USER MANUAL

Liquid Withdrawal Device
for D25, D35, & D50 Dewars

phasetwo®

www.phasetwoCCS.com

Safety

This manual details safety precautions and handling procedures that must be understood before using the liquid withdrawal device (LWD). Be sure to review the entire manual before using the LWD.

A replacement manual can be downloaded from the website or ordered from your supplier as needed at any point in time.

Before using the liquid withdrawal device, read these instructions carefully.

In a confined area, nitrogen gas from these units may cause suffocation by displacing breathable air. The LWD is for use with phasetwo's liquid nitrogen dewar models D25, D35 and D50 only.

Nitrogen gas from this equipment may displace breathable air. Store and use this equipment in well ventilated areas.

Installing an oxygen monitor is recommended.

Liquid nitrogen is extremely cold -196°C (-320°F).

DO NOT touch liquid nitrogen or cold metal surfaces with your bare skin. Exposure of skin or eyes to liquid, cold gas or frosted parts could result in a severe frostbite injury.

Because of the extremely low temperature, a face shield and protective gloves must be worn when transferring liquid nitrogen into or out of the containers.

Vent all pressure from the dewar before attempting to remove the LWD. If the spring plunger securing the LWD to a dewar is dis-engaged while there is pressure in dewar, cold gas or liquid could be expelled causing personal injury.

Disposal of liquid nitrogen should only be done outdoors or in areas specifically designed for that purpose. Pour the liquid slowly on gravel or bare earth where it can evaporate without causing damage.

Liquid Withdrawal Device

The LWD is used to conveniently transfer liquid nitrogen from the D25, D35 and D50 dewars into smaller vessels and receptacles.

The LWD locks into the quick assemble/disassemble flange that is attached to the neck of these dewars; the spring plunger attached to the flange locks the device onto the dewar.

In a filled dewar, liquid nitrogen evaporation will maintain a sufficient pressure to dispense liquid withdrawal from the LWD.

Fig - 1: Liquid Withdrawal Device

Flow rates up to 8 liters per minutes are possible at operating pressures up to 7.25 psig (0.5bar/50 kPa). A transfer hose can be connected to the LWD liquid valve to dispense liquid nitrogen(LN2). The phase separator supplied with the LWD provides a steady LN2 flow.

Liquid Withdrawal Device

Step - 1 Remove the plastic cover plate by pulling up on the ring attached to the spring plunger while twisting the cover counter-clockwise. Do not apply excessive force to the pin.

After the plastic cover is slightly turned, you do not need to continue pulling the pin.

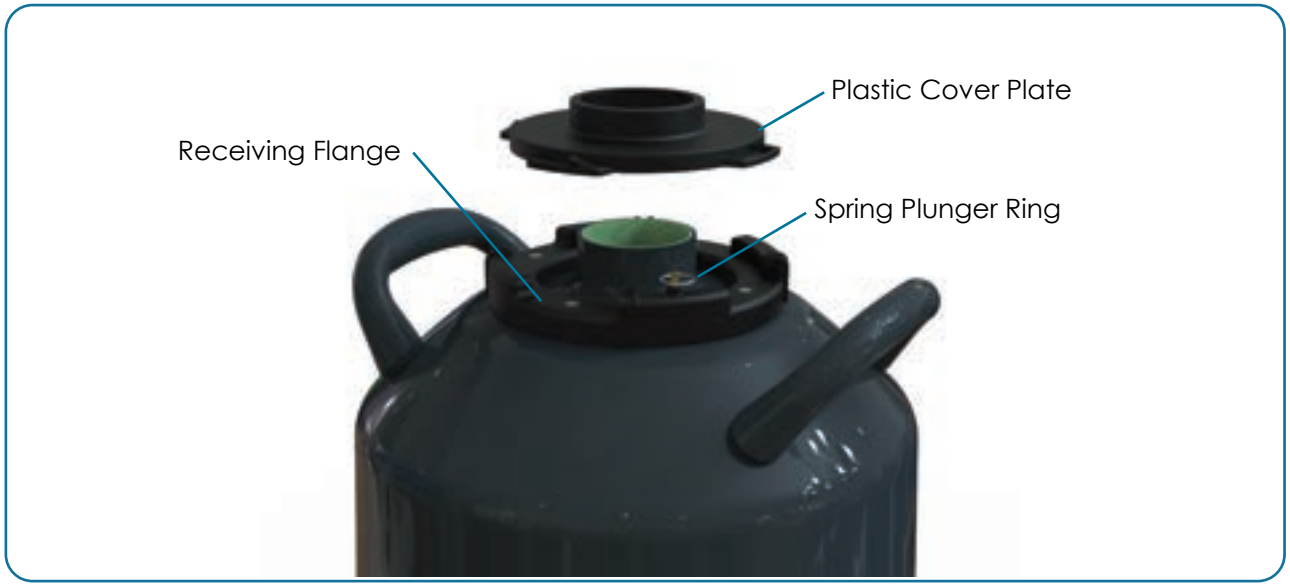

Fig - 2: Part details

Step - 2 The liquid withdrawal tube, the longer of the two plastic tubes must be shortened for use with the D25 or D35 dewar by trimming off 6 inches (152mm). The tube is used as supplied with the D50.

Step - 3 Insert the longer plastic tube into the underside of the flange assembly, beneath the liquid valve. Insert the shorter plastic tube into the threaded fitting on the underside of the flange assembly, beneath the vent valve. Tighten the compression nuts with a wrench to secure both tubes. **DO NOT OVERTIGHTEN.**

Step - 4 Locate the red seal and insert it into the bottom of the LWD as shown in fig - 1.

Step - 5 Twist the flange of the LWD into place on the receiving flange until an audible click is heard.

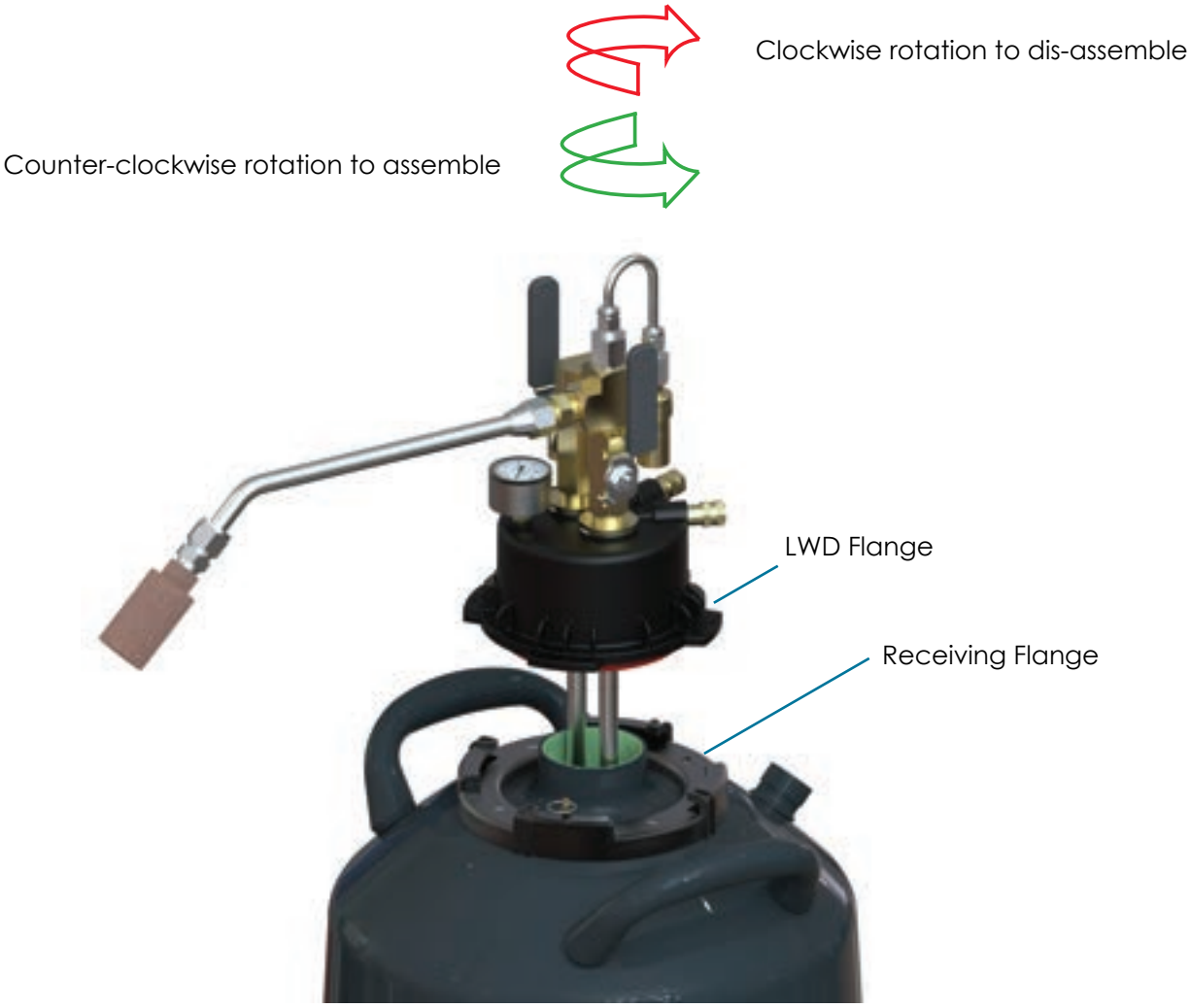

Fig - 3: LWD assembly and dis-assembly

Operations

Read and understand the instructions supplied with the dewar. For safe handling of liquid nitrogen refer guidelines provided. Do not modify the LWD or dewar or use in a manner other than that described in this manual.

Over pressurization of the dewar could result in serious injury or surrounding damage. Never exceed the 7.25 psig (0.5 bar/50 kPa) relief valve pressure setting of the LWD. Fill the dewar from supply source rated at no more than 22 psig (1.5 bar/152 kPa). Do not pressurize using compressed air.

LWD is for use only on those dewar models mentioned.

FILLING PROCESS

Use containers/dewars only designed for low temperature liquids. Cryogenic containers should be filled slowly to minimise stresses which can damage the container.

It is not necessary to remove the LWD unit from the dewar for filling. You may fill the dewar by pressure transfer of liquid nitrogen through the liquid valve of the LWD.

Step 1: Remove the spout assembly and connect a 22 psig (1.52 bar/152 kPa) or lower pressure liquid supply cylinder to the withdrawal device using a liquid nitrogen transfer hose with female CGA 295 connections on both ends.

Step 2: After transfer hose is connected, open the LWD vent valve first and then open the LWD liquid valve. Slowly open the liquid valve on the supply cylinder until liquid flow is established.

Closely monitor dewar pressure throughout the fill process. Maintain a back pressure by adjusting the vent valve to 7.5 psig (0.5 bar/50 kPa) or less in the dewar. Notice - when liquid sputters from the vent valve, quickly close the liquid valve on the supply cylinder and close the LWD liquid valve and the LWD vent vlave.

Step 3: Loosen the hose connection and allow any remaining pressure/liquid to dissipate before disconnecting the hose.

The transfer hose must be used with a pressure relief valve to prevent excessive pressure built-up in hose, when the valves are closed at both ends of the hose. For your safety, an appropriate pressure relief valve is installed on the LWD.

Removing the LWD from the Filled Dewar

To remove the LWD leave the vent valve open and ensure the pressure in the tank is 0 psi, then pull the spring plunger up and rotate the LWD in the clockwise direction. To reinstall simply place the LWD on the receiving flange in the desired orientation and twist in the counter-clockwise direction until an audible click is heard, hold LWD flange and remove from the filled dewar.
Note: It is helpful to apply a slight downward force while twisting the device on and off.

Ensure flange surfaces are warm, clean and dry. The flange sealing ring must be cleaned before replacing the LWD.

Liquid Withdrawal Device Parts

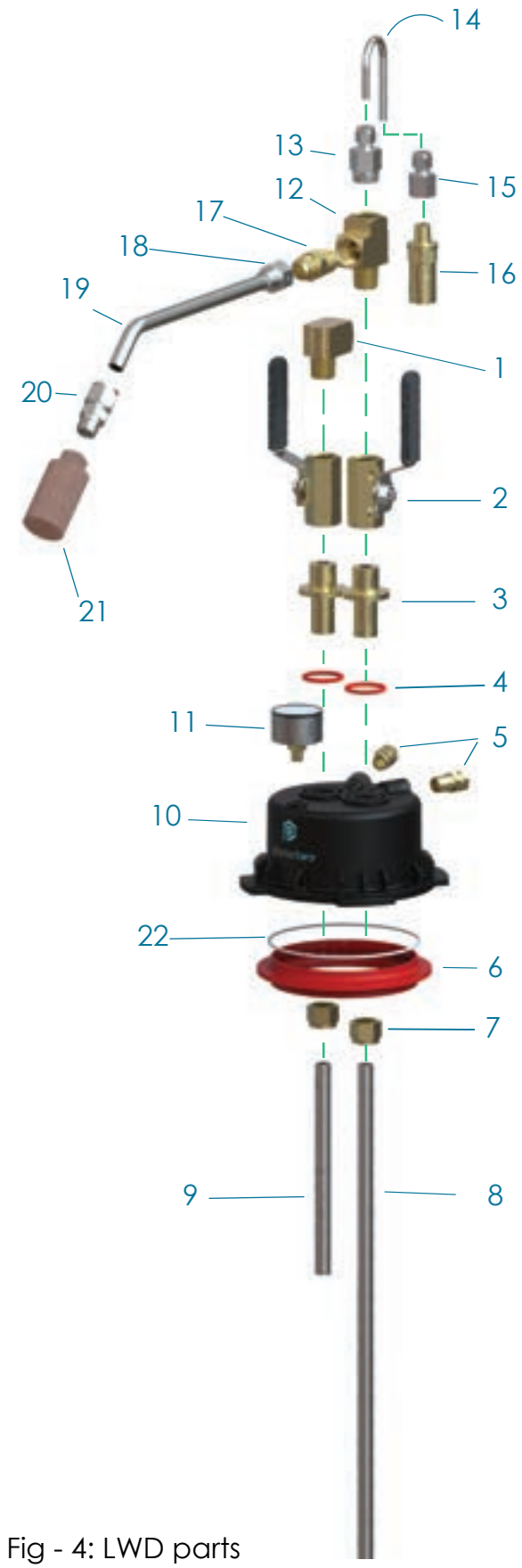

Fig - 4: LWD parts

Item	Description	Part #
1	Elbow,Vent Adapter, 1/2 NPT	P2-2022167
2	Ball Valve (Liquid/Vent), 1/2" FNPT	P2-2017945
3	Valve And Tube Adapter	P2-2017961
4	O-Ring for Ball Valve	P2-2017877
5	Relief Valve 7.25 psig	P2-2020248
6	Sealing Ring, Flange	P2-2017166
7	Nut & Ferrule Kit	P2-2022243
8	Liquid Tube	P2-2022470
9	Vent Tube	P2-2022473
10	Warning Lable	P2-2025231
11	Pressure Gauge 0-15 psig	P2-2019076
12	Tee, Street 1/2"NPT	P2-2014461
13	Adapter, 1/4" Odt X 1/2" NPT	P2-2017966
14	Relief Tube	P2-2014406
15	Adapter, 1/4" Odt X 1/4 NPT	P2-2014465
16	Relief Valve 22 psig (2.4 Bar/241 kPa)	P2-2016152
17	Adapter, Cga 295 X 1/2" NPT	P2T-2017965
18	Tube Fitting, 1/2, 45 Deg, Short	P2-2014472
19	Withdrawal Tube	P2-2014471
20	Adapter, 1/2" OD X 3/8" NPT	P2-2017967
21	Phase Separator	P2-2016118
22	LWD Seal Expander	P2-2023868

Order replacement parts and accessories from your distributor. Please include part# and quantity of ordering part#.

For more information contact: +1 770.985.1313

customerservice@phasetwoccs.com

Care & Maintenance

Step 1: DO NOT attempt to modify the device in any manner.

Step 2: Welding, brazing, and/or piercing in any manner will cause permanent damage and will void the limited warranty.

Step 3: Although the units are rugged, they can be damaged if mishandled.

Step 4: Ensure the device is upright at all times and when in use.

Step 5: Take every necessary precaution to prevent sliding, tipping, bumping or dropping the unit.

Returns

Limited warranty: Manufacturing defects are covered under the device limited warranty.

Evidence of mishandling, such as dents, marks, scratches or misalignment of the parts are not considered manufacturing defects.

If you would like to return goods to phasetwo for any reason, you must first obtain a Material Return Authorization (MRA) number for tracking purposes.

Please have the unit serial number and symptoms available.

Contact your supplier or call phasetwo's Customer Service Department at +1 770-985-1313 or email us at customerservice@phasetwoccs.com

Accessories & Replacement parts

Ordering Information: Order replacement parts and accessories from your local distributor.

For more information or the name of your local distributor, contact phase two at the phone number or email listed on the next page.

Contact Us

United States : + 1 770.985.1313

Sales support/order placement : customerservice@phasewoccs.com

Technical Services : techservices@phasetwoccs.com

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