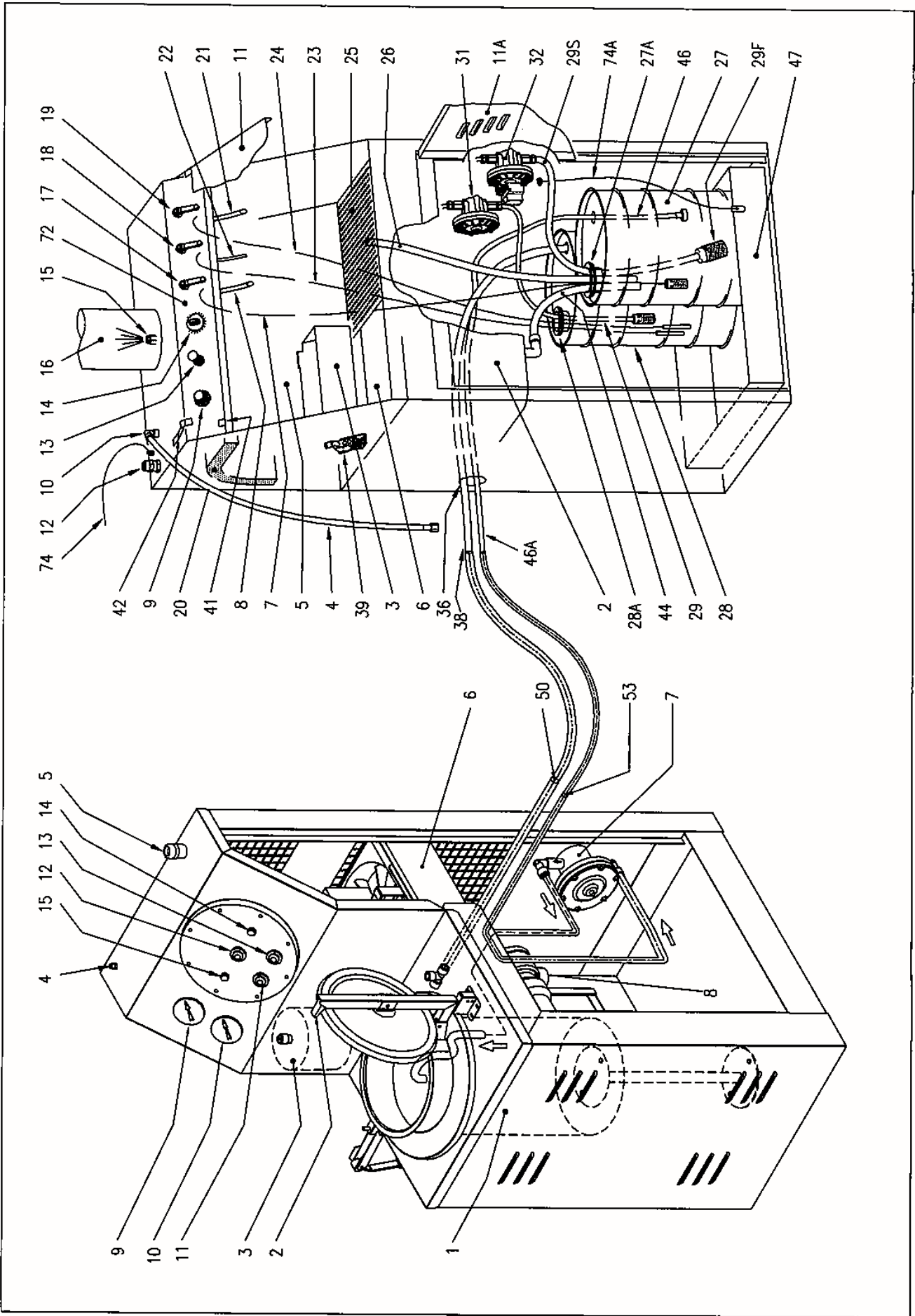
- 1) Separate the washing machine from the distiller disconnecting the connection between two units.
- 2) Set up under the distiller a collecting container with a capacity of at least 6 litres,
- 3) Unscrew the tap from the bottom of the boiler. Remove the bleeding valve of the diathermic oil in order to allow the entrance of air and let the outflowing of the oil from the unloading tap.
- 4) Replace the teflon band of the tap and screw it.
- 5) Lay the distiller on a horizontal base by tilting it from the frontal side.
- 6) Remove the resistance and, by means of an appropriated funnel pour 6litres inside the distiller through the hole of the resistance.
- 7) Clean the resistances with a rag, replace the teflon band used for tightening and screw it.
- 8) Re-position the distiller in vertical position and start it by setting the maximum temperature without loading solvent. At achievement of the maximum temperature set, add slowly pouring from the expansion vessel the missing oil up to total loading of the expansion vessel.
- 9) Re screw a new bleeding valve on the oil expansion vessel and reset connection between the distiller and the washing machine.

12 COMPONENTS AND SPARE PARTS OF THE DISTILLER Drawing A

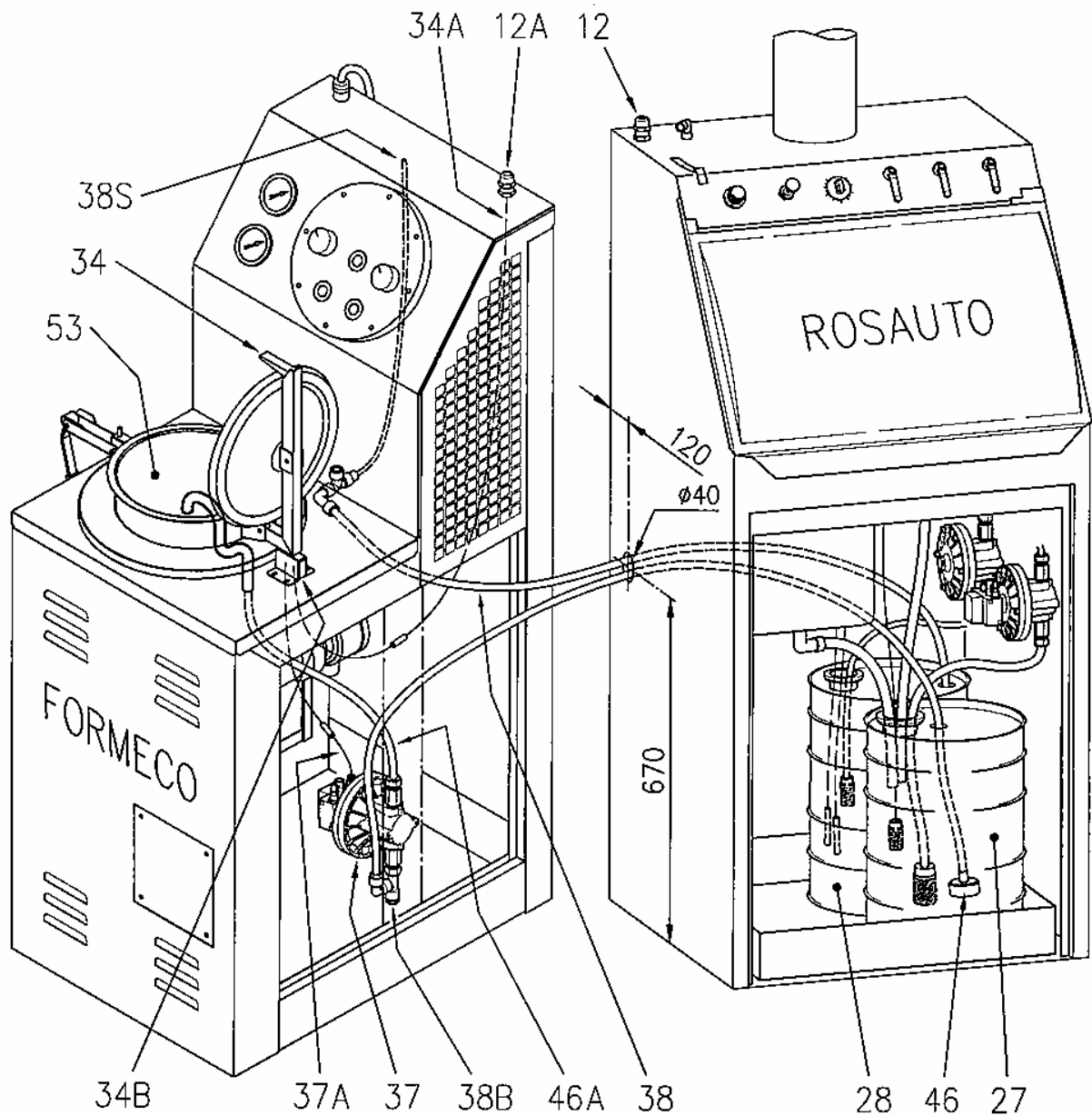


13 SPARE PARTS OF THE DISTILLER

drawing		code	Description
	A		
	1/5	384002	Cover closure kit
	1	429002	Handle for cover opening
	2	353702	Spring for cover
	3	354641	Guide pin for spring
	4	357403	Forked brace
	5	354640	Inferior pin
	6	470409	Brass cable gland DAS 1 of ½for motor feeding
	9	475000	Motor of the ventilator
	10	466149	Fan holder
	11	466101	Fan
	12	300112	Support of the ventilator motor
	13	384023	Air copper condenser
	14		Condenser fixing nut
	15		Ogive for condenser
	16	475324	Electrical resistance 1000 W
	17	-----	Aeration net
	18	-----	Lateral left panel
	19	354639	Upper pin
	20	382124	Cover brace with switch
		432016	Micro valve model 19304 MA (103) for brace 382124
	21	359022	Boiler cover
	22	359001	Standard gasket of the boiler cover (black)
	23	429004	Ring - Bag / RecBag holding ring
	24	384018	Working Thermostat 30-210°C - (T1)
	25	425002	Knob
	26	385007	Timer (0 - 5 hours)
	27	-----	Thermostat probe
	28	384008	Safety thermostat on condenser (T3)
	29	355201	Bulbs for thermostats
	30	302005	Support for electrical components
	31	384020	Maximum thermostat - 225°C (T2)
	32	350000	Shaft
	33	350903	Bushing for shaft
	34	-----	Seeger washer
	35	384000	Oil bleeding valve
	36	433712	Diathermic oil thermometer 200°C
	37	433713	Vapours thermometer 350°C
	38	380021	Oil expansion vessel
	39	-----	Electrical box closing disc
	40	425002	Knob
	41	-----	Mantel
	42	-----	Boiler



VERSIONE CON POMPA DI TRAVASO MONTATA NEL DISTILLATORE
 VERSION WITH TRANSFER PUMP INSTALLED ON THE DISTILLER



- 12 Raccordo entrata aria con filtro
- 12A Raccordo entrata aria con filtro
- 27 Recipiente solvente sporco
- 28 Recipiente solvente pulito
- 34 Pulsante di carico solvente sporco
- 34A Tubo entrata aria (colore bianco)
- 34B Valvola comando pompa pos. 37
- 37 Pompa pneumatica PA per il travaso
- 37A Tubo alimentazione aria (colore azzurro)
- 38 Tubo ritorno solvente rigenerato
- 38B Tappo ispezione
- 38S Tubo sfiato
- 46 Tubo aspirazione solvente sporco
- 46A Tubo carico solvente sporco
- 53 Bollitore

- Air inlet connection with filter
- Air inlet connection with filter
- Used solvent drum
- Clean solvent drum
- Dirty solvent loading button
- Air inlet tube (white)
- Pump pos. 37 command valve
- Diaphragm pump PA for pouring
- Air feed tube (blue)
- Return tube for recycled solvent
- Inspection cover
- Relief hose
- Suction tube for dirty solvent
- Tube for loading dirty solvent
- Boiler