



NAVADAN PANAMAX KIT

Product number: 2009025

User manual





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1. Introduction and equipment overview



Navadan Panamax Kit – complete solution for hold cleaning

The Navadan Panamax Kit is developed to facilitate cargo changeover on board medium to large bulk carriers. The kit consists of all the necessary equipment to complete the cleaning operation. The equipment is designed for the application of both Unitor cleaning chemicals and temporary coatings, as well as rinsing and wash down.

Specifications

Dimension L x W x H (mm)

Box 1

Box 2

Value

1200 x 800 x 764 (mm)

1200 x 800 x 494 (mm)





2. Safety instructions

This user manual must be read and understood before use. If in any doubt, ask your supervisor before using this equipment. Refer to user manual as a reminder once you know how to operate the equipment.

Always wear Personal Protective Equipment (PPE) including eye protection, chemical resistant suit, safety rubber boots and gloves and ear defenders.

Wear a full facemask or breathing apparatus when using aggressive chemicals, as per the chemical Safety Data Sheet (SDS).

Be aware that this tool is not electrically insulated. Do not aim the water jet at any electrical plugs or sockets.

Read the chemical SDS and the full user manual before operation.

Be aware that this tool can create a mist and flying debris.

Be aware of others working around you.

Always flush the equipment with fresh water after use and before storage.

Check the Chemical Applicator 155 for corrosion every 12 month or sooner if used with corrosive chemicals or in a humid environment.

Always observe safe-working practices at all times.

- Do not use air pressure above maximum working pressure of 8bar (116psi).
- Do not modify this tool in any way, or tamper with the Chemical Applicator 155 pressure relieve valve, as this will invalidate the warranty and could also lead to serious injury or death.
- Do not point the Lance or the Tornado 3 hold cleaning jet at any person. This could be extremely dangerous.
- Do not use the tool if you become tired, as this can lead to physical strain or injuries
- Where practical, use the guide wire kit to take the weight of the tool.
- Do not attempt to lift the Chemical Applicator 155 if full of liquid. (Empty weight is 58kg (128lbs))
- Do not drag this equipment by the airline or water hose.



Never use more than three centre sections on the lance.

Danger: Unrestrained pressurised hoses can whip dangerously if they become detached.

Note: Care must be taken to avoid damaging or tripping over the trailing water or air hoses.



3. Ordering information

Navadan Panamax Kit 2009025

Consist of:

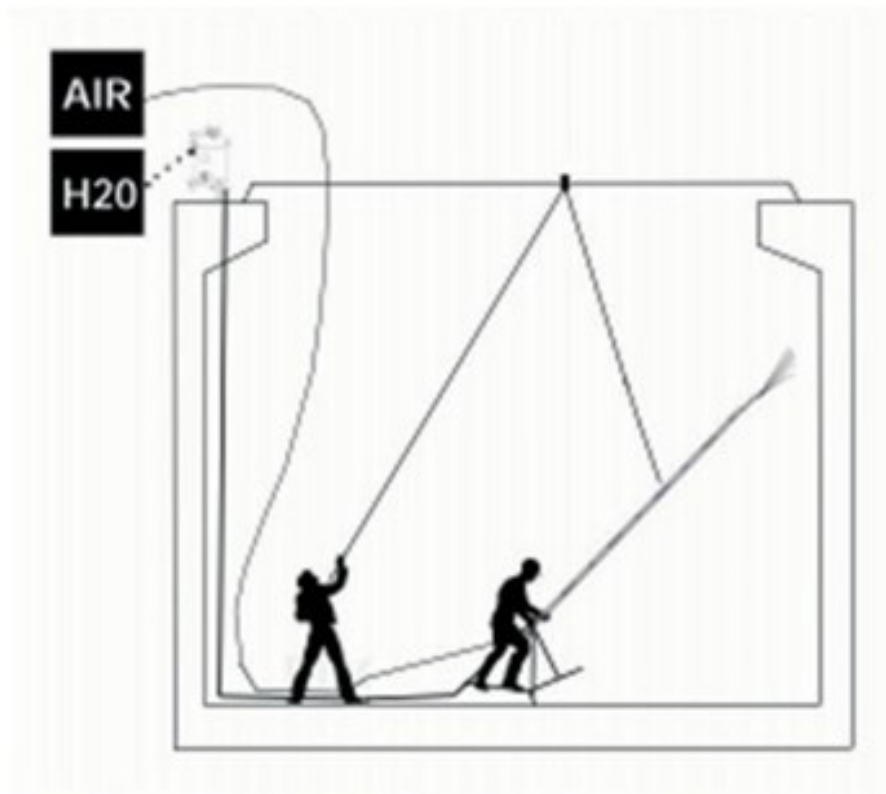
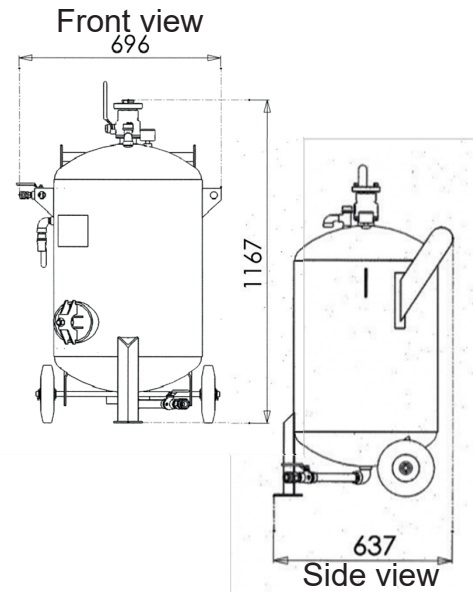
Product no.	Part Description		Qty
658229	TORNADO 3 CARGO HOLD CLEANING JET	PCS	1
778839	CHEMICAL APPLICATOR 155	PCS	1
778826	NOZZLE KIT	BOX	1
778818	LANCE KIT PANAMAX	PCS	1
778831	TRIPOD CLAMP KIT	PCS	1
778830	TRIPOD WHEEL KIT	PCS	1
191866	600 UPH PLUG 3/4" HOSE	PCS	1
191700	400 USH SOCKET 1/2" HOSE	PCS	3
191718	600 USH SOCKET 3/4" HOSE	PCS	1
193490	UNITOR MEDUSA AIR DISTRIBUTOR	PCS	1
768481	CLAMP 1 EAR 26,5-30,0MM 3/4" HOSE (20 PCS)	SET	0,2
671727	AIR HOSE 3/4", PVC (50 MTR)	PCS	1
510737	CLEANING HOSE 2" W/STORZ C CPL 15MTR	PCS	3
333975	STORZ C CPL W/2" MALE THREAD ALU	PCS	1
191841	40 UPH PLUG 1/2" HOSE	PCS	3
191692	40 USH SOCKET 1/2" HOSE	PCS	1
671768	AIR HOSE 1/2", RUBBER, 50 METER COIL	PCS	3
768457	CLAMP 1 EAR 22-24.8 MM 1/2 " HOSE (20 PCS)	SET	0,3
749742	GUIDE WIRE KIT FOR CARGO HOLD	PCS	1
191965	600 UPF PLUG 3/4" FEMALE BSP.T	PCS	1
750928	600 HIGH FLOW SH LIQUID CONNECTOR	PCS	1
778840	WEIGHT F/LANGE COUNTERBALANCE	PCS	1
766107	DRUM WRENCH. GREEN W/UNITOR LOGO	PCS	1
637447	CHEMICAL PUMP LEVER TYPE	SET	0,5
655514	CONNECTION FOR HAND PUMP F/25L PAIL	PCS	1
2009067	CHEMICAL SUIT SIZE L	PCS	2
2009068	CHEMICAL SUIT SIZE XL	PCS	2
2009069	CHEMICAL GLOVES ONESIZE	PCS	4
720010	DUCT TPE 50M, ROLL	PCS	1
2009070	FULL FACE MASK	PCS	2
2009071	HALF FACE MASK	PCS	2
2009072	FILTERS A1B1P3 R	PCS	12
2009338	CLIPLOK BOX PANAMAX KIT 1	BOX	1
2009339	CLIPLOK BOX PANAMAX KIT 2	BOX	1



4. Chemical Applicator 155 - large volume multipurpose applicator

The Chemical Applicator 155 is a steel pressure tank with capacity of 155 litre. The tank can be filled with a cleaning mixture, and then pressurized using the ships working air. The Applicator 155 works in combination with the Long Reach Lance in order to apply the mixture onto the bulkhead.

The unit is easy to use and has been developed in order to apply chemicals and solutions. The Chemical Applicator 155 can be used for application of temporary coatings prior to loading cargo, as well as applying cleaning solutions after discharge.

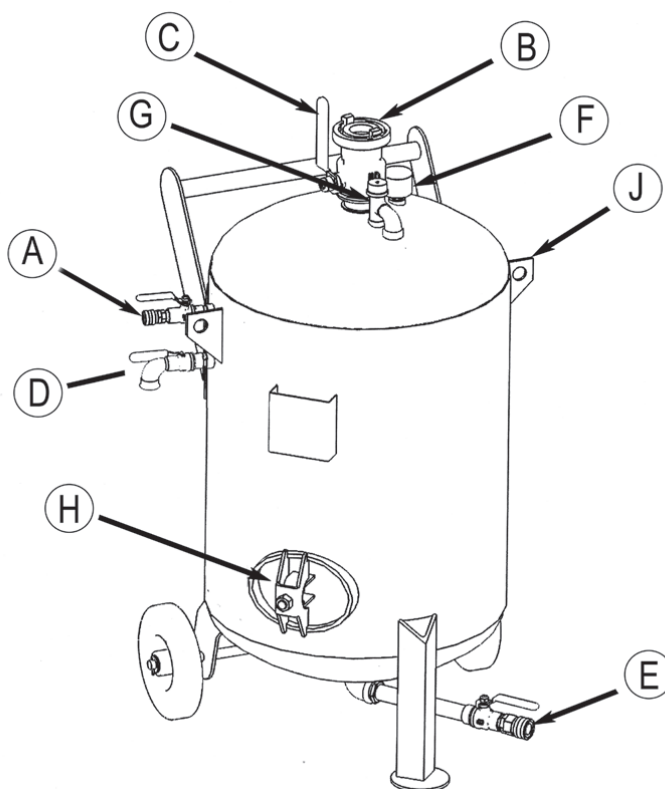


Technical data

<u>Property</u>	<u>Unit</u>	<u>Value</u>
Recommended air pressure	bar	6-7
Maximum air pressure	bar	8
Air consumption (max)	m3/min	1
Chemical coverage	m ²	400-1200
Air connection	inch	3/4" BSP male with Quick connector
Water connection	inch	2" BSP female, with male Storz C coupling
Weight	kg	58

Overview of main components:

- A. Air inlet valve
- B. Liquid inlet
- C. Liquid inlet ball valve
- D. Overflow valve
- E. Liquid outlet with ball valve
- F. Pressure gauge
- G. Safety valve (9bar)
- H. Inspection port
- J. Lifting lugs



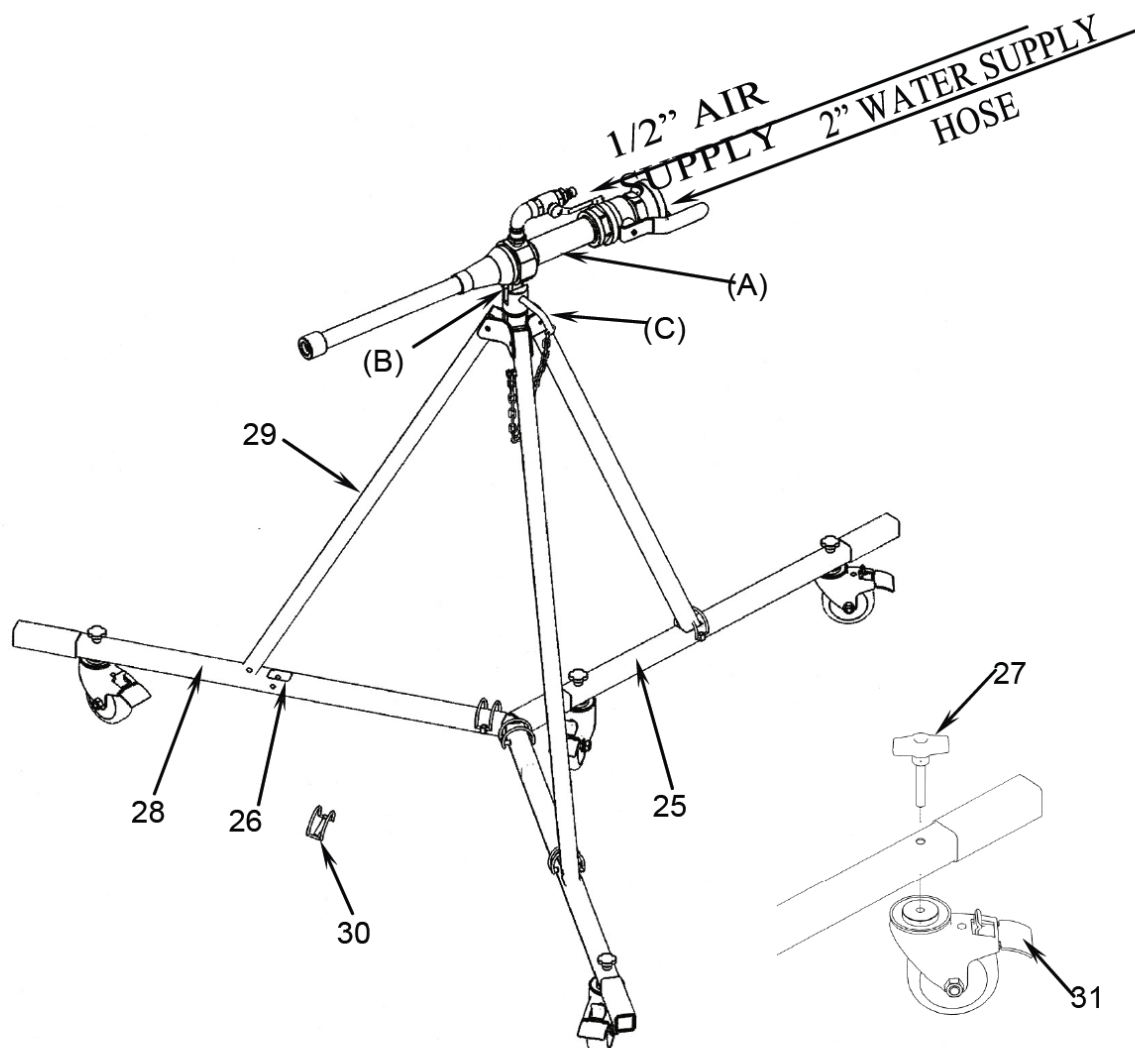
NOTE: Do not attempt to lift the Chemical Applicator 155 if full of liquid.
Empty weight is 58 kg (128 lbs)



5. Assembly and set-up instructions

Base Assembly

- Locate the base Y-section (25), with the location holes for two wheels.
- With the rectangular opening to the top (26), use the lock on the wheel (31) (this stop the boss from rotating) and pass the retaining screw (27) through the Y-section into the wheel boss (see zoom view).
- Fit two wheels into this section.
- Fit the other two wheels onto the straight sections (28) then insert each into an arm of the Y-section and retain with the retaining pins.
- Fit the Tornado 3 tripods legs (29) into each of the base rectangular openings (26) and secure with the pins (30).
- Unlock or lock the wheels as required.





Tornado 3 Cleaning Jet assembly

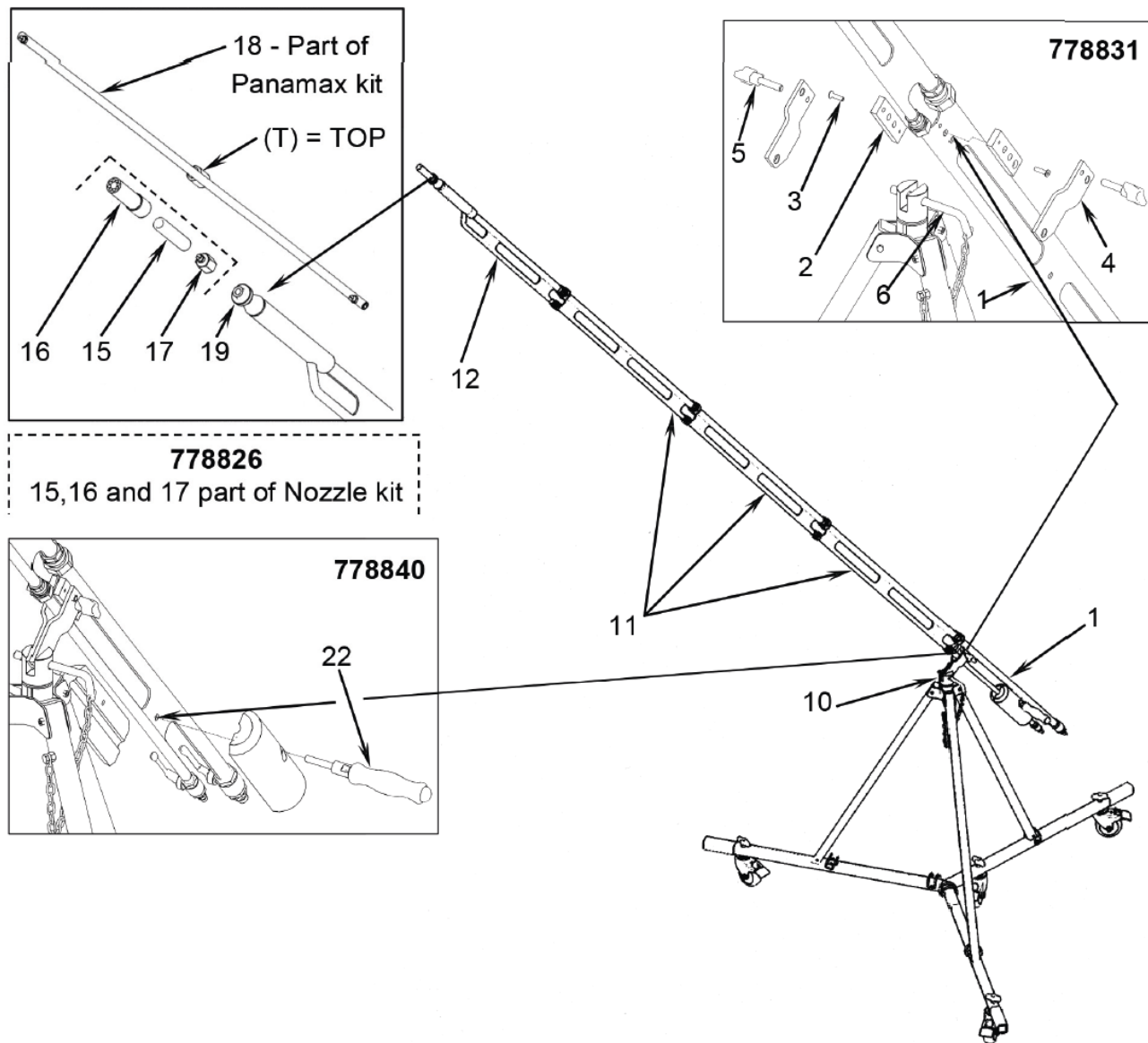
See assembly of the base instructions above.

- Attach the Tornado 3 (A) cleaning jet to its tripod (B) and secure with pin (C) and secure this with the R-Clip.
- Connect the 2" water supply hose to the Tornado 3 cleaning jet (A) and the ships water supply.
- Connect the 1/2" air supply hose to the Tornado 3 cleaning jet (A) and the ship's air supply.

Lance assembly

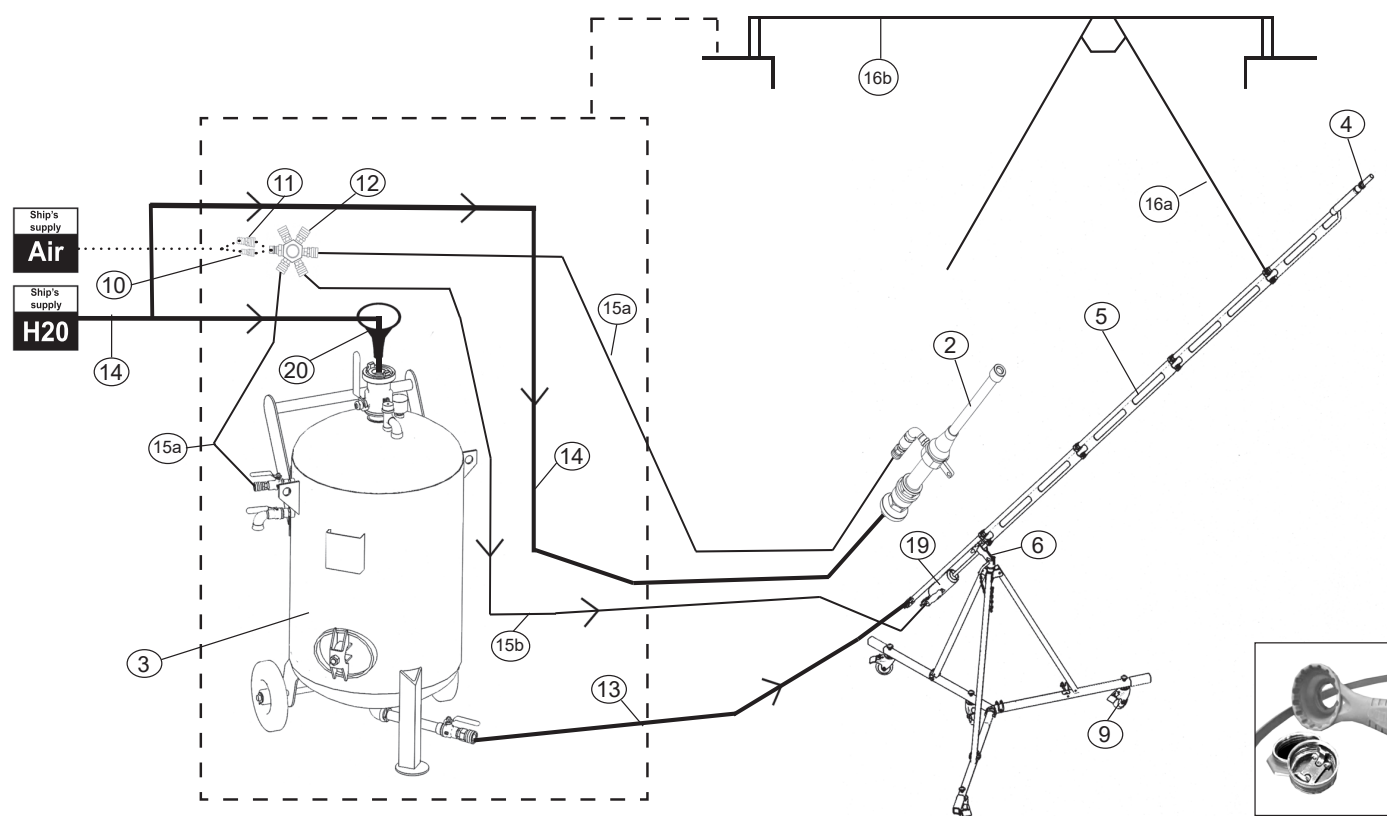
- Locate the lower lance section fitted with two ball taps (1), if this is to be used with the Tornado 3 jet cleaner's tripod, fit the spacers (2) from the Tripod Clamp Kit (778831).
- Use the two M6 screws (3) supplied and fit to either side of the lower section (1), countersunk sides outwards. Then loosely fit the tripod mounting brackets (4) with the wing bolts (5) on either side. The rounded angled part of the bracket should face towards the taps and be touching one another. Fit this onto the Tripod (10) and secure with the Retaining Pin (6) and its R-Clip. Fully tighten both Wing Bolts. Next fit the required amount of Centre Sections (11), (maximum of 3 without guide wire) followed by the Front Section (12).
- Choose a Nozzle, the Standard Nozzle (15), Foam Nozzle (16), Slip Coat Nozzle (17) or the T-Bar Slip Coat nozzle (18). If using the T-Bar Slip Coat nozzle note the "T" stamped on the connector, this should be facing upwards. Lock the T-Bar in position using the supplied locknut (19).





Counter balance weight assembly

- Fit the counter balance weight kit (778840) carefully: these components are heavy.
- Pass the weight handle (22) through the hole in the weight and it's mouting hole un the lower lance as per zoomed view and screw into the other half.



Long reach lance assembly

- Connect the Inlet sections, Extensions and Nozzle section of the lance.
- Fit either the Foam, Standard or Slip Coat nozzle (4) to the lance.
- Connect the ¾" yellow liquid hose (13) to the Lance inlet section and to the Outlet (E) of the Chemical Applicator 155.
- Connect ½" air supply hose (15b) to the Lance inlet section and the other end to air distributor (12).



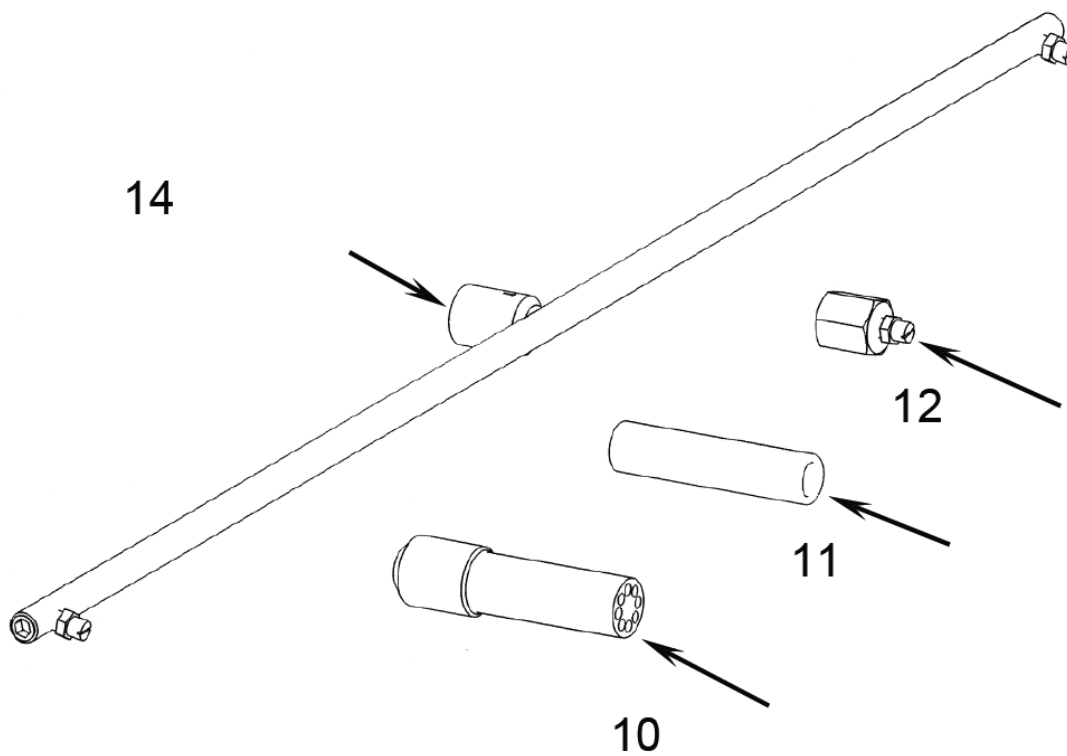
Nozzle Selection

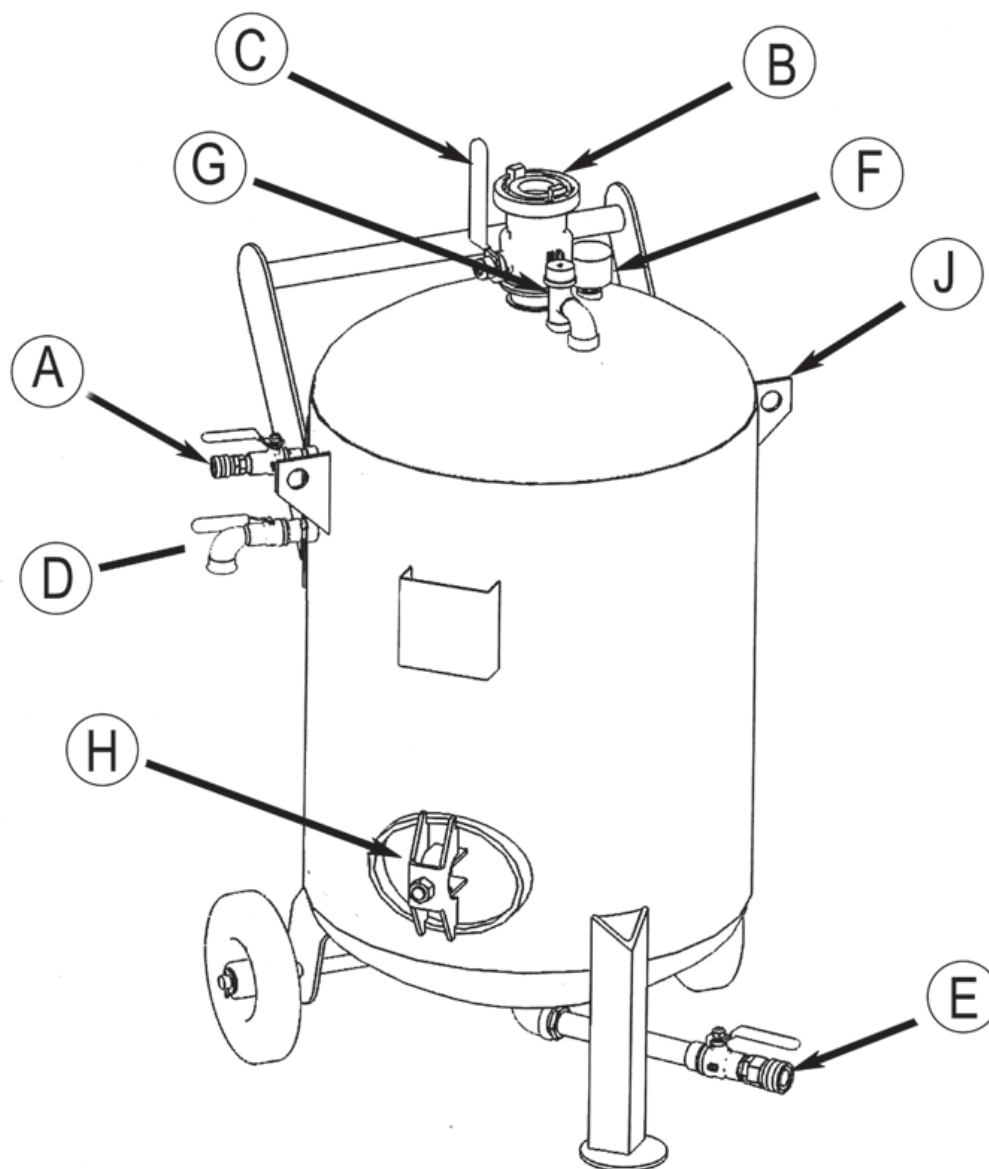
Foam nozzle (10) for cleaning chemicals with foaming properties – generates thick foam.

Standard nozzle (11) for all other cleaning chemicals – extends the reach of the spray without foaming. The standard nozzle can also be used for washing down if needed. The standard nozzle is to be used when applying Slip Coat at high to reach areas. Note that consumption increases significantly so the operator must move the lance in a fast, systematic sweeping pattern.

Slip Coat nozzle (12) for temporary hold coatings – provides a thin and even spray but a very short range, (the standard nozzle can be used for longer reach).

Slip Coat dual nozzle T-Bar (14) for temporary hold coatings – provides a thin and wide even spray but a very short range, (the standard nozzle can be used for longer reach).





Chemical Applicator 155 assembly

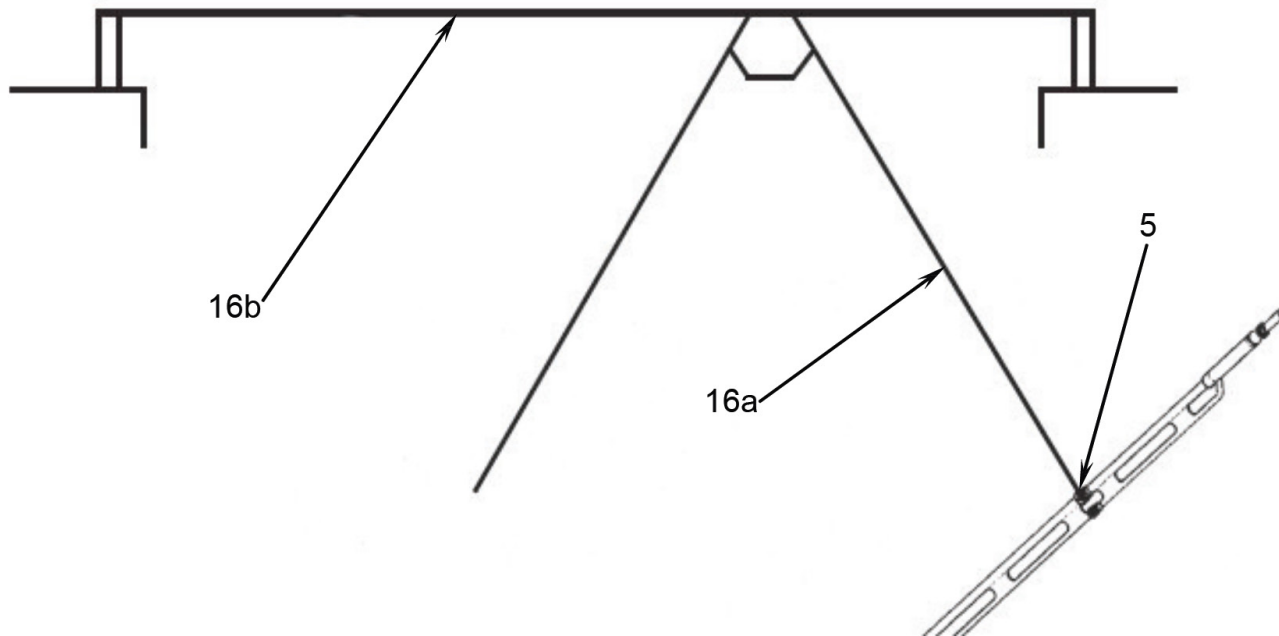
- Close all ball valves (A, C, D & E).
- Attach Storz C connector to the inlet (B) at the top of the Chemical Applicator 155.
- If filling with seawater Connect 2" water supply hose (14) to the Storz C connector and the ship's water supply. If fresh water is used just fill the tank thru section B.

Important: When the tank is filled with chemical and water close the ball valve (C).



NOTE: Fresh water is recommended for all cleaning operations; however, seawater may be used if needed.

- Connect 1/2" air supply hose (15a) to the Air inlet (A) on the Chemical Applicator 155 and the other end to the air distributor (12).



Guide wire kit assembly

- Roll out the Wire (16b).
- Roll out the Support line (16a).
- Thread the Support line through the pulley attached to the Wire (16b).
- Secure the Wire at each end of the cargo hold and tension it by using a loading strap or similar.

NOTE: - The wire must be as tight as possible to ease operations.

- Attach one end of the Support line (16a) to the Lance nozzle section (5).





6. Maintenance schedule

Task	AFTER EVERY USE	BETWEEN EACH HOLD	REGULARY (AS REQUIRED)
FLUSH EQUIPMENT (INSIDE / OUTSIDE)*	X	X	X
INSPECT PRESSURE TANK	X		X
CHECK THAT ALL HOSES ARE ATTACHED	X		X
PRESSURE RELIEF VALVE			X (see local regulations)
LANCE	X	X	
NOZZLES	X	X	
QUICK CONNECTIORS			X

*If aggressive chemicals are used, flushing between each hold is recommended.





7. Cleaning operation



NOTE: Make sure you use Personal Protection Equipment (PPE) at all times when handling chemicals and / or equipment.

Step 1 - Dry cleaning

When cleaning after dry cargo such as cement or coal, it is recommended to sweep and muck out as much residue as possible before any liquids are used.

Step 2 - Cleaning with chemicals

- Assemble the Applicator 155 & Long Range Lance with the Foam nozzle.
- Gradually open the air and chemical ball valves on the lance; adjust both in order to obtain optimal range and foaming.
- Apply chemicals from tank top and upwards in a sweeping pattern.
- Repeat until hold is covered. Depending on chemical used, the temperature and moisture conditions, the exposure time may vary from 10 min to 2 hours, the exposure time may vary from 10 min to 2 hours.

Note that cargo residues might be difficult to remove from the hold without manual mechanical work like brushing in addition to using cleaning chemicals!



NOTE! Do NOT let the chemical dry out on the surface. Reapply with the same cleaning chemical if the chemical is starting to dry out.



NOTE: 2 fillings (50 litre of chemicals) of the Chemical Applicator 155 should cover one side of the cargo hold depending on level of contamination and weather conditions.

Step 3: Wash down of the hold

- Prepare the Assembled Tornado 3 (2) for operation.
- Open water valves (if required - also air valve; depending on power on fire pump).
- Start at the tank top and clean upward
- When the top is reached, move the cleaning jet to a new location and repeat.
- Continue until the hold is rinsed.





NOTE: Please always refer to the manual of each chemical for usage of same.



Step 4 – Applying temporary hold coating (Navadan BarrierHold)

- Make sure that the cargo hold is clean and dry before applying Navadan BarrierHold.
- Disconnect the Tornado 3 from the tripod and attach the clamp kit (6) and fasten the lance (5).
- Fill the tank with Navadan BarrierHold.
- Attach the Slip Coat nozzle or the Slip Coat T-Bar to the lance (the standard nozzle can be used for improved reach in the height).
- Open the liquid valve on the lance (5) and keep the air valve closed. Apply Navadan BarrierHold from top and downward.

NOTE: the air valve on the lance is not to be used in this application.



- Apply Navadan BarrierHold from the top and downwards in a sweeping pattern until a section is covered.
As soon as the surface appears wet, a proper film is created.
In order to keep the drying time to a minimum, avoid thick layers.
1 litre of Navadan BarrierHold covers (depending on coating and operator) up to 10m²
Repeat until hold is covered.

NOTE: To reach higher areas in the hold with Navadan BarrierHold

To enable application of Navadan BarrierHold at the higher areas in the hold, we recommended connecting the Standard Nozzle.

- Remove the Slip Coat Nozzle.
- Reassemble the Standard Nozzle to the lance.
This enable higher reach with Navadan BarrierHold however reaching the highest areas might not be possible.
Consumption of Navadan BarrierHold increases so the operator must work efficient.
Work in fast, sweeping and systematic pattern till the hold is covered.

NOTE: apply the hold coating in as thin layer as possible.



Depending on the temperature and humidity, the drying time may vary from 10 min to 3 hours or more. Allow the film to dry completely before loading the cargo.

Step 5 – Rinsing of equipment

- Ensure the Chemical Applicator is empty.
- Close the liquid outlet valve (E).
- Fill the Chemical Applicator (3) with FRESH water. After use of Navadan BarrierHold, flushing with hot water might be necessary to remove residues.
- Pressure the Chemical Applicator
- Open the liquid outlet valve (E) and flush the yellow liquid hose (13) and the lance (5) as well as the nozzles that has been used.

Note! The equipment must be flushed with fresh water between each hold, after use and before storage.





8. Recommended additional equipment

Product	Description	Product no
Cleaning equipment		
Unitor Dynamis 300+	High pressure cleaner	
Unitor Dynamis 350+	High pressure cleaner	
Unitor Dynamis 500+	High pressure cleaner	
Personal Protection equipment		Product no
Navadan Protection Kit		2009034

9. Disclaimer

Wilhelmsen Ships Service assumes that persons responsible for carrying out cleaning operations are familiar with the guidelines published in MARPOL, MLC 2006, SOLAS, ISGOTT and other relevant guides and/or local port restrictions and laws that will pertain to such operations. Any user must ready and familiar themselves with all relevant manuals and documentations. Wilhelmsen Ships Service hold the right to change the content within the kit at any time without notice.





Notes:





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