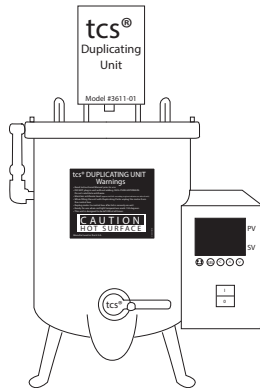


TCS Duplicating Unit – 2 gallon

Operating Instructions

Model TC105



The TCS Duplicating Unit uses antifreeze in a double boiler design. This engineering spares the hydrocolloid paste from sticking to the sides of the tank and burning. This unit is meant to be kept "on" at all times so that you have paste ready when you need it.

Item #3614-01 (110V)

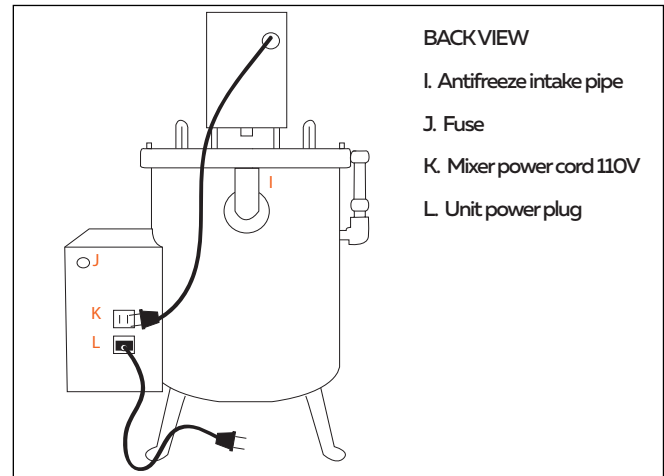
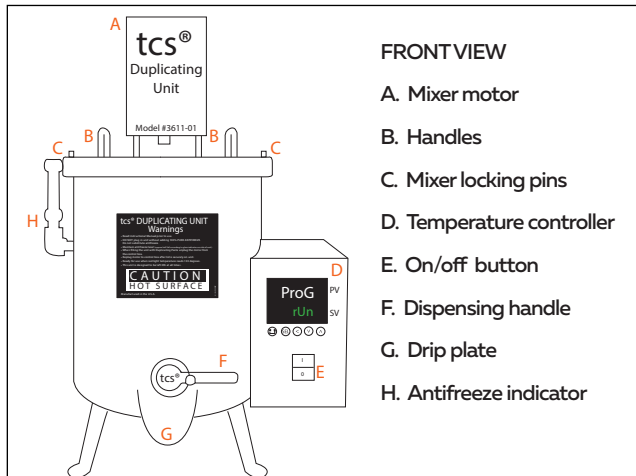


PLEASE READ MANUAL PRIOR TO USE

****WARNING****

DO NOT PLUG IN until filled with 100% pure Antifreeze. Running the unit without antifreeze **immediately burns the heating element** and **voids the warranty**.

1. Get to Know Your Machine



SPECIFICATIONS

Capacity: 2 gallons

Weight: 20 lbs | 9 kilos

Dimensions: Width 14-1/4" | Height 21" | Tank diameter 10"

Dimensions: 110V

WARNING: DO NOT PLUG IN UNIT UNTIL FILLED WITH 100% PURE ANTIFREEZE. MAINTAIN ANTIFREEZE LEVEL APPROX. 1/2 FULL ACCORDING TO ANTIFREEZE INDICATOR.

Important things to know about your machine:

- This unit is pre-calibrated as follows: Once the program cycle is set to "run" (refer to instruction) and the melt down begins it will take 20 minutes to reach its calibrated high temperature of 194°F. The unit will remain at the high temperature for 1 hour and 10 minutes as it melts the paste. The unit will then automatically begin to cool to the holding temperature of 130°F, this will take approximately 2 hours. It will remain at this temperature at all times until all the paste is used and you are ready to run a new cycle.
- This unit is designed to be "on" at all times.
- At the beginning of the melt down cycle the mixer will make very slight turning movements, however, as the paste begins to melt, the mixer will turn faster. The mixer is designed to turn periodically in small increments once it is at holding temperature. The double boiler protects the paste from burning.
- If the default parameters are not working for your type of paste, e.g. lumpy paste, refer to FAQ to change parameters or contact TCS Inc. for assistance.
- Always add approximately one cup of water to each re-melt down to avoid lumpy paste.

2. Unpacking and Safety

Your safety and the safety of others are important. We have provided important safety messages in this manual. Please read these messages carefully. A safety message alerts you to potential hazards that could hurt you or others. Each safety message is associated with a safety alert symbol. The definition of these symbols are described below:



General Safety Hazard: Refer to the instructions for details on the specific hazard.



Caution: Hot surface warning



Caution: Electrical shock hazard



Technical Symbol: All operations marked with this symbol are to be performed by qualified maintenance personnel only.

Ventilation Clearance:

AREA	MINIMUM REQUIRED CLEARANCE
Back of the instrument	10 cm / 4 inches
Sides of the instrument	20 cm / 8 inches
Above	30 cm / 12 inches
Below	N/A

3. First Time Use



Warning: DO NOT PLUG IN unit until filled with 100% pure antifreeze.



Caution: High voltages are present. The line power connections must have a functioning ground connection and over voltage protection in the form of a fuse or circuit breaker.

**** DO NOT DEFEAT THE GROUND WIRE ON POWER PLUG**



**** TURN OFF INJECTOR BEFORE DISCONNECTION OR CONNECTING ELECTRICAL PLUGS**

Before Plugging in Unit

Sec. I Filling the Unit with Antifreeze

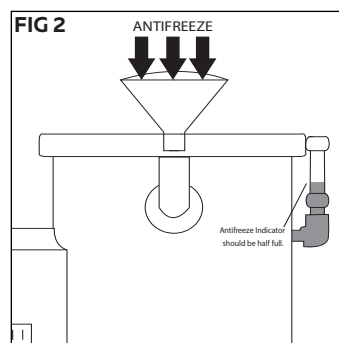
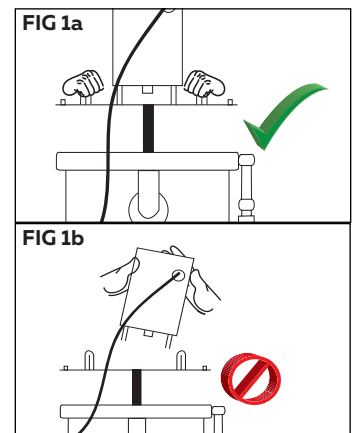
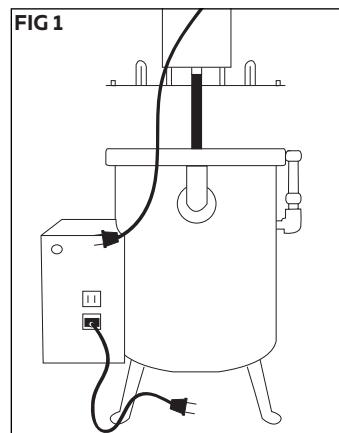
1. Disconnect Mixer Power Plug from the back of the unit and remove lid (with mixer) by lifting straight up by the 2 handles. Set lid carefully on its side. **FIG 1**
2. DO NOT lift lid from Mixer Motor. **FIG 1a & 1b**
3. Place a funnel into Antifreeze Intake Pipe located at the back of unit. Pour in 100% pure antifreeze, the unit will take almost the entire gallon of antifreeze that was included with the unit. Check antifreeze indicator on the side of unit to ensure that it is half full. **FIG 2**

IMPORTANT: 100% Pure Antifreeze must be used. Do not substitute antifreeze. In case too much antifreeze is poured in, it will overflow from the Intake Pipe.

Note: Always maintain level of antifreeze at half full according to Antifreeze Indicator. **FIG 2**

Depending on use and other variables, more antifreeze will have to be added a few times per year.

4. With a damp cloth clean inside of unit and remove any antifreeze fluid that may have poured in.

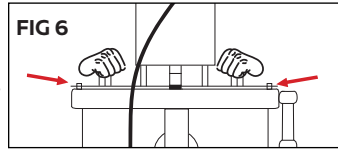


Sec. II Filling Tank with Hydrocolloid Paste

1. PLUG IN MAIN POWER TO A GROUNDED OUTLET. **FIG 3**
2. Turn unit on by pressing the red switch to "I". Wait approx 15-20 minutes for the unit to heat up. The Temperature Controller will read approx PV 130 (top numbers in white) and SV 130 (bottom numbers in green).
3. Fill tank with chunks of Hydrocolloid Paste (no larger than 1 inch chunks) to rim of tank, gently pack down and re-fill to rim again. **FIG 4**

Note: If you do not add approximately 1 cup of water to re-melts, paste may be lumpy. **FIG 5**

Using the handles carefully and gently place lid (with mixer) back on the unit, ensure that the lid is all the way down and locks into the Mixer Locking Pins. **FIG 6**



Sec. III Melt Down Process

If at any time an error is made during set up of melt down, simply press .

Note: Fill tank with hydrocolloid paste. Refer to Sec II above.

1. Plug Mixer Unit into the Power Plug located at the back of unit. **FIG 7**
2. Press SEL (hold down for approx. 2 seconds) and "PROG OFF" will be displayed. **FIG 7a**
3. Press SEL again and OFF will flash. **FIG 7b**
4. Press UP ARROW once and RUN will flash. **FIG 7c**
5. Press SEL and PROG RUN will be displayed. **FIG 7d**

———— The unit is now in the melt down cycle ————

After approx 1-2 minutes PV will display the actual temperature in the unit and SV will display the ramp up temperatures as the unit heats up (which will eventually be 194°F within 20 minutes). After approximately 10 -15 minutes these temperatures will be close to mirroring each other. **FIG 7e**

Note: The unit may reach a slightly higher temperature than 194°F during this melt down for a short period of time. Melt down time is set for 1 hour and 10 minutes, the mixer will turn on and off constantly.

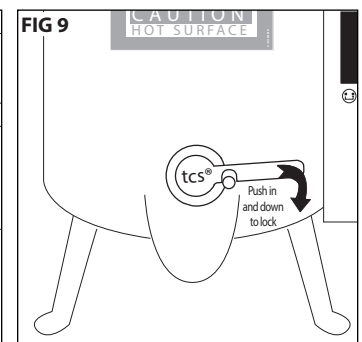
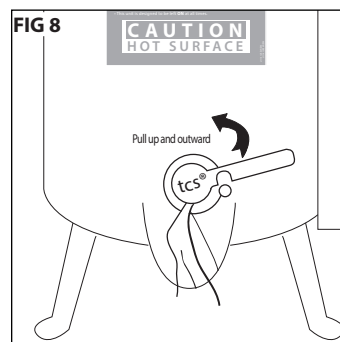
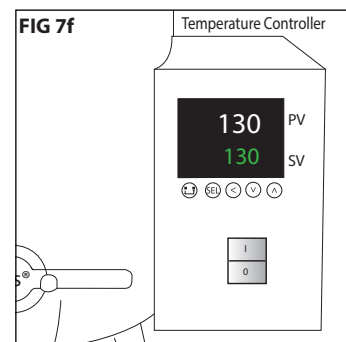
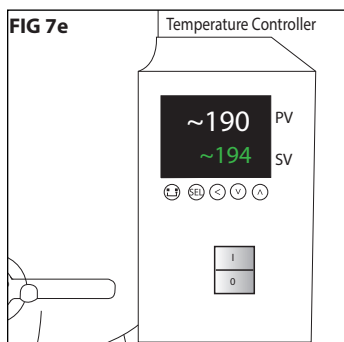
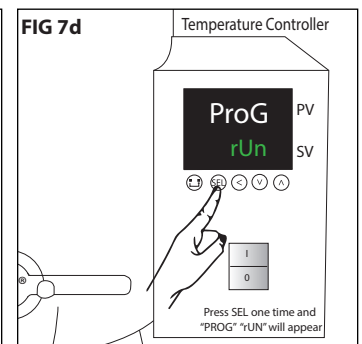
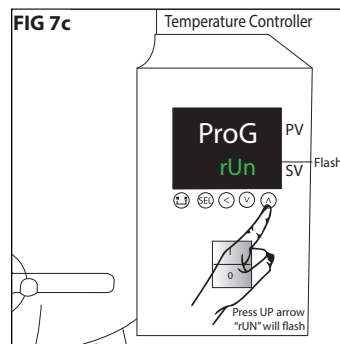
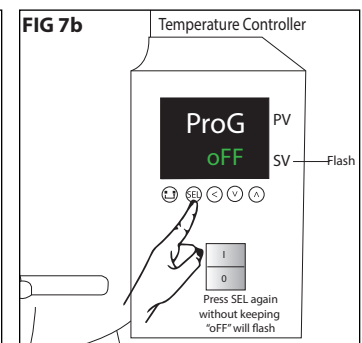
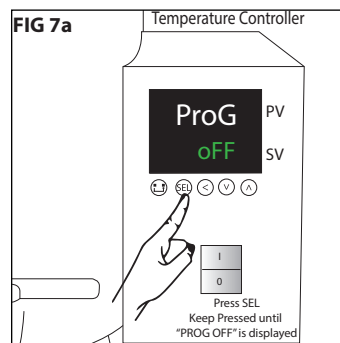
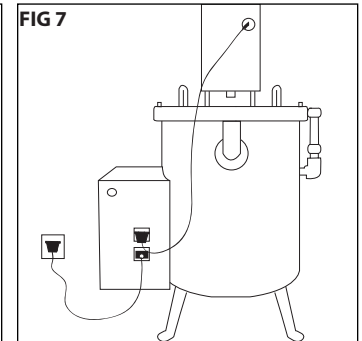
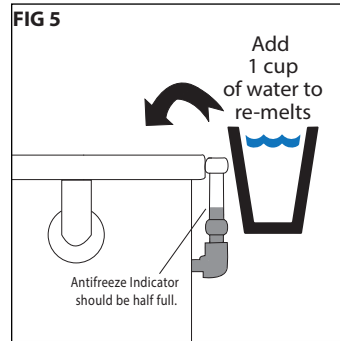
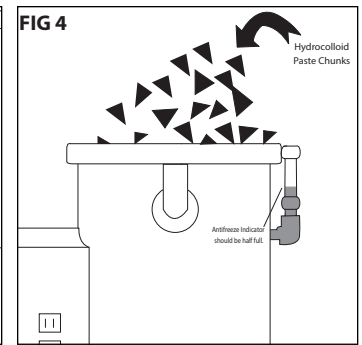
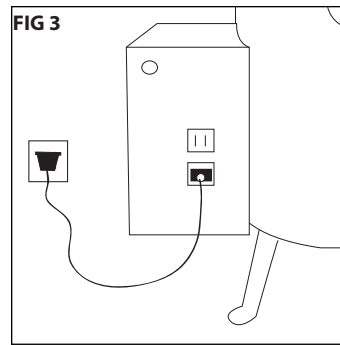
6. After the melt down cycle is complete, the SV (green numbers) will drop to 130 and the PV (white numbers) will indicate the actual temperature of the paste. When the SV and PV both read 130, the paste is ready for use. This cool down time is approx 2 hrs. **FIG 7f**

We suggest melting down at the end of the work day so that the paste is ready for use in the morning.

Sec. IV Ready to Use

When the SV and PV both read 130°F, the paste is ready for use.

7. Dispensing the paste: Slightly pull up on the Dispensing Handle while slowly pulling outward at the same time. Material will begin to flow out. **FIG 8**
8. Stop flow by pushing the Dispensing Handle back and locking in. **FIG 9**



4. Tips / Trouble Shooting

This unit is designed to be left ON at all times.

TIP: To prolong the life of hydrocolloid paste, melt downs should be done when all paste has been used in order to avoid the unnecessary high temperature to already melted paste.

TIP: Always add a cup of water to new melt downs.

TIP: Make sure unit is not connected to an outlet that uses an ON/OFF light switch and gets turned off at the end of the work day.

5. FAQ's

Q: What do I do if the machine is turned off with paste inside and it gets cold?

A: If the paste is solidified around the mixer blades it will be difficult to take off the lid. In this case, disconnect the mixer motor power plug from the back of the unit (this will allow the unit to heat up without the blades turning). Start a melt down cycle as you would a new melt down and let the unit start to melt the paste, after approx 10-20 minutes the paste will have melted enough to get the lid off. Turn off the unit and carefully take off the lid using handles. When the lid is off, you can then carefully remove all the paste from the mixer blades. To remove the paste from the dispensing tube, simply pull it all the way out and blow out the paste.

Q: The mixer does not turn.

A: **1.** The power outlet is not plugged into the back of the unit. **2.** The hydrocolloid paste needs to melt down a little to allow the blades to turn, they will begin to turn once the paste is slightly melted.

Q: The mixer turns in very small increments.

A: **1.** The unit is designed for the mixer to turn in very small increments once it reaches the melt down temperature and holding temperature. **2.** The hydrocolloid paste needs to melt down a little to allow the blades to turn, they will begin to turn once the paste is slightly melted.

Q: My paste is too lumpy:

A: **1.** One cup of water needs to be added to new melt downs. **2.** Unit may have been turned off for a period of time. **3.** High or low temperatures may need to be adjusted.

Q: My paste is burning:

A: High or low temperatures may need to be adjusted.

Q: My unit seems to be leaking antifreeze from the intake pipe.

A: **1.** Antifreeze level is too high, when antifreeze heated, it rose to the point of overspill. **2.** The unit was moved and the antifreeze overspills from the intake pipe.


Q: Can I put chunks of paste while the unit is at its holding temperature?

A: No, only put chunks when you start a new cycle, the holding temperature of 130°F will not be enough to melt down those chunks.


Q: Can I turn unit off when not in use?

A: This unit is designed to be "ON" at all times when it has hydrocolloid paste in it and your intention is to use it up. If the unit is turned off while it has paste in it, the paste will solidify and it will be difficult to remove the lid and clean out the unit. Turn off the unit until the next melt down cycle if the unit does not contain hydrocolloid paste.

Q: How can I change low (holding) temperature?

A: Press and hold down SEL until SV-1 appears, release SEL, SV-1 should be displayed. Press (tap, do not hold down) the down arrow until SV-2 is displayed. Press SEL and green numbers will flash. Press up or down arrow until desired temperature is displayed. Press SEL again and the SV numbers in green will stop flashing. Press  to return to default display. The temperature has been changed, your next melt down will use this new parameter.

Q: How can I change high temperature?

A: Press and hold down SEL until SV-1 appears, release SEL, SV-1 should be displayed. Press SEL and green numbers will flash. Press up or down arrow until desired temperature is displayed. Press SEL again and the SV numbers in green will stop flashing. Press  to return to default display. The temperature has been changed, your next melt down will use this new parameter.