GENERAL PROCESSES
FOR MACHINE HANDLING,
REVISION & REPAIR.
DP MODEL

ITV REPAIR INSTRUCTIONS.

GENERAL PROCESSES FOR MACHINE HANDLING, REVISION & REPAIR.

DELTA, GALA, SUPERSTAR & COMET MODELS

1. INTRODUCTION.

After many years dedicated to the production of ice-making machines, the experience acquired has led us to achieve that our machines are not only efficient and reliable but also that in the event of any maintenance, cleaning or repair operations they are easy to assemble and dismantle. Also that the parts are easily accessible and fundamentally, easy to understand in their operation.

Even so, we believe that it is appropriate to explain, in a visual and simple manner, all operations that can be carried out on the I.T.V. machine.

With this manual we endeavour that any intervention to be carried out on our machines, does not cause any headaches and of course involves no risk.

Always as a safety measure, we also advise prevention should any element need to be handled (we remind you that they are manufactured in galvanised stainless steel, that there are certain elements of a particular weight and that the machines are electrically operated). Therefore, whenever carrying out any operation it is necessary to unplug the machine and use gloves.

2. GENERAL PROCESSES

As you can see below, there are a series of necessary operations to be carried out, whenever undertaking any process with an ITV DP System machine. They are simple operations and do not require many tools, only a little patience and care, as well as:

- A Phillips screwdriver.
- Flat head screwdriver.
- Drill
- Riveter.
- 2.5mm Allen key.
- Pliers
- Oxyacetylenic welding unit and vacuum pump.
- Coolant.

To access the ice-making area it is necessary:

2.1. Remove the machine cover by hand or using a screwdriver (figure 1), to access the evaporator and electrical circuit.

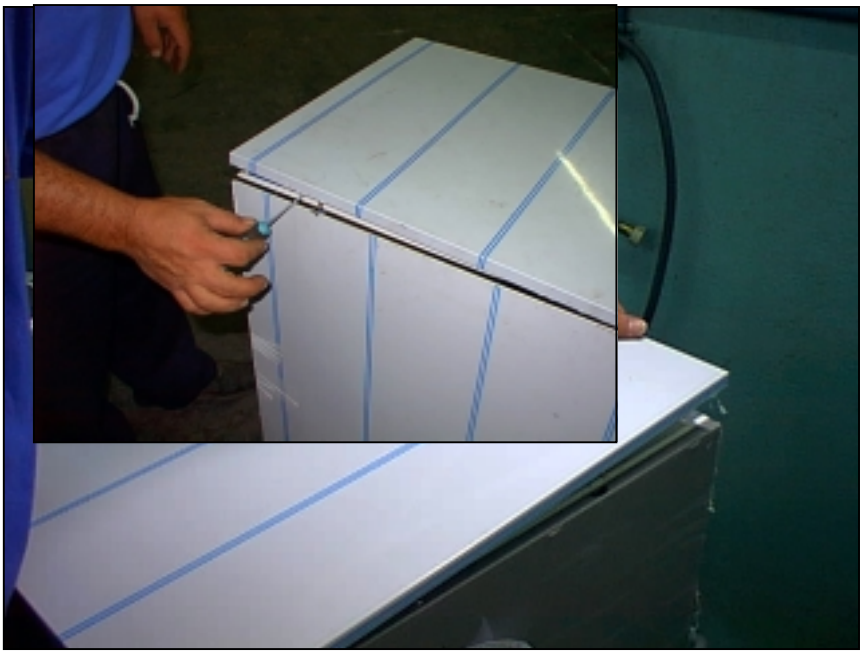


Figure 1

To remove the rear panel simply unscrew the galvanised steel screws that secure it to the sides with a Phillips screwdriver and pull outwards.

Once these two operations are carried out it is possible to access both the evaporator zone and the production tank where the water impulsion pump and self-cleaning system can be found.

It is also advisable to remove the front and rear grills to be able to access both the electrical connections, cycle thermostat control wheels and the main components of the machine's cooling system.

For this carry out the following:

2.2. Remove both galvanised steel screws on the sides of the front grill (figure 3). In this way, the programmer will be exposed in all models, apart from the DP20 (lateral) and those accessed by removing the side grill fitted for that purpose.

Figure 3

2.3. Remove the rear grill with a screwdriver, levering it slightly for extraction (figure 4).

Figure 4.

2.4. Remove the support screws of the side window/s to gain better access to the electrical and cooling components (thermostat controls in the DP20). (figure 5)

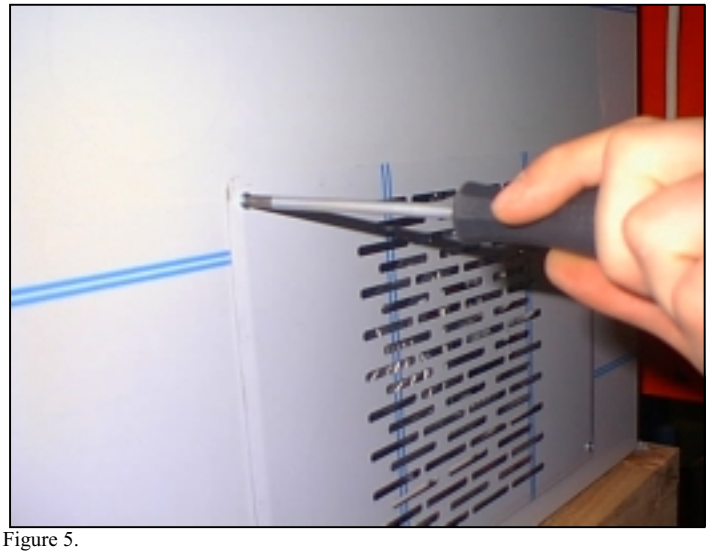


Figure 5.

Now you will have access to all the regulation elements or those subject to repair or change.

3. PRODUCTION TANK

Once the rear panel of the machine is removed, the following steps must be followed:

3.1. Empty the production tank pulling upwards with force from the expansion reservoir brace (figure 6).

Figure 6.

3.2. Disconnect the water impulsion pipes from the pump, pulling downwards with sufficient force (figure 7).

Figure 7.

3.3. Disconnect the drainage pipe from the stock tank, pulling downwards (figure 8).

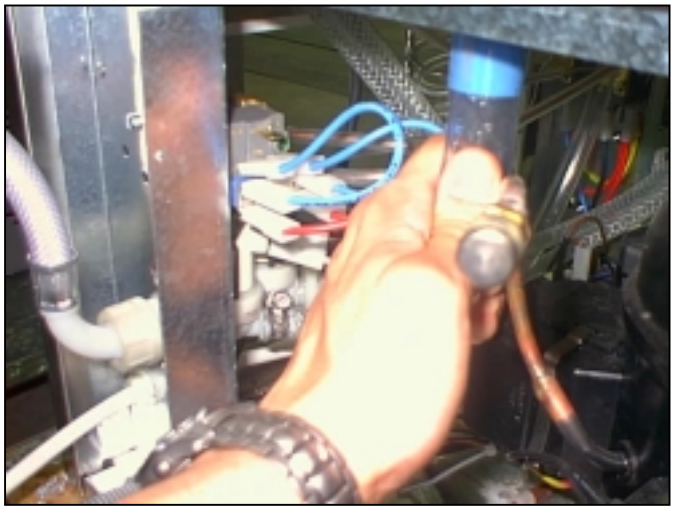


Figure 8.

3.4. Disconnect the electrical terminals from the pump (figure 9).

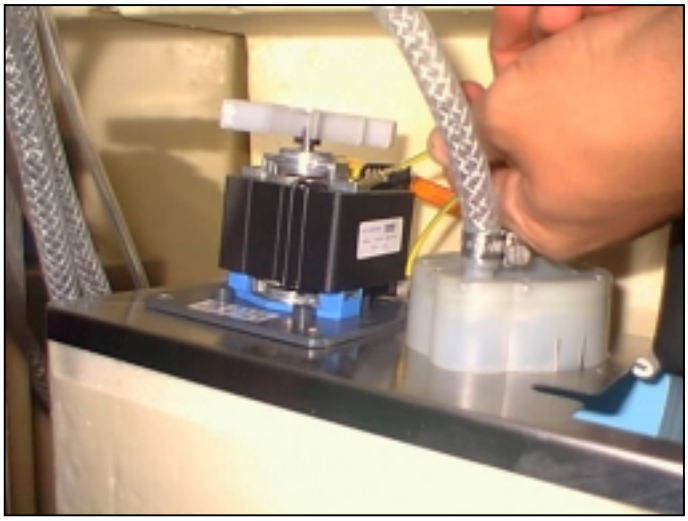


Figure 9.

3.5. Remove both stainless steel screws that secure the pump to the tank cover (figure 10). In the larger models, it is possible to remove the pump only with these 2 latter operations and releasing the impulsion pipe (of silicone, figure 7 of point 3.2) and pulling upwards from the pump, without the need to remove the entire tank.

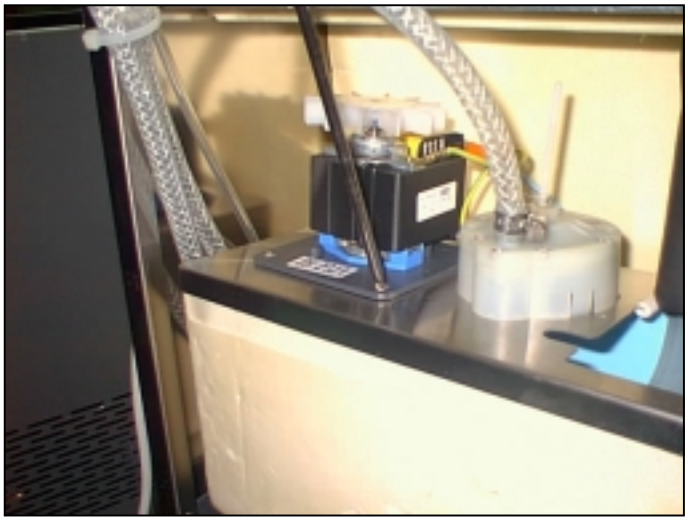


Figure 10.

3.6. In Delta machines, the expansion reservoir is removed, extracting the pin and pulling upwards from the expansion reservoir, pressing both securing flanges (figure 11).

Figure 11.

3.7. If it is pulled with sufficient force away from the production tank, by gripping the sides it can be easily removed. The tank is secured to the rear bridge due to the sheet that covers it, in this way both flanges on the sheet, positioned on both sides, are inserted into the grooves of the bridge made for that purpose. It is advisable to observe the system well before carrying out the operation! -(warning- on small machines use gloves, as due to the small space between hands and side panels, there is the possibility of knocking or cutting oneself.- figure 12).

Figure 12.

Once these operations are carried out, it is simple to remove the water impulsion pump for repair or replacement.

To remove the pump, simply remove the armaflex tube that covers the impulsion pipes (silicone) and carefully pull out from the pump (in DP 20 model this is the best way to remove the pump, in larger models consult point 3.5).

4. ACCESS TO THE ICE-MAKING AREA.

4.1. It is necessary to remove the upper cover as indicated in the first section and it is advisable to also remove the rear panel of the machine in order to observe the inflow system and collection of production water.

4.2. Remove both stainless steel screws that support the shutter (figure 13)

Figure 13.

4.3. Remove the shutter by pulling gently backwards and taking it from below the particle separator (figure 14).

Figure 14.

4.4. Remove the water distributor (blue PVC) pulling upwards with sufficient force (figure 15).

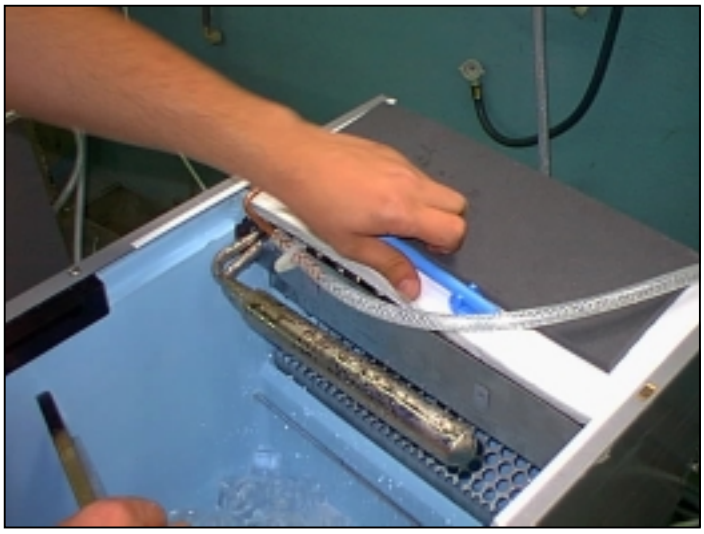


Figure 15.

4.5. Remove the lid of the evaporator turning it slightly by hand to release the ends from the side panels (figure 16).

Figure 16.

4.6. Remove both grey PVC blocks from the shutter support (figure 17).

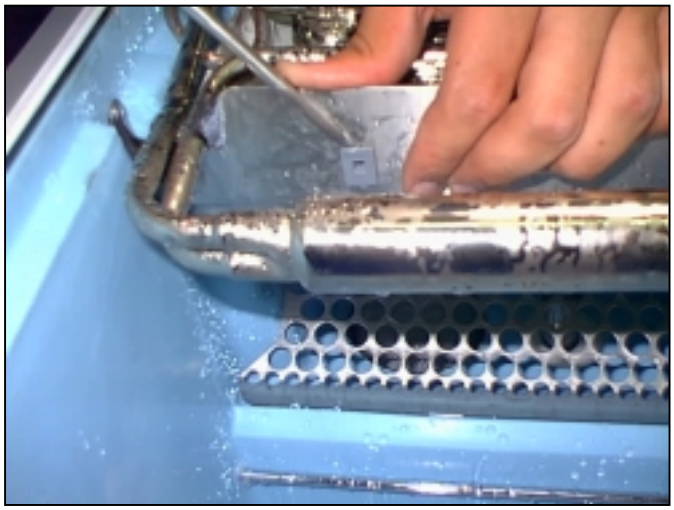


Figure 17.

4.7. Lift with care, ensuring not to break the armaflex tube that covers the inflow pipe, evaporator and move it firmly backwards (figure 18).

Figure 18.

4.8. Remove the ice cube expulsion grill pulling firmly upwards (figure 19)

Figure 19.

4.9. Remove the distributor (with showers), supporting it firmly and pulling it upwards (It is necessary to mention that the distributor, expulsion grill and injectors can be removed from their position for appropriate cleaning, simply by moving the shutter without having to remove any other element)(figure 20).

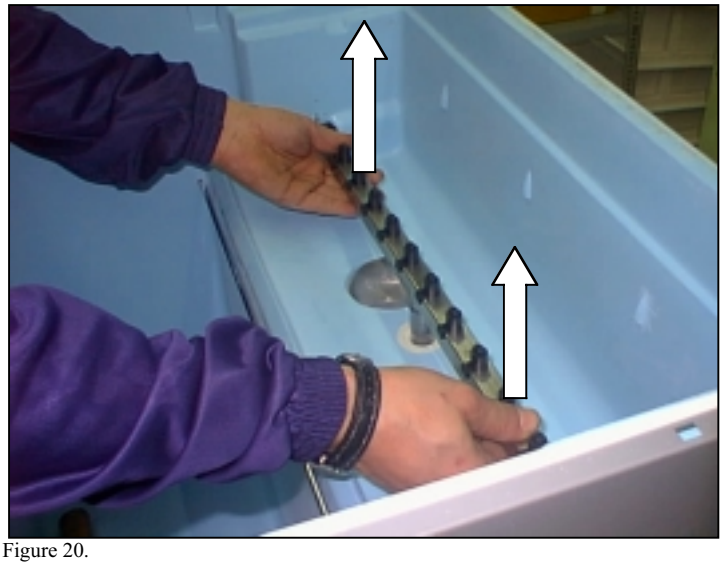


Figure 20.

5. TO REMOVE THE STOCK TANK .

On certain occasions, the misuse of the machines can cause less common breakdowns, such as breakage of the stock tank. (For example, the user sometimes uses the stock tank full of ice as storage, inserting bottles, glasses and of course the ice cube scoop in a rough manner etc, which may damage the said tank). Therefore, it is also deemed necessary to explain how to change the stock tank by simply following the logical order established :

Once the upper and rear panel of the machine is removed and the evaporator separated as explained in previous sections, it will be necessary to:

5.1. Drill the 4 rivets that secure the rear support of the stock tank (figure 21).

Figure 21.

5.2. Disconnect the water collection pipe from the stock tank, figure 22.

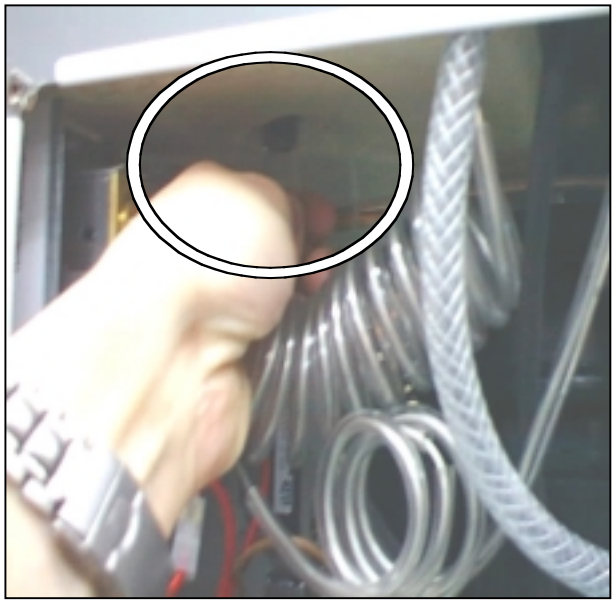


Image 22

5.3. Separate the production tank from its position as explained in chapter 2.1.

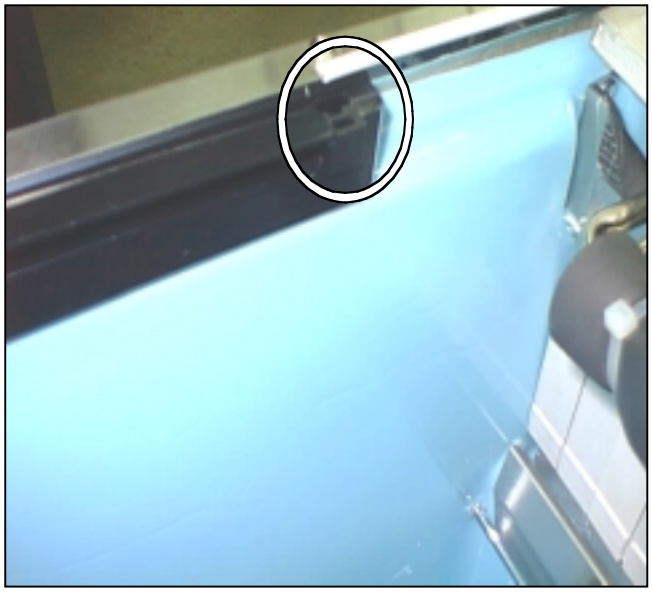
5.4. Remove the tank by carefully pulling backwards from it slightly separating the side panels.

6.

6.1.1. Remove the sliders laterally and inwards.

6.1.2. Inversely, the sliders will be placed on the side panels, taking special care at the time of placing the doorstops that the studs of the stops coincide with the slider marks (figure 27).

Figure 27.



6.2. Replacement of the side panels

6.2.1. Now, remove the rear and front aeration grills as indicated in point 1, and remove the rivets that secure the rear support of the tank (figure 21 of point 2.2.2) and those that join the rear and front bridge to the side panels (figure 28).

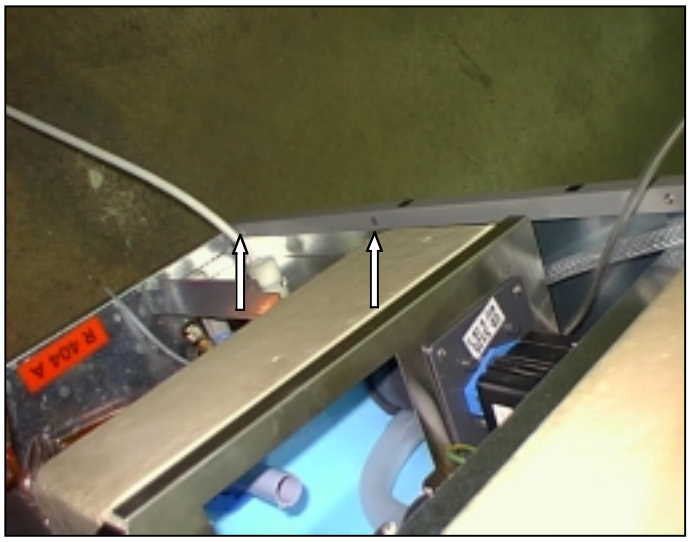


Figure 28.

6.2.2. Remove the 2 stainless steel screws that fix the upper front and pull upwards until it exits the securing flange (figure 29).

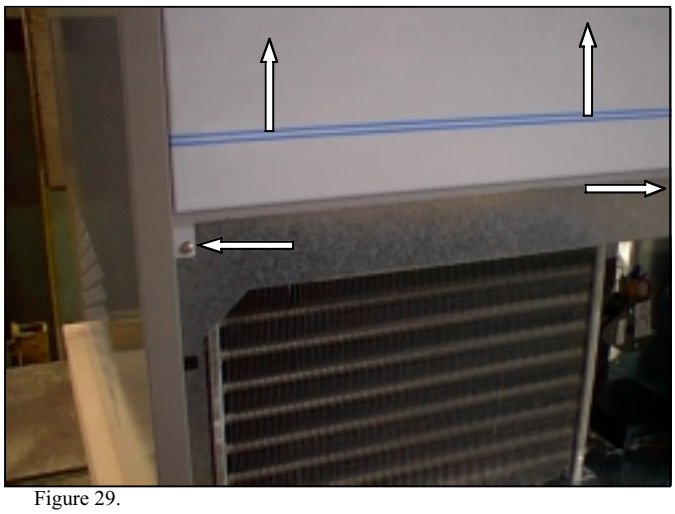


Figure 29.

6.2.3. Finally, by raising the machine laterally, remove the three screws that secure each side panel to the machine frame (figure 30).

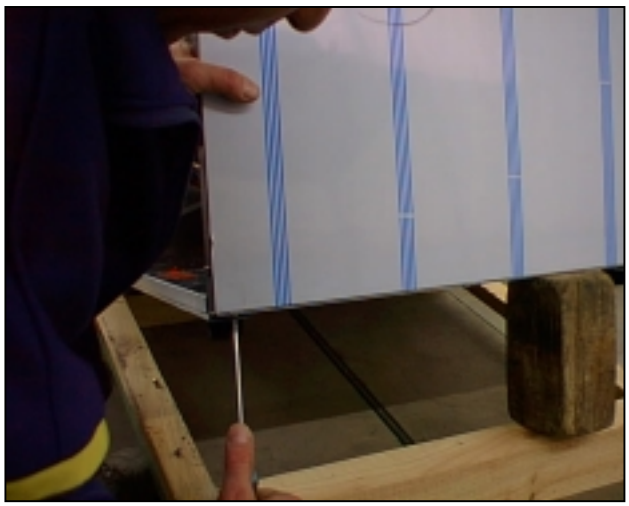


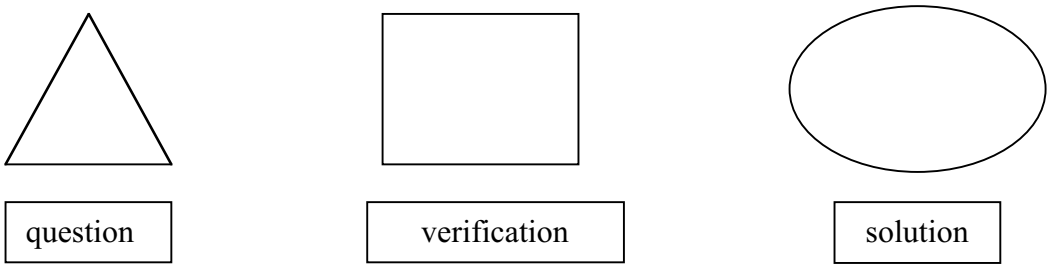
Figure 30.

These operations that initially appear to be rather laborious, are actually not, and it is in fact quite simple to carry them out, as well as facilitating subsequent work on any other part of the machine.

7. SOLUTION TREES FOR PROBLEMS.

Further to explanation of the regular intervention of a machine before carrying out it repair, a simplified outline is presented below. This is so that anyone faced with a problem with an I.T.V DP model ice-making machine can simply follow the steps and verifications in order to find and subsequently rectify any possible fault that it may have. In this way, guiding oneself, and we must reiterate it is only a guide, through the symptoms presented by the machine.

The trees comprise of the following symbols:



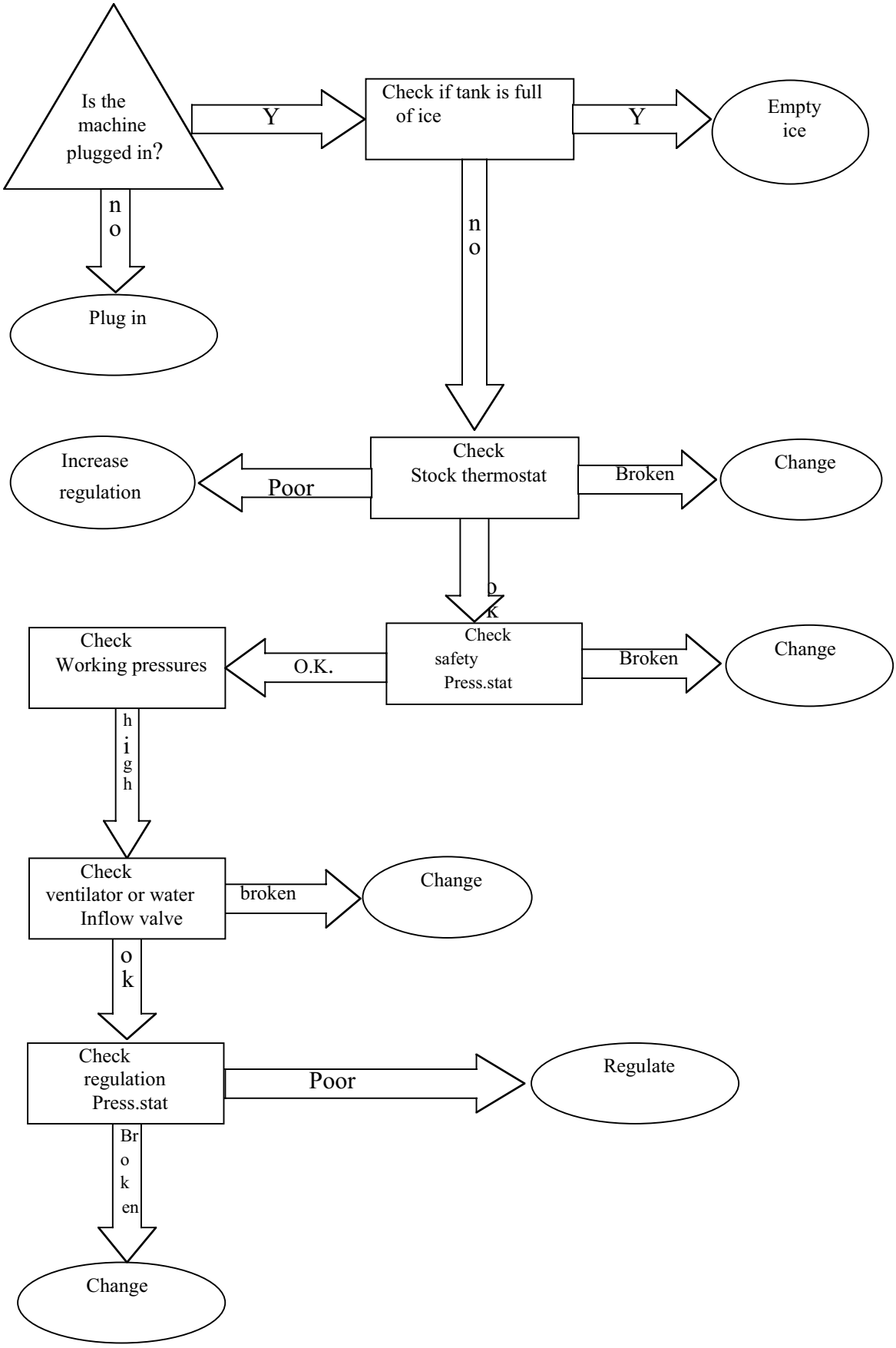
Question.- request a 'yes' or a 'no' and the response will lead you to either a new question box or a verification box.

Verification.- it will suggest an element to check and possibly, if necessary the use of the instructions enclosed in points 1 & 2 of this manual for access. The result of this box will lead to a new direction to be verified or the definitive solution.

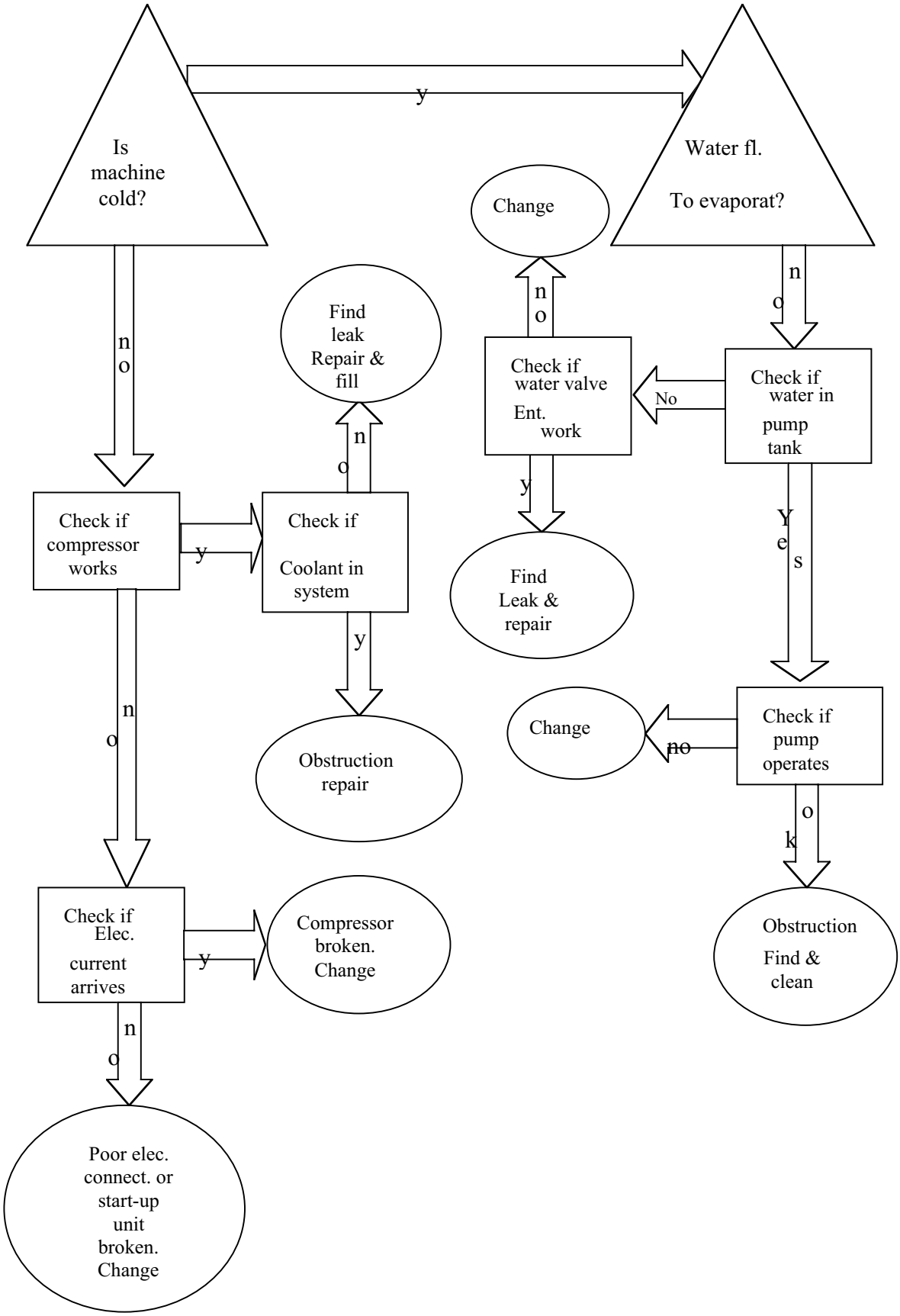
Solution.- it will indicate the component or factor that is most probably the cause of the anomaly in question and the solution to adopt. Subsequent sections of this manual will explain in detail how the majority of necessary operations are carried out to change or regulate the element in question.

It is advisable to follow these trees together with the rest of the technical manual, as in this way the method of finding the problem and solving it will be the most logical and simple possible, as well as time-saving.

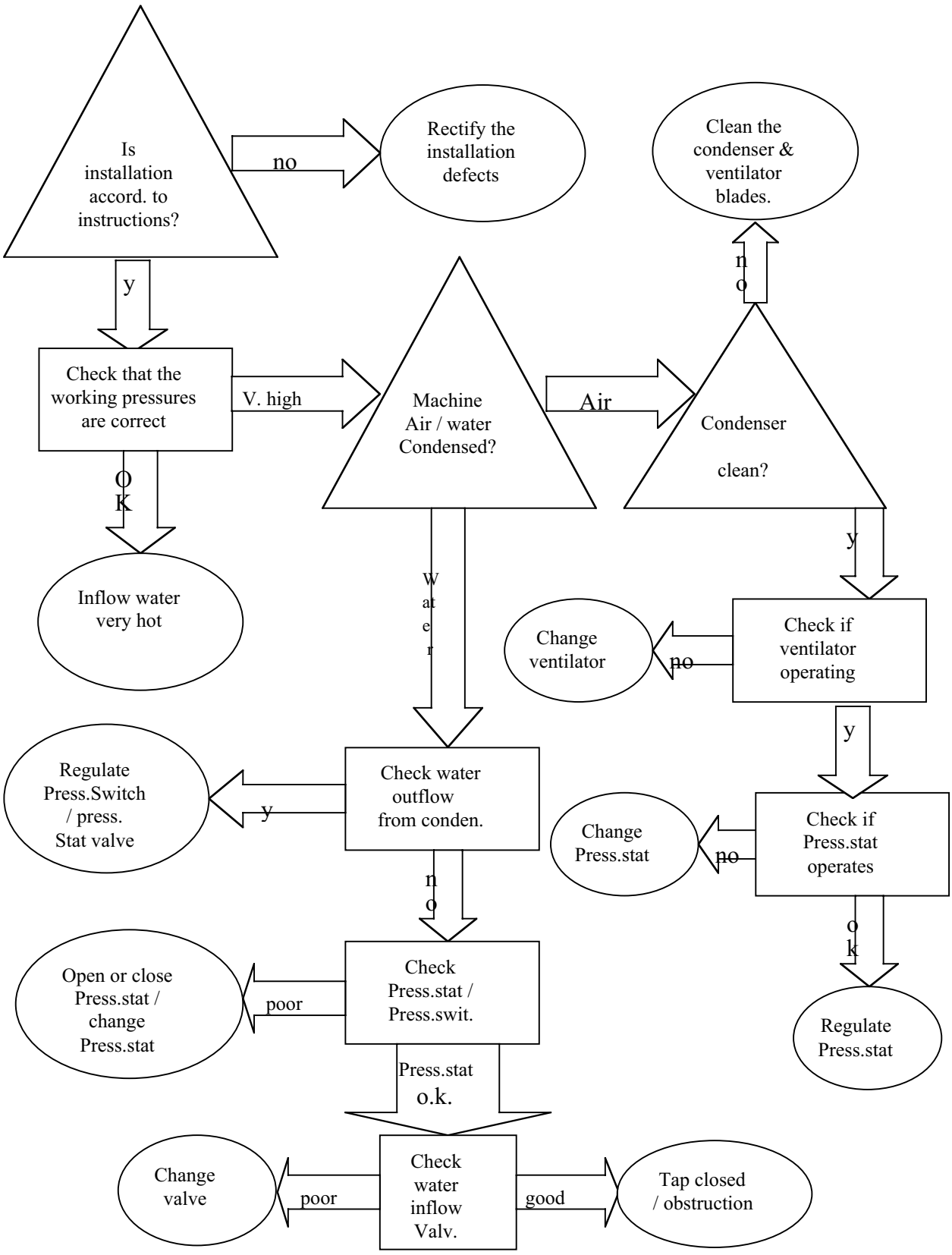
7.1. Machine Not Operating.



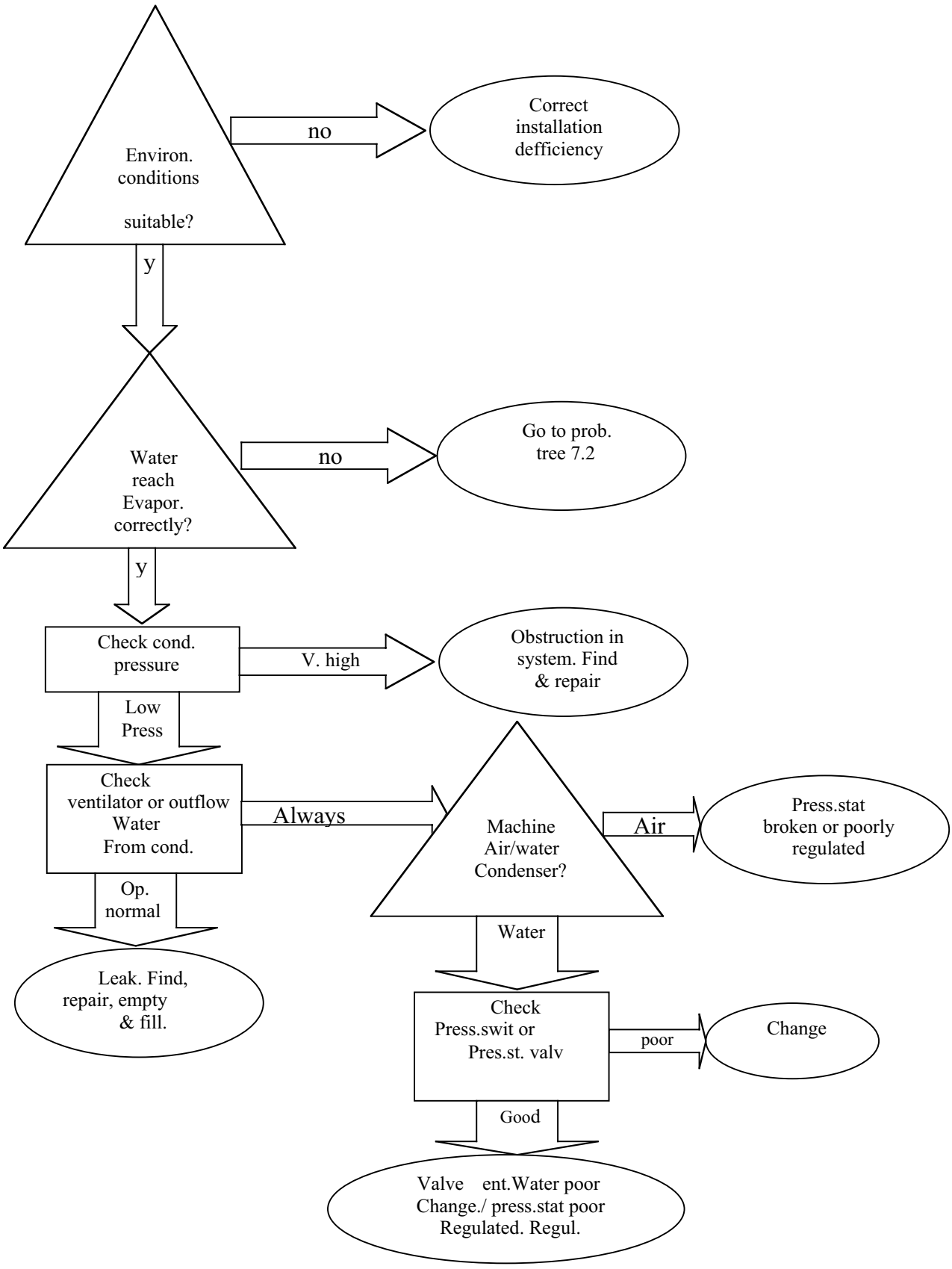
7.2. The Machine is Operating but Fails to Make Ice



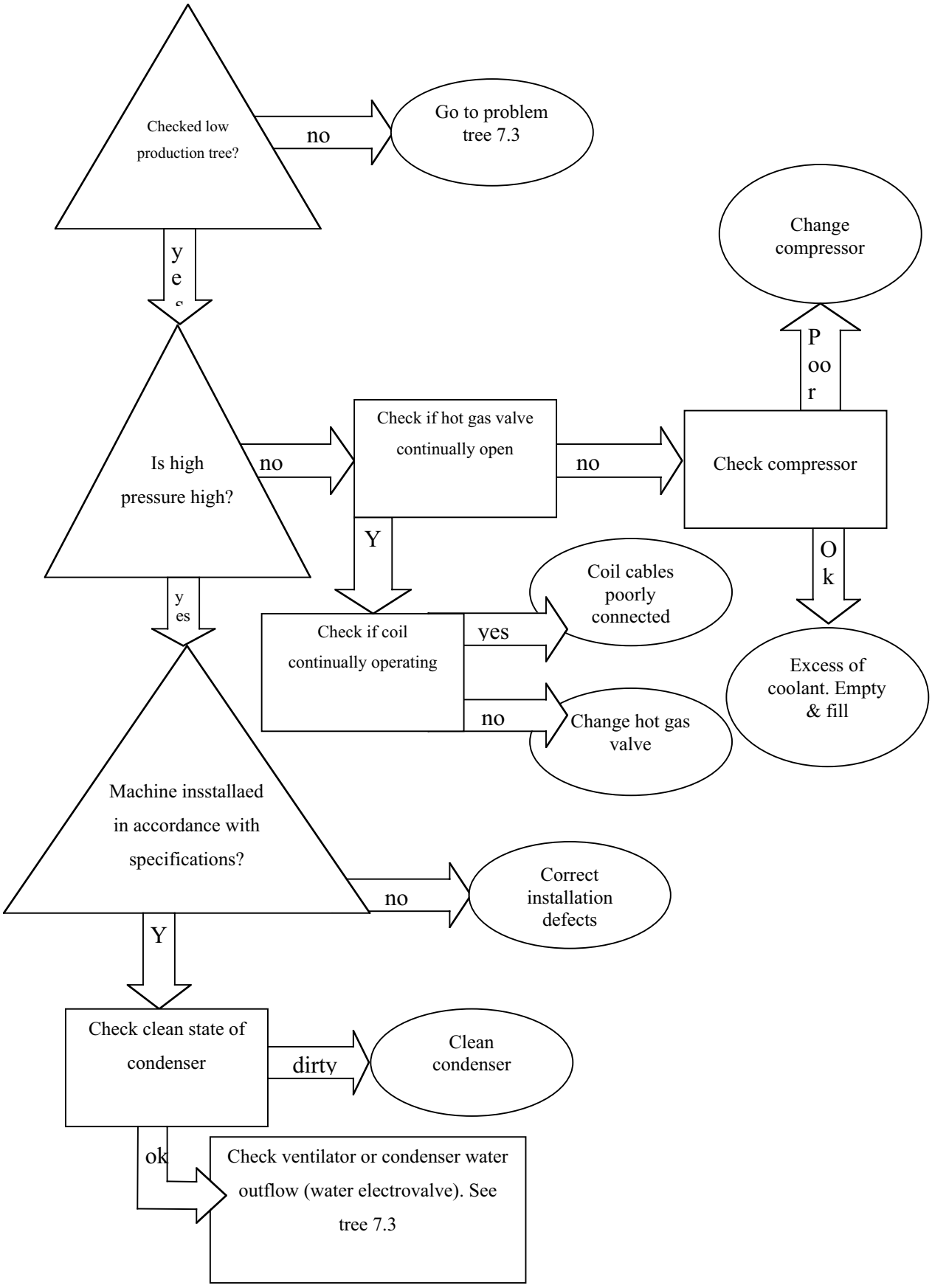
7.3. Low Production. Ice Cubes 'well done'



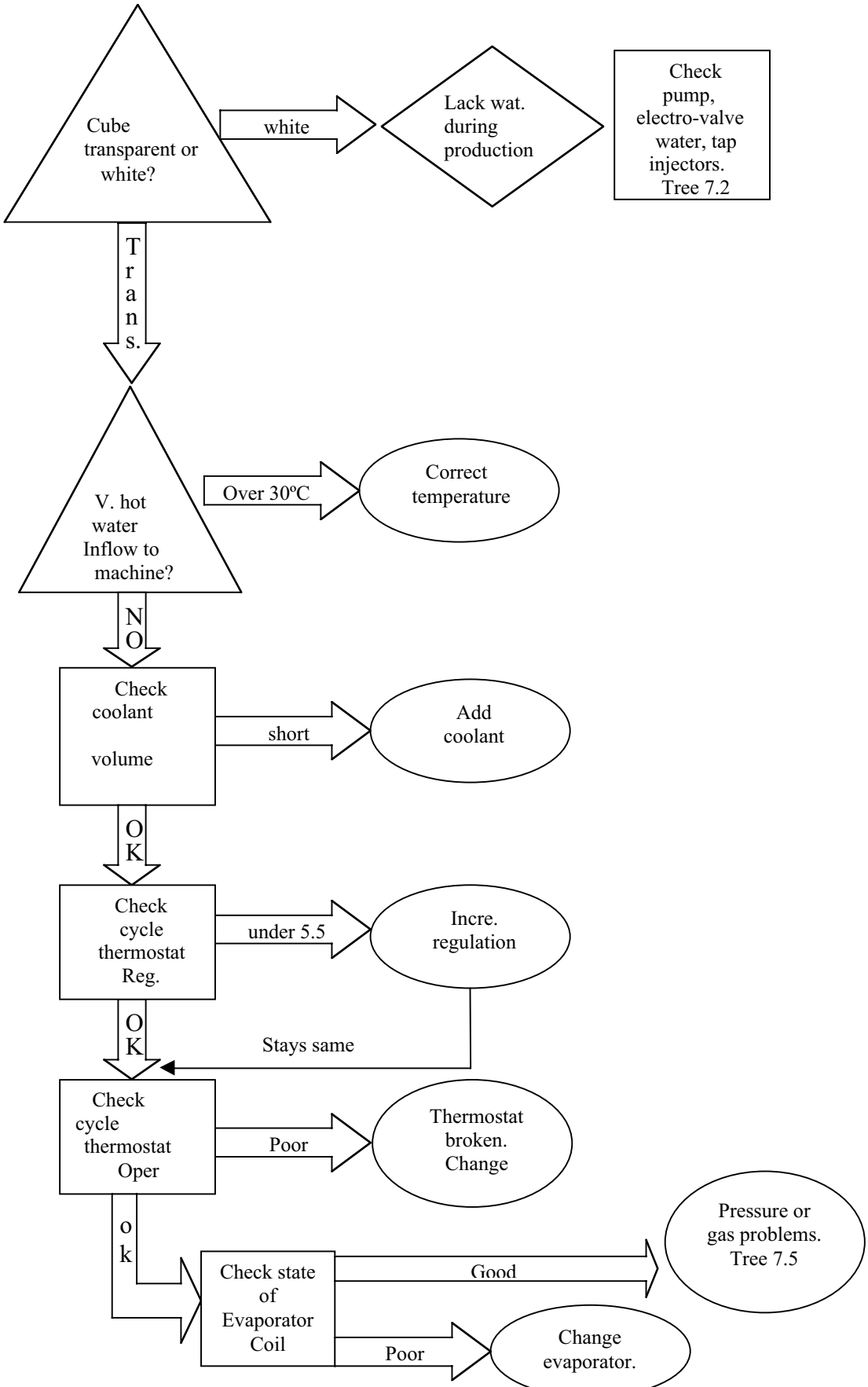
7.4. Inflow Pressure Very Low.



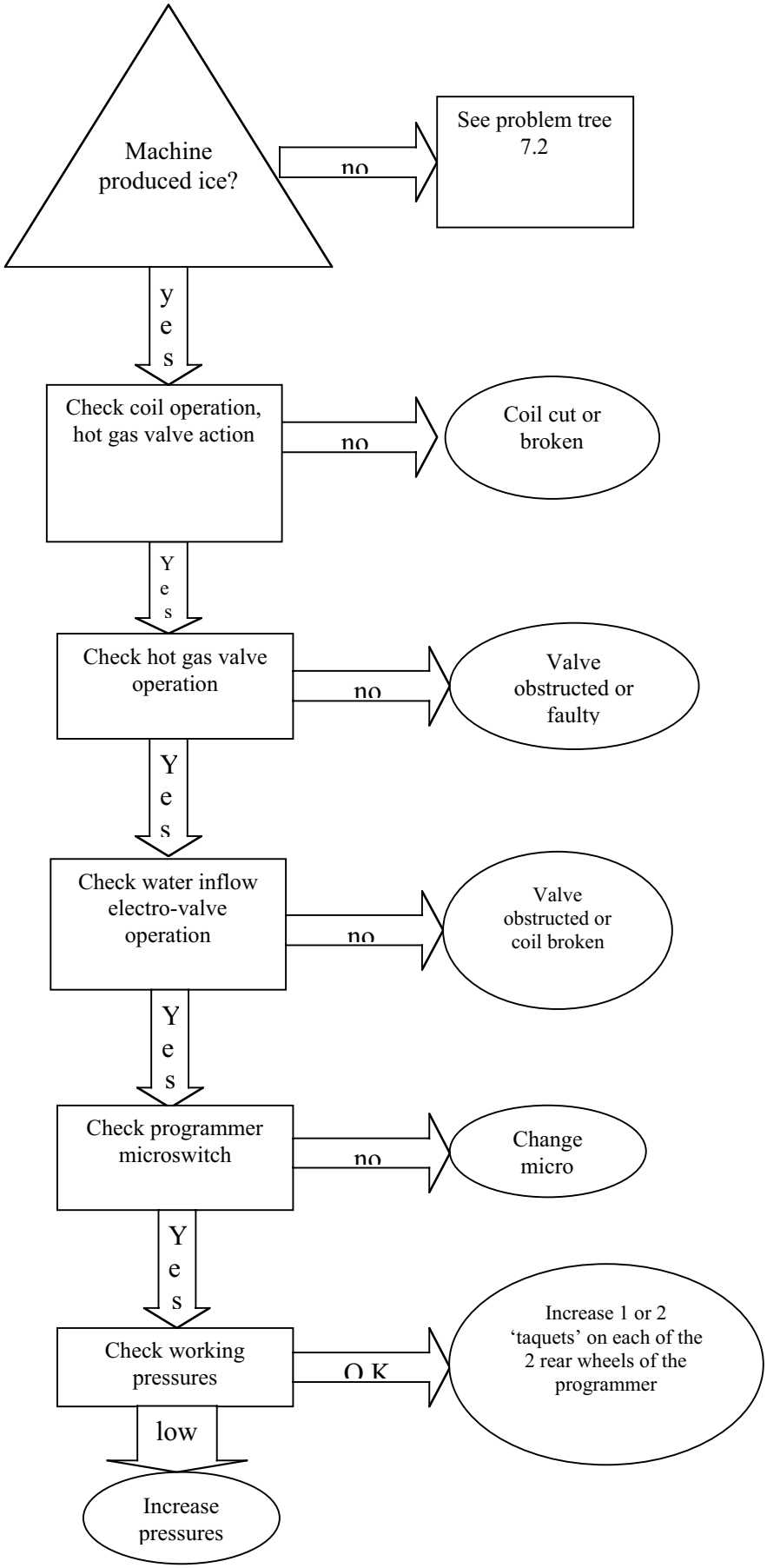
7.5. Very High Inflow Pressure.



7.6. Empty Cubes



7.7. Ice Fails to Fall from Evaporator.



8. MACHINE ELEMENTS; DESCRIPTION, PROBLEMS & SOLUTION.

You have already seen how to access all the machine components, now you will see the purpose of each element and the symptoms in the event of breakage or in certain cases, deregulation.

8.1. Cooling System.

Acces.-it will be necessary to remove the rear grill of the machine to facilitate visualisation, tilt it forwards placing a wooden block or any other element that keeps it in that position (see figure 31). Sometimes it is also advisable to remove the side grill. In certain cases it is convenient to remove the side panel/s.

Figure 31.

8.1.1. Compressor.

It is necessary to know that the compressors assembled by ITV in its ice-making machines are hermetic.

- Function.

As is well known, the compressor pushes coolant through the entire cooling system (condenser, filters, capillary, evaporator) to achieve absorption of the water heat in the evaporator moulds and thus form ice cubes. Furthermore, and during the release of the cubes, it pushes the fluid in gas state (hot), without passing through the condenser, through the evaporator so that the cube falls into the stock tank.

- Problem.

The compressor can breakdown or have low output.

The breakdown occurs when the electrical current reaches it and the compressor fails to work. IMPORTANT!!! THE FACT THAT THE COMPRESSOR IS NOT WORKING DOES NOT NECESSARILY MEAN THAT IT IS BROKEN, AND IT IS NECESSARY TO ENSURE THE CORRECT OPERATION OF THE ELECTRICAL COMPONENTS BEFORE REACHING SUCH A CONCLUSION.

Therefore, it will be necessary to ensure that the motor-protector, relay and start-up or permanent condenser (where appropriate) operate correctly.

PROBLEM	POSSIBLE CAUSE	SOLUTION
The compressor works but fails to transmit pressure	Breakdown in the compressor valves	Change the compressor
The compressor fails to operate electrically	Compressor coils cut or shut down	Change the compressor
The compressor works electrically but fails to pump	Rotor blocked	Change the compressor

- How to replace the compressor.

Empty the coolant from the machine.

Disconnect the cables from the compressor electrical unit

Unweld the coolant inflow & outflow pipes from the compressor (figure 32).

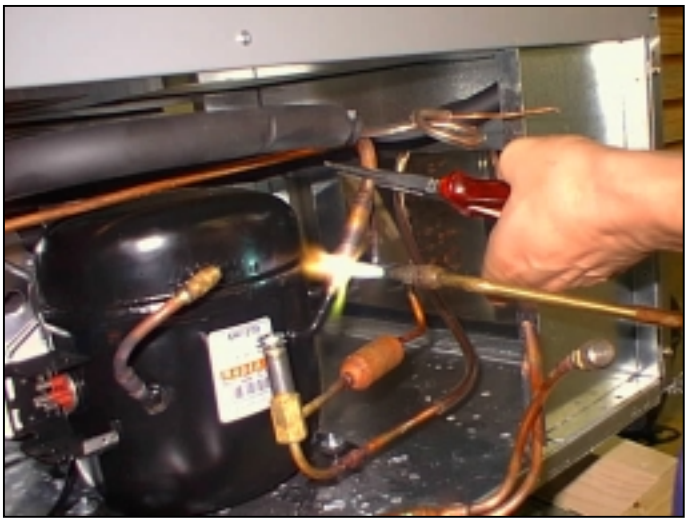


Figure 32.

Remove the screws that fix the compressor to the bench and remove the compressor (figure 33)

Figure 33.

Place the new element and weld the inflow and coolant outflow pipes.

Connect the electrical components of the compressor.

Change the dehydrator filter.

Empty the cooling system.

Fill machine with coolant.

8.1.2. Pressure switches & pressurestat valve.

- Function.

It switches the electrical terminals to change the operation manoeuvre according to the existing pressure in the system. In this way, the condensation pressure switch will feed the ventilator or water inflow valve, when the pressure in the system reaches a determined value and the current is cut as the pressure switch gradient reduces the pressure. The safety pressure switch will cut the current of the entire machine when the pressure rises up to the tare value and will return supply when the pressure drops again until the closing value.

- Problem.

8.1.2.1. Condensation Pressure Switch.

It may occur that when continually closed, whereby the ventilator or electrically operated water valve continually operates, causing a drop in pressure and quite possibly problems at the time of releasing ice cubes (possible formation of a sheet of ice in the evaporator). Or when it is continually open, whereby the ventilator or electrically operated water inflow valve fails to operate, causing the machine to stop due to high pressure.

8.1.2.2. Safety Pressure Switch.

As with the condensation pressure switch, it can remain continually closed, whereby in the event of excessive pressure increase, the system will remain unprotected, probably breaking the compressor by failing to disconnect the system. Or it can remain continually open, causing the machine to stop, although the pressure is correct.

- How to replace a pressure switch.

For the condensation pressure switch, unscrew the rear bridge of the machine.

Empty coolant.

Disconnect electrically.

Unweld the element.

Replace the new element with extreme care not to obstruct the inflow orifices with material.

Change the dehydrator filter

Empty it and fill with coolant.

8.1.2.3. Penn Pressurestat Valve

This concerns an element that is only installed in the Dp machines in the 140kg models, water condensed, and it regulates water flow that passes through the condenser to take the necessary heat to the coolant, thus achieving the necessary working pressure.

It can mainly cause two breakdowns. The first would be that it always remains closed whereby the high pressure would increase until causing the machine to stop due to the high pressure pressurestat (by observing whether water flows out of the condensation drain it will be possible to know if this has occurred).

The second could be that the valve seal is damaged, with which water would pass through it although it is closed to the maximum. The problem caused would be a drop in condensation pressure, impeding the release of the ice cubes, whereby it would be necessary to regulate again the valve until carrying out the repair.

8.1.3. Condenser.

- Function.

Eliminate the necessary heat acquired in the evaporation of the coolant

- Problems.

The most common is that the condenser (especially if it is air) is excessively dirty and is unable to carry out its mission.

Therefore, machine stoppage by the high-pressure switch can be due to a dirty condenser, both water and air, as well as a breakdown with the ventilator or in the condensation pressure switch (in air-condensed machines). Or a breakdown in the electrically operated water valve, condensation pressure switch (or in the breakdown or poor regulation of the Penn pressurestat in the model DP 140) in water condensed machines.

- How to replace it.

Empty the coolant from the machine.

Disconnect the water pipes (water condensed).

Unweld the condenser coolant inflow and outflow pipes.

Remove the broken condenser.

Position the new condenser and weld the coolant inflow and outflow pipes again

Change the dehydrator filter.

Connect the water pipes.

Empty the cooling system.

Fill the machine with coolant.

8.1.4. Evaporator.

- Function.

The coolant fluid passes the coil and absorbs the heat, and the water comes into contact with the cold moulds welded to the said coil causing it to freeze and form ice cubes.

- Problems.

The only problem that may arise in an evaporator is a leak, which would lead to a pressure drop in the system, the ice cubes will not form and the cycle times will be significantly longer.

- How to replace the evaporator.

By accessing the evaporator as indicated in chapter 2 of this manual, carry out the following:

Empty the system of coolant.

Unweld the coolant inflow and outflow pipes (the inflow pipe is joined by both the capillary and hot gas inflow pipe for the release of the ice cubes).

It is recommended to separate the compressor from the condenser and the low-pressure zone, empty it of oil, pass a dehydrating fluid pass at pressure such as R141b. Afterwards and in similar form pressurised Nitrogen, in order to eliminate any possible moisture that has entered and put the oil back into the compressor.

Continue in similar form as with the condenser.

Change the dehydrating filter.

All the parts unwelded for these operations will be welded again.

The evaporator will be positioned and welded

Empty the system.

And the necessary amount of coolant will be inserted for correct operation.

8.1.5. Capillary tube.

- Function.

To increase the pressure of the coolant before entering the evaporator so that on reaching it, the section increase in the pipes causes the evaporation of the fluid, thus producing the absorption of heat.

- Access.

It is necessary to remove the rear panel, as well as leave both the evaporator and the cooling unit accessible (chapter 1).

- Problems.

The only problems that can occur with the capillary are:

Leak or obstruction. The obstruction is diagnosed when measuring the working pressures, the low pressure tends to fall and the high pressure increase.

In both cases it is necessary to change the capillary.

How to replace the capillary.

Empty of coolant.

Unweld the capillary

Place the new element with extreme care not to obstruct the inflow and outflow orifices with the material (it is advised to place a damp cloth close to the solenoid pass valve of the hot gas in order not to burn it when welding or unwelding).

Change the dehydrating filter.

Empty and fill with coolant.

8.1.6. Dehydrator filter.

- Function.

To trap small particles of moisture or contaminants. This element must be changed whenever the cooling system is open.

- Problems.

If there is a large amount of damp particles or contaminants, frost may appear on the filter, and it can be checked because the inflow pressure will be very low.

In this case the element must be replaced.

- How to replace it.

Empty the system of coolant.

Unweld the element.

Place the new element and weld it IMPORTANT: THE DIRECTION OF PASSAGE OF THE GAS THROUGH THE FILTER !!!!

Empty and fill with coolant.

8.1.7. Hot gas valve.

- Function.

Allows the passage of hot gas from the compressor to the evaporator, only during the time assigned to the release of ice cubes.

- Problems.

Its breakdown can cause either the ice cubes not to fall and end up forming a sheet of ice in the evaporator, in the case of continual closure. Or the ice cubes fail to form if it remains open.

To detect whether this valve causes the problem, simply touch the pipe that exits the said element towards the evaporator. If it is hot during production it is because it is open (can also be caused by an erroneous connection of the coil that opens it and that causes it continually operate). And if it is cold during the release of the ice cubes, and the coil that drives it is operating, it is because it is closed.

In both cases it is necessary to change it.

- How to replace it.

The same way as the dehydrating filter.

8.2. Component of the electrical or hydraulic system

8.2.1. Water impulsion pump.

- Function

The pump takes the water from the tank and thrusts it with sufficient but not excessive pressure, (in order to avoid what is known as washing the cube) against the moulds of the evaporator.

- Problem

If the pump is broken, it will stop thrusting water against the evaporator and subsequently fail to produce the cubes, or if the problem is loss of output, the pressure will be less and the symptom detected will be that of an incomplete or very white cube.

- How to replace it

It is perfectly illustrated in chapter 3.5

8.2.2. Self-cleaning or expansion reservoir

- Function.

It acts at the end of each cycle (if the breaker located on the front, right-hand side of the machine is in position 1) and its function is to eliminate any foreign particles that may be deposited in the pump tank and subsequently cause damage in the pump.

- Problem.

A broken expansion reservoir can cause various problems:

Add excess water

Remain continually expanded and lose water

To resolve this, it is possible to release the wing pin that supports the brace, place the drain correctly (closed) and disconnect one of the cables (white) that feeds the coil of the corresponding valve.

The checks to carry out on the expansion reservoir are summarised by observing that they operate correctly, do not expand after operation, as on the contrary water would be lost giving rise to insufficient water to finish the production cycle and the cubes would be off-white and incomplete. Therefore, simply remove the rear panel of the machine and observe the element in question at the time of release of the cubes, as only then will the system operate.

- How to replace it.

To replace the expansion reservoir consult section 3 of this manual

8.2.3. Injectors.

- Function.

The injectors pulverise the water from the tank and propelled by the pump, in the most homogenous manner possible so that the filling of the cubes is uniform.

It is advisable to check that the jets are uniform, and perpendicular to the water distributor, that the fan formed is correct, if not clean with a suitable tool (see figure 34) or replace if faulty.

Figure 34.

- Problem

An injector may be broken or dirty. In the first case a non-uniform and perhaps off-white cube will be produced, and on observing by lifting the shutter a non-uniform jet can be seen from the injector. In the second case, the effect will be very similar but on lifting the shutter and observing, a considerably deviated, poor and oscillating water jet will be seen with low pressure.

- How to replace it

To replace one of the injectors, simply insert your hand under the shutter and grasp the part in question, pulling it upwards.

As it is a soft element, its cleaning inside and outside the machine is an extremely simple operation.

8.2.4. Water inflow electrically operated valves.

- Function.

The water inflow electrically operated valves introduce water to the machine component to which they are connected at the time when the device that controls them (microswitch in the case of water inflow valve for production, or pressurestat in the case of that supplying water to the condenser) transmits electrical current to the coil that causes their opening.

- Problem.

This type of valve can experience various problems:

That it is blocked and therefore closed and cannot supply water to the element to which it is connected, in which case the following symptoms can be observed:

Stoppage of the machine by high pressurestat in water condensed machine if the valve that is shut is that which feeds the condenser.

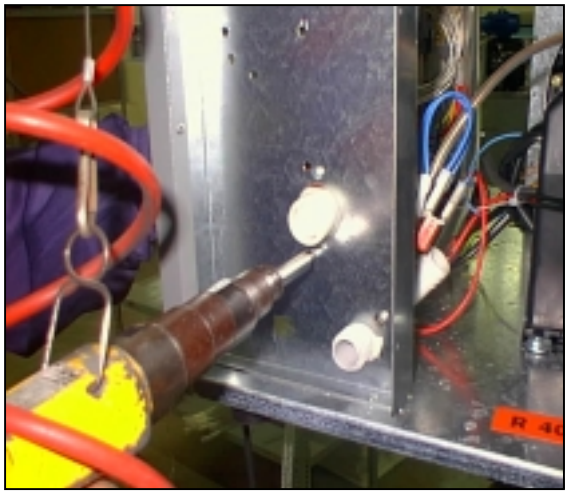
That the machine fails to make ice, if the broken element usually introduces water for production (to the evaporator), as water will not enter the pump tank

That it is always open, which would cause:

Difficulty in the release of the ice cubes, if the element that remains open usually supplies water to the condenser, as the high pressure will fall under regular limits and at the time of release, the coolant in the form of hot gas from the condenser will not raise the temperature sufficiently to release the ice cubes.

The machine will overflow with water if the open element usually supplies the production water.

This last effect is often because the condensation pressurestat, the programmer microswitch or the activating coil are broken. Therefore, in such a case, the best thing is to revise these elements first before changing the valve. (Also revise wiring).



- How to replace it.

It will consist in removing the screws that fix the valve to the rear bridge of the machine, disconnect the electrical terminals and pipes and connect them to the new element (figure 35)

8.2.5. Thermostats.

- Function.

The thermostat switches an electrical connection according to the temperature detected in the well.

Thus, the cycle thermostat is connected in such a way that it will close the connection with the programmer motor when the temperature detected by its well in the evaporator is approximately –13ºC.

And the stock thermometer, on the contrary will remain closed, allowing the passage of the electrical current, until the temperature detected by the well in the stock tank falls to approximately 0ºC, when it switches the connections, cutting the neutral phase of the machine. Therefore, it remains idle until the temperature increases in the area near to the tube of the thermostat well.

- Problem.

WARNING.-POOR REGULATION OF THE THERMOSTATS CAN CAUSE THE SAME SYMPTOMS AS ITS COMPLETE BREAKDOWN. THOROUGHLY CHECK THE SAID REGULATION BEFORE CHANGING THE ELEMENT.

A fault in the cycle thermometer can cause either an empty tank, if the connection always remains closed that feeds the programmer motor or may produce a sheet of ice in the evaporator if it remains open and fails to feed the motor by failing to the release and the machine continues in the production phase.

BE AWARE OF THE CONNECTIONS!!

A fault in the stock thermostat can cause total shut down of the machine if it remains continually open or when the machine operates although the tank is full of ice if it remains closed continually.

NOTE THE REGULATION!!

In Delta models, both that of the stock and the cycle must be regulated at 5.5. A lower regulation would produce a transparent but empty cube, and higher regulation an excessively full cube, an excessively long cycle and difficulty in the release, or in the worst case scenario would form a block of ice in the evaporator.

In Gala models, the cycle thermostat must be regulated between 2.5 and 4 except those that operate at 60 Hz that are also regulated at 5.5. the stock thermostat is always regulated at 5.5.

- How to replace it

To access the regulation controls of the thermostats simply remove the front aeration grill as indicated in chapter 1, except in the DP20 in which it is necessary to remove the right hand grill, thus revealing the said controls. (figure 36)

For the replacement, it will be necessary to access the thermostats, remove the screws that secure it to the electrical board, loosen the electrical connections and remove the well from its location. Once the faulty part is removed, replace with the new part.

Figure 36.

8.2.6. Ventilator.

- Function

The function of the ventilator is to extract the heat necessary from the condenser in order to give the coolant fluid the correct temperature (pressure) for the perfect expansion of the said fluid in the evaporator.

- Problems.

If the ventilator fails to function, the machine will stop due to high pressure. IMPORTANT!!! IF THE VENTILATOR DOES NOT WORK, CHECK THE PRESSURESTAT FIRST.

- How to replace it.

Disconnect electrically

With the machine tilted as observed in the figure of point 8.1.1, remove the screws that fix it to the machine frame and extract it (figure 37)

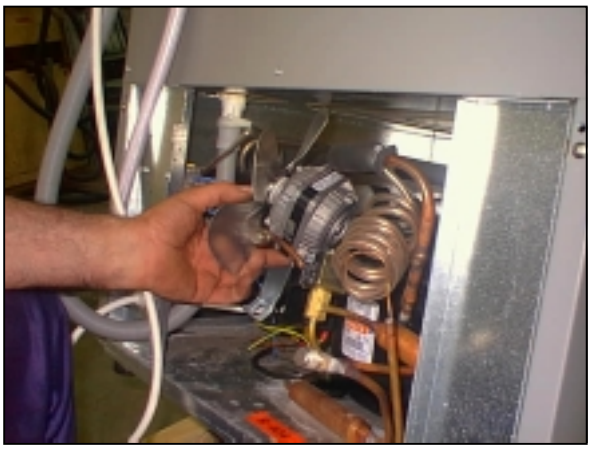


Figure 37.

8.2.7. Programmer

- Function

The programmer provides the time necessary for each of the main operations, that is production and release. Although the first of those times also depends in great measure on the regulation of the cycle, as the production time will be the sum of the set time that the thermometer well takes in detecting the correct temperature in the evaporator plus the set time that the programmer takes in rotating until reaching the 'taquets' area, when the release time starts.

- Problem.

The problem that may arise with the programmer will be that the motor is broken and therefore the machine will continually be in the production state in which the breakdown has occurred. That is, continually in production (an ice block will be formed as the release will not occur) or always in release (ice will not form as hot gas will continually pass through the evaporator and water entering).

- How it is replaced.

By accessing the front aeration grill (image 3 of point 2.2) the two screws are loosened that secure it to the electrical board (figure 38)

Once released the electrical terminals will be disconnected, paying close attention to their location to carry out the connection on the replacement.

The terminals will be connected in the new programmer and screwed to the board.

Figure 38.

In short, these are the fundamental elements that comprise an ITV machine DP model, and we hope that this manual helps in the revision, repair and installation of any of our machines.

We hope that you continue to place your trust in us.

Thank you.

I.T.V. After-Sales Assistance Department