

## Short Manual - SORVALL DISCOVERY-100 ultracentrifuge.

### General:

Set the main power switch on the right flank of the machine to **ON**. The display of the operation panel lights up. Pre-cooling of the rotor chamber is advised if the run is below room temperature, i.e. for sucrose-gradients and temperature-sensitive material. Press on **[VACUUM]**; the lamp lights up (red); when the vacuum is low enough the second lamp (red) blinks. Press on **[TEMP]**; the display for the temperature settings lights up. Enter the desired temperature value (degree Celcius) with the keys for numbers. Then press **[ENTER]** to transfer these values to the memory. Pressing **[ENTER]** is necessary to validate any parameter. Corrections can be done by pressing **[CE]**.

The rotor chamber is now set under vacuum and cooled at the desired temperature.

### Centrifuging.

Fixed-angle rotors consist of a massive unit with cavities, a cover, a cover locking nut and various O-rings. Swingout rotors consist of an umbrella-shaped rotor unit, numbered buckets, bucket caps and O-rings for sealing. Balance pairs of tubes by weighting them and place them in opposite rotor compartments. For proper swingout rotor balance, **always install all buckets** at the appropriate numbered position. Check that an O-ring is present in each swing-out bucket and that caps are tightly screwed. All elements (outside of rotor, rotor cavities and the tubes surface should be perfectly dried before the tubes are inserted; condense moisture rapidly appears when transferring pre-cooled rotors to room temperature). Keep therefore cooled rotors as long as possible at 4 degree C.

### Working practice.

1. Open the air vent by pressing **[VACUUM]** and wait until no air flow sisses anymore and a click has resounded (pressure is equal inside and outside the chamber).
2. Open then the rotor chamber cautiously by pulling the handle back. Slide the rotor with care straight on the axis of the motor spindle, down to the base (pins of the rotor should not be oriented 90 degree upon those of the

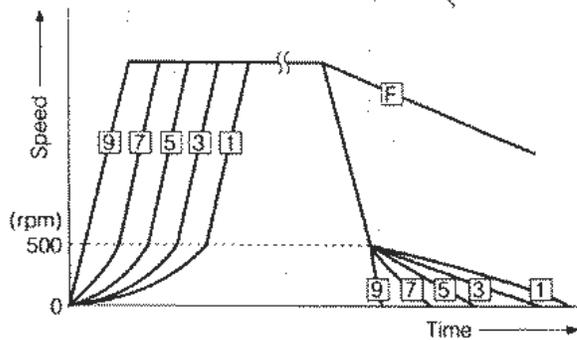
spindle). Close the rotor chamber by slowly pulling the handle until a click is audible.

3. Press on **[VACUUM]** and the rotor chamber to activate the vacuum pumps.

4a. Press on **[SPEED]**; the corresponding display blinks and the **RPM**-value can be typed (first control that the speed does not exceed the maximum rpm value for this particular rotor; because of their high density of CsCl gradients it is imperative to observe a reduced maximum velocity for these runs: check tables in the specific rotor manuals); press on **[ENTER]** to validate in the memory. Press on **[TIME]**; the corresponding display blinks. Enter the duration of the run. To set also minutes, press first on **[./:]** and press then on **[ENTER]**.

4b. The input for a free coast run requires choosing **[HOLD]** instead of **[SPEED]**.

5. Press on **[TEMP]** to readjust the temperature in the rotor chamber. Choose an appropriate acceleration, respectively deceleration mode at the beginning of the run through the **[ACCEL]** and **[DECCEL]** keys (values from 1 to 9 for increasing acceleration/deceleration rate).



Code no.	Acceleration time (minutes) from rest to 500 rpm	Deceleration time (minutes) from 500 rpm to rest
9	Minimum time*	Minimum time*
8	1	1
7	2	2
6	3	3
5	4	4
4	5	5
3	6	6
2	7	7
1	8	8
0	**	**
F	-	Coasting deceleration

### End of a run.

The centrifuge stops automatically when the selected run time is elapsed. If **[HOLD]** has been set, the run can be ended by pressing **[STOP]**.

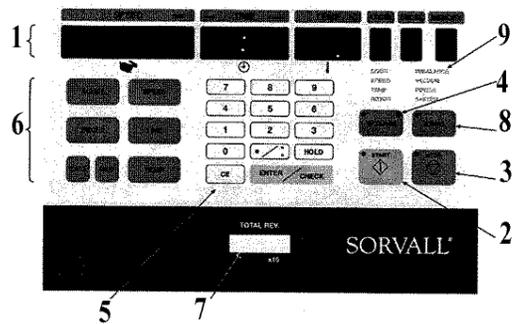
1. Once the rotor has stopped, press on **[VACUUM]** to ventilate the rotor chamber and open the centrifuge lid, and lift the rotor vertically out. Control that the chamber

is clean, retrieve the samples, wash the rotor, rinse it abundantly with clean water and once more with demi-water. Allow the water to drip out by placing the rotor upside down on a soft surface.

2. Close the rotor chamber and set the main power switch on **OFF**. Don't forget to note the fill in the log file in the centrifuge book and the specific rotor log book. The cumulative counter of the Discovery is indicated in the "**TOTAL REV**"  $\times 10^6$  window.

**NOTE:** if any problem occurs during the start or run, press **[STOP]** and immediately contact the assistant.

# DISCOVERY 100 operation manual



#	NAME	SYMBOL	DESCRIPTION
1	Displays		Normally displays the current condition but when the ENTER/CHECK key is pressed, displays the set values.
			<b>SPEED</b> Displays rotor speed in increments of 10 when speed is less than 1000 rpm, and in increments of 100 when speed is higher than 1000 rpm.
			<b>TIME</b> Displays remaining run time during the run. In hold mode displays elapsed run time.
			<b>TEMP</b> Displays rotor temperature in increments of 0.1°C.
			<b>ACCEL</b> Displays code number (0 to 9) for the rotor acceleration rate selected.
			<b>DECEL</b> Displays program number (0 to 9) for the rotor deceleration rate selected or F if free coast has been selected.
			<b>MEMORY</b> Displays an address from 1 to 9 in the memory of the ultracentrifuge. In step-mode operation, displays the symbol "J" if the first step of the step-mode run is in progress, and "L" if the second is in progress.
2	START Key		Starts a run with the set run conditions.
3	STOP Key		Stops the run in progress.
4	VACUUM Key		Sets the vacuum pump working before a run, opens the air vent for the vacuum chamber after a run. (As soon as the vacuum pump is ON, temperature control starts.) Except when the instrument is running in zonal mode, the air vent cannot be opened as long as the rotor is spinning.
5	Keypad		Used to enter numbers as run conditions:
			Indicates the position of decimal point during the input of temperature, or switches between hours and minutes during the input of a run time.
			Selects a hold mode at run time setting or a free coast at deceleration rate input.
			Pressed when canceling an incorrect entry (flashing) or when responding to the occurrence of an alarm indicating abnormal condition in the ultracentrifuge. If two or more alarms occurred at the same time, they will be cleared by pressing this key as many times as the alarm.
			Registers the entered value (ENTER) or displays the current set values or run status on the displays (CHECK).
6	Parameter Selection Key		Used when setting run conditions, each selects a particular run parameter.
7	Revolutions Counter		Indicates the accumulated number of revolutions made by the drive (1 count per 10° rotations).
8	Zonal Key		Enters the ultracentrifuge into zonal mode of operation. When in the Zonal mode, the Zonal light is lit.
9	Alarm indicators		Each informs you of the occurrence of a particular abnormal condition in the ultracentrifuge. When the cause of the abnormality is found by the self-checking function of the ultracentrifuge, the corresponding indicator comes on.