

DATA SHEET No. 037 -1 DECK FITTINGS



	Part No's.	Pump-Out
	BRASS	CHROME
	02047	02048
	Part No's.	Rinse-out
BRASS	CHROME	
02049	02050	
Slotted Cap		
02054	02055	




PUMP-OUT DECK FITTING

- Conforms to International Standards
- Connects to Probe and Screw quayside fittings
- 'O' ring in housing ensures good seal to probe
- Marine quality chrome or traditional polished brass
- Standard 16mm (5/8") hexagon cap key
- Easily replaceable "O" ring
- For 38mm (1 1/2") 50mm (2") or 63mm (2 1/2") hose
- Cap release key and identification plate included
Hole Dia. 65mm Flange Dia. 99mm

Part No's.	DeckFillers		
	BRASS	CHROME	
Diesel	01129	01131	
Water	02051	02052	



RINSE-OUT DECK FITTING (Small dia. water fill)

Note: To convert Rinse Out fitting to Water Fill, purchase Slotted Cap.

- Tapered throat grips hose
- Hose tail for 19mm (3/4") deck to tank hose
- Marine quality chrome or traditional polished brass
- Supplied with standard 18mm (5/8") hexagon cap key
- Cap release key and identification plate included
Hole Dia. 45mm Flange Dia. 73mm

DECK FILLERS - Diesel, Fuel, Petrol, Water

- Matches LEESAN Pump-out & Rinse-out fittings
- Cap & flange seal on "O" ring prevents water ingress
- Slotted key for cap release
- Accepts 38mm (1 1/2") 50mm (2") or 63mm (2 1/2") hose or ISO G1 1/2 (1 1/2" BSP) pipe can be directly connected
- Marine quality chrome or traditional polished brass
- Hose tail material has a V2 fire rating, tested to UN94 and suitable for U.K. boat safety scheme compliance
- Cap release key & identification plate included
Hole Dia. 65mm Flange Dia. 99mm

NAME PLATES

Pump-out, Rinse-out, Water, Petrol, Diesel

Part No.	BRASS	CHROME
Water	02045	02046
Diesel	02041	02042
Petrol	02058	02059
Pump-out	02043	02044
ISO Pump-out	01522	01523
Rinse-out	02056	02057

Fits on top of or adjacent to deck fitting flange

Marine quality chrome or traditional polished brass

01662	NO FILL	Chrome
01663	NO FILL	Brass
01664	QUAY PUMP	Chrome
01665	QUAY PUMP	Brass
01666	SHIP PUMP	Chrome
01667	SHIP PUMP	Brass
01668	OPEN VENT	Chrome
01669	OPEN VENT	Brass



NAME PLATES (ISO STD.)

To comply with International Standard ISO 4567 and British Standard 7162 the Pump-out deck fitting must be identified with the approval symbol.

In the USA an alternative symbol is being promoted by the authorities.

Lee Sanitation manufacturers a label that satisfies the requirements for both of these symbols and should therefore be recognised Worldwide. This label can be supplied with exported fittings.



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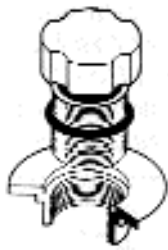
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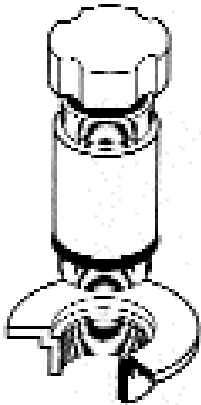
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DATA SHEET No. 037 - 2 DECK FITTINGS



Part No's. Standard
BRASS CHROME EXTEND
01132 01137 15mm



Part No's. Extended
BRASS CHROME EXTEND
- 01203 70mm



"These are only available for the 1½" BSP thread size deck fitting's"

RAISED CAP CONVERSIONS - Keeps water & dirt out while cap is removed

- Marine quality chrome or traditional polished brass
- Suitable where flush deck fillers are NOT APPROVED
- Replaces existing 38mm (1½") BSP threaded flush fitting caps
- Raised threaded nipple and thread locking fluid inc.

FILLER CAPS

- Marine quality chrome or traditional polished brass
- Converts or replaces existing deck fillers/caps both small & large diameter 38mm (1½") or 25mm (1") BSP thread
- Pump-out/Rinse-out, Hexagonal, 16mm (5/8")
- Fuels/Water, Oblong, IO x 16mm (3/8" x 5/8")



Part No's. **BRASS CHROME**

(Hex Slot)
1" BSP 02090 02091

1½" BSP 02093 02094



(Oblong Slot)
1" BSP 02054 02055

1½" BSP 02092 02095

1" BSP Thread
Rinse-Out, Old Style Water Deck Fitting's

1½" BSP Thread
Pump-Out, New Style Water, Diesel, Petrol Deck Fitting's



Raised Cap 01135 01136
(1½" BSP thread size only)



KEY 02040
Nylon - for slotted and hexagon socket type fittings

Which Thread?



Measure outside diameter of cap threads (A)

O/D of Fitting Cap (A)		
1 7/8-inch	(47.6 mm)	1½" BSP
1.309-inch	(32.1 mm)	1" BSP

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07/03/03



DATA SHEET No. 046 -1
DECK FITTINGS - NYLON



Part No's.
 Pump-Out 01940
 Rinse-Out 01945

PUMP-OUT & RINSE-OUT DECK FITTING

- Conforms to International Standards
 - Connects to Probe and Screw quayside fittings
 - 'O' ring in housing ensures good seal to probe
 - Flanges marked with appropriate identification
 - Standard 16mm (5/8") hexagon cap key
 - Easily replaceable "O" ring
 - For 38mm (1 1/2") 50mm (2") or 63mm (2 1/2") hose
 - Cap release key included
- Hole Dia. 65mm Flange Dia. 99mm



Part No's.
 Diesel 01950
 Water 01951

DECK FILLERS - Diesel, Fuel, Water

- Matches LEESAN Pump-out & Rinse-out fittings
 - Cap & flange seal on "O" ring prevents water ingress
 - Slotted key for cap release
 - Accepts 38mm (1 1/2") 50mm (2") or 63mm (2 1/2") hose or ISO G1 1/2 (1 1/2'BSP) pipe can be directly connected
 - Marine quality Nylon
 - Hose tail material has a V2 fire rating, tested to UN94 and suitable for U.K. boat safety scheme compliance
 - Cap release key included
- Hole Dia. 65mm Flange Dia. 99mm



Part No's.
 1 1/2" Hex 01939
 1 1/2" Slotted 01944
 Multi Key 02040

FILLER CAPS

- Marine quality Black Nylon
- Diameter 38mm (1 1/2")
- Pump-out/Rinse-out, Hexagonal, 16mm (5/8")
- Fuels/Water, Oblong, 10 x 16mm (3/8" x 5/8")

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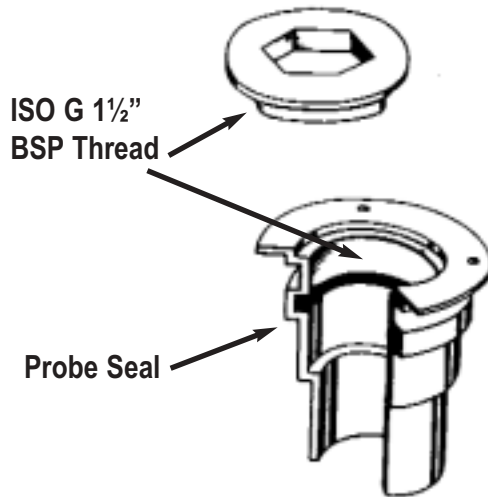
24/09/01



DATA SHEET No. 005-1
PUMP-OUT
DECK FITTING



Pump-out deck fitting with International standard thread and facility for "push-in" connector
 Conforms to ISO 8099:2000
 No connection adaptor required

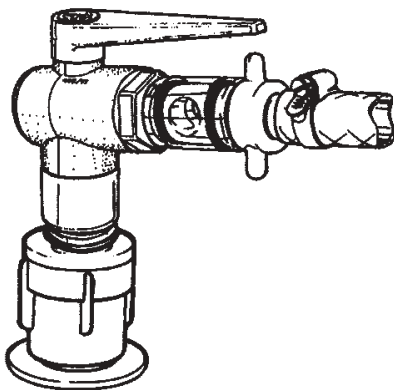


Quayside pump-out connections

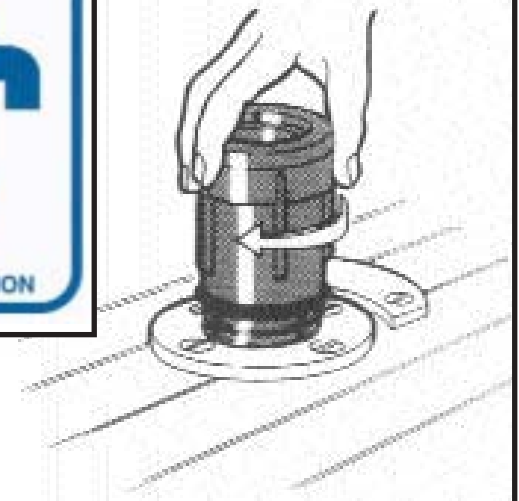
The original international standard stipulated a threaded pump-out deck connection. To connect with this a threaded adaptor is required. The Standard was revised in 2000 and the New ISO system is free of loose adaptors.

The revised standard, ISO 8099, is compatible with both the original screw connection and the latest push-in system. However, if the boat deck pump-out fitting is not to the ISO 8099:2000 Standard a connection adaptor is required.

An adaptor may be available from the boat yard, which is providing pump out service, but it would be sensible for boat owners to carry one themselves.



Push-In probe connection using a screw in adaptor



Screw adaptor for Push-in ISO 8099:2000 connection

Connector to make tight seal between deck and pump-out fitting - available from a good chandlery.

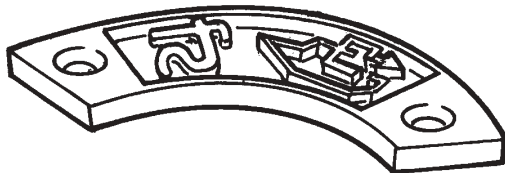
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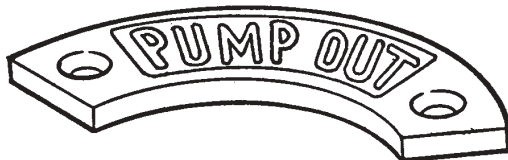
28/03/03



**DATA SHEET 023-1
NAME PLATES for
PUMP-OUT Deck Fittings**



Part No.
01522 ISO Brass N/Plate
01523 ISO Chrome N/Plate



Part No.
02043 Brass N/Plate
02044 Chrome N/Plate

To comply with International Standard ISO 4567 and British Standard 7162 the Pump-out deck fitting must be identified with the approved symbol.

In the USA an alternative symbol is being promoted by the authorities.

Lee Sanitation manufacturers a label that satisfies the requirements for both of these symbols and should therefore be recognised World-wide.

In the UK an identification plate with the wording "pump-out" has been the norm.

At present the UK "boat safety scheme" does not insist on the ISO symbol and allows the "pump-out" identification in line with previous UK practice. Responding to customer demand, a "pump-out" identification is included with the LeeSan Pump-out Deck Fitting. However we would point out that to comply with ISO 4567 the pump-out symbol should be shown. We will happily supply the ISO label in exchange if required.

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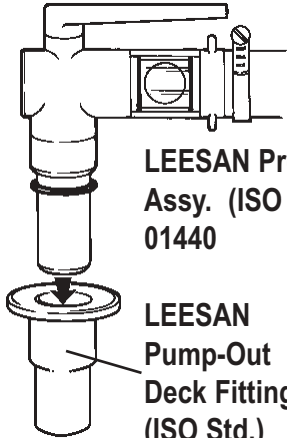
DATA SHEET No. 027-1
PUMP-OUT CONNECTIONS



"Hands Free"

No Adaptors

"ISO 8099:2000 Standard"



LEESAN Probe Assy. (ISO Std) 01440

LEESAN Pump-Out Deck Fitting (ISO Std.)
 01947 Nylon
 02047 Brass
 02048 Chrome

"Hands Free"

Screw Adaptor

"Pre, ISO 8099:2000 Standard"



LEESAN Probe Assy. (ISO Std) 01440

LEESAN Deck Fitting Adaptor to fit thread on ISO Std.
 02053 1 1/2"
 or
 01419 1 1/4"
 (for USA Thread)

Requires Holding

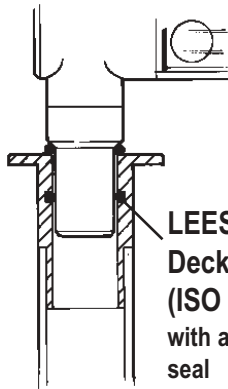
Push-in Adaptor

"Non ISO Standard"



LEESAN Probe Assy. (ISO Std) 01440

LEESAN Cone Adaptor (Rubber) to fit a variety of NON ISO Std. Fittings 01938



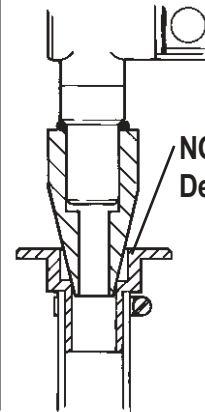
LEESAN Deck Fitting (ISO Std.) with additional seal

WHICH THREAD?



- 1: Measure outside diameter of cap threads (A)
- 2: Refer to the table for appropriate adaptor

O/D of Fitting Cap (A)	LeeSan Part No.
1 7/8-inch (47.6 mm)	02053
1 5/8-inch (41.3 mm)	01419
Other	01938



NON STANDARD Deck Fitting

Efficient Pump-Out depends on a good Vacuum (good seal) LEESAN ISO Std. equipment uses "O" Rings to create the "optimum" seal! Where Non Standard deck fittings have been installed, LEESAN adaptors are available

For ISO Std. Deck Fittings and nameplates see our: Data Sheet 005-1 Pump-Out Deck Fitting, Data Sheet 023-1 Name Plates for Deck Fittings,

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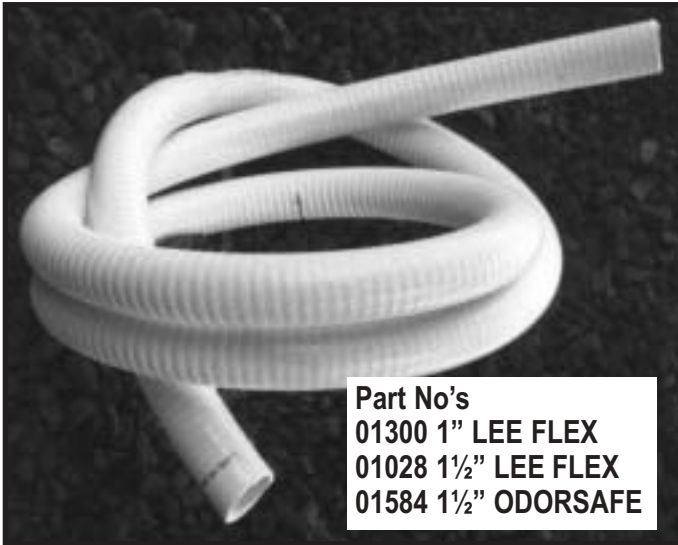
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28/03/03



DATA SHEET No. 055-1
SANITATION HOSE



Part No's
 01300 1" LEE FLEX
 01028 1½" LEE FLEX
 01584 1½" ODORSAFE

Many boat owners complain of bad smells in the heads but often cannot trace the source. Sewage is an obvious cause but on salt water flushed systems algae brought into the bowl with the flushing water can be responsible. This micro growth gives off a strong "sulphur" smell. This smell is most obvious in boats that have been unoccupied for a while. (See separate HTS leaflet) Flushing the toilet may eliminate this smell. If, however, it only reduces it, and the system is not leaking sewage, the cause is most likely to be smell molecules permeating through the wall of "unsuitable" hose.

Very few flexible materials provide a satisfactory barrier against sewage or micro growth smells and in the interest of saving costs manufacturers may minimise the use of "more expensive" but suitable materials. Lee Sanitation have the answer to this problem.

Using White ODORSAFE or LEE-FLEX Sanitation-grade flexible hose together with appropriate fittings, it is quite possible to design a tidy, smell-free marine sanitation installation.

ODORSAFE & LEE-FLEX Hoses are clearly marked to distinguish them from other Non "Sanitary" grade hoses.

SPECIFICATIONS

"ODORSAFE" & "LEE-FLEX" sanitation hoses have been developed specifically for marine installations. The unique odour barrier qualities of these products are the result of extensive development by SEALAND in the USA (Odorsafe) and Lee Sanitation in the UK (Lee-Flex).

By combining synthetic compounds with nitrile rubber and pvc we have been able to modify the molecular matrix of the flexible hose wall. This modification has enabled these hoses to become more impervious to odours by blocking the routes through which they escape.

ODORSAFE & LEE-FLEX hoses have flexibility, smooth bore and an outer surface which is easy to keep clean. The smooth internal and external surface also ensures a good fit onto connections with hose clamps tightening squarely

ODORSAFE offers maximum resistance to malodour permeation. Its price reflects the extended warranty period of 5 years (even if the system contains standing effluent). LEE-FLEX may require service replacement within 3 years.

Consideration must be given to the correct method of installing any hose and you should read the installation guide on the Data Sheet 055-2 to ensure a long and trouble free life from your system.

PHYSICAL PROPERTIES		
DETAILS	ODORSAFE & LEE-FLEX	LEE-FLEX ONLY
Nominal Bore	38mm	25mm
Nominal O/D	46.5mm	33mm
Max. Working Press.	4 Bar	7 Bar
Max. Vacuum	500mm Hg	500mm Hg
Mm. Bend Radius	200mm	150mm
Weight per Metre	0.76Kg	0.42Kg
Temp. Range		
LEE-FLEX	-10°C to +30°C	-10°C to +30°C
Temp. Range		
ODORSAFE	-17°C to +65°C	-

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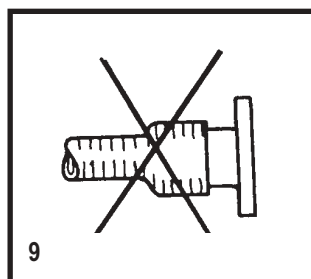
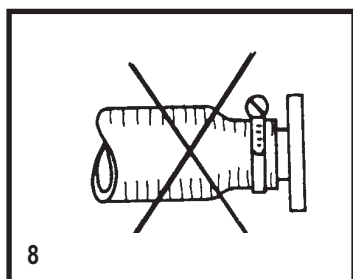
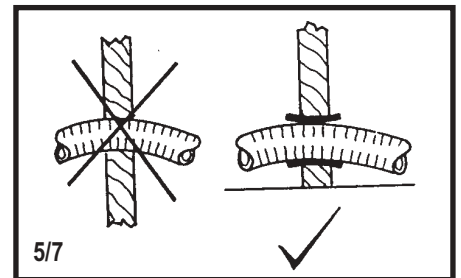
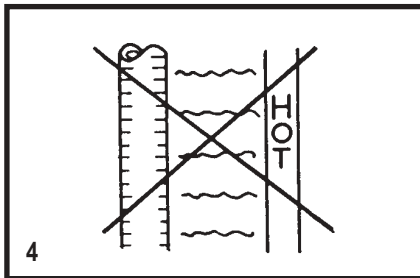
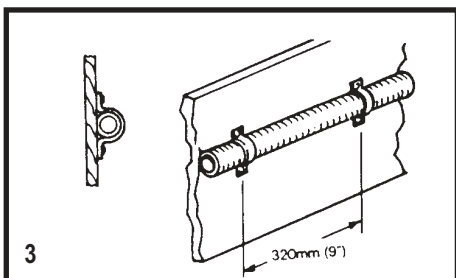
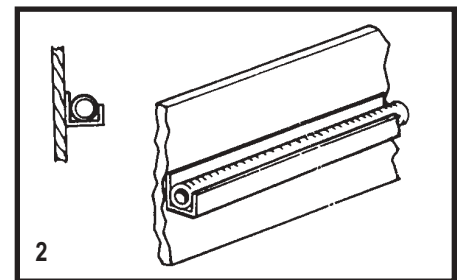
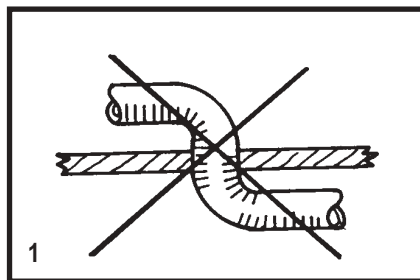
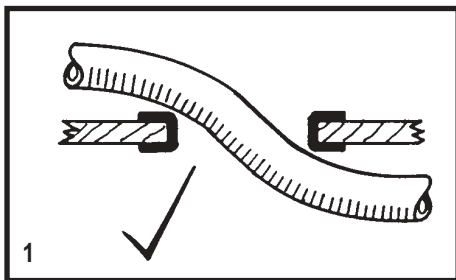


DATA SHEET No. 055-2 SANITATION HOSE



GETTING THE BEST FROM YOUR LEE-FLEX HOSE
The following points must be observed when installing LEE-FLEX

- 1: Never exceed the minimum bend radius for the particular hose in use.
- 2: Wherever possible, support the hose in a continuous tray along its whole length. This avoids sagging and consequent stagnation of waste products.
- 3: If 2 is not practical, then the hose must be supported in suitable clips every 320mm (9")
- 4: Keep hoses away from hot pipes and ducts.
- 5: Avoid sharp edges.
- 6: Do not apply tension to the hose, as this will cause premature failure in the event of movement between fixed points.
- 7: Where hose passes through bulkheads or similar panels ensure the hole has adequate padding and support for the hose.
- 8: Do not try to reduce the bore of the hose by extreme clamping force, as this will damage the hose and cause stagnation.
- 9: Do not expand the hose beyond 10% of its original bore to fit oversize couplings as this may stress the hose beyond its design capabilities and cause premature failure.
- 10: Always observe good practice and ensure hose ends are cut square, hose clips tight and no sharp foreign materials can damage the hose once it is hidden behind bulkheads or paneling.



CLEAN MARINE TOILETS WITH WASHING UP LIQUID OR A PROPRIETARY MARINE TOILET CLEANER. PERSISTENT STAINS CAN BE REMOVED WITH VINEGAR BUT NEVER BLEACH.

NOTE: Flexible hose should never be considered as a "Fit and Forget" product and should be inspected regularly. Rigid plumbing should be used where access for hose change is difficult.

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27/05/02



DATA SHEET No. 055-3 SANITATION HOSE



GETTING THE BEST FROM YOUR SANITATION HOSE

ODORSAFE and LEE-FLEX sanitation grade hoses are blended reinforced flexible hoses produced for use with marine sanitation systems. Lee-Flex is produced in two sizes, 38mm (1.5") bore and 25mm (1.0") bore and is identified by the brand name 'Lee-Flex' which is printed on the outer hose wall along with a batch and date code. Odorsafe is only available in 38mm (1.5") and is also branded.

These hoses can be used to replace other non sanitation grade flexible hoses. Good installation practices should always be adhered to. See Data Sheet 055-2 In line with these recommendations please note the following additional information:

Hose should be allowed to rise to reasonable ambient temperatures before installation takes place i.e. 15-20° C. Cold hose is inflexible and may crack if worked extensively. 5° C is considered cold in this case.

Hose, which has been stored outside in cold temperatures, should not be used until it has warmed up and is found to be flexible without too much effort.

Never overheat a hose with direct heat i.e. hot air gun or an open flame, to make it soft enough to fit onto a hose tail. Hose should not be increased by more than 1.5mm internal bore size and force fitted.

If hose needs to be softened prior to fitment then immerse the end in hot water to allow a slow uniform heating of the product. Hose should then be installed using a slight twisting action.

WARNING If you use any of the following materials then the **WARRANTY WILL BE INVALIDATED**

1. **AROMATIC HYDROCARBONS** - Benzene, Naptha, Napthalene, Toluene, Turpentine, Xylene.
2. **HALOGENATED HYDROCARBONS** - Benzyl Chloride, Carbon Tetrachloride, Chloroform, Ethylene Dichloride, Methylene Chloride, Perchloroethylene, Trichloroethylene.
3. **KETONES** - Acetone, Diethyl Ketone, Methyl Ether Ketone.
4. **ESTERS** - Amyl Acetate, Butyl Acetate, Ethyl Acetate.
5. **ETHERS** - Diethyl Ether, Petroleum Ether
6. **MISCELLANEOUS** - Iodine, Methylated Spirit, Linseed Oil, Creosote, Hydraulic Oils, White Spirit, Refrigerant Solutions, Wood Preservatives, Petrol and Varnish Removers, Diesel Fuel. Degreasing Solutions.

Never pinch up hose clips when the hose end is still warm. The temperature must be allowed to stabilise prior to final clipping otherwise the clip will cut into the hose wall, thus weakening the structure.

Do not fit hose in areas where the minimum bend radius will be exceeded. This will cause stress in the hose and possible failure

Do not work the hose backwards and forwards on itself since this will cause localised hardening and possible failure.

Ensure that the hose is not fitted in tension or compression and that it cannot rub or chafe on adjacent structure.

PVC type hoses are prone to chemical attack. Common chemicals used in GRP boatbuilding such as acetone, mekp, methylated spirit, white spirit and thinners will all cause hose deterioration. Never clean hoses with these chemicals and ensure that spillage and wet rags contact are avoided.

It is unnecessary to use any form of wet sealant between the hose and hose tail. A correctly sized hose and fitting, which are well clipped, will seal. Do not use wet sealant to create a hose seal.

NOTE: Flexible hose should never be considered as a "Fit and Forget" product and should be inspected regularly. Rigid plumbing should be used wherever possible especially where access for hose change is difficult.

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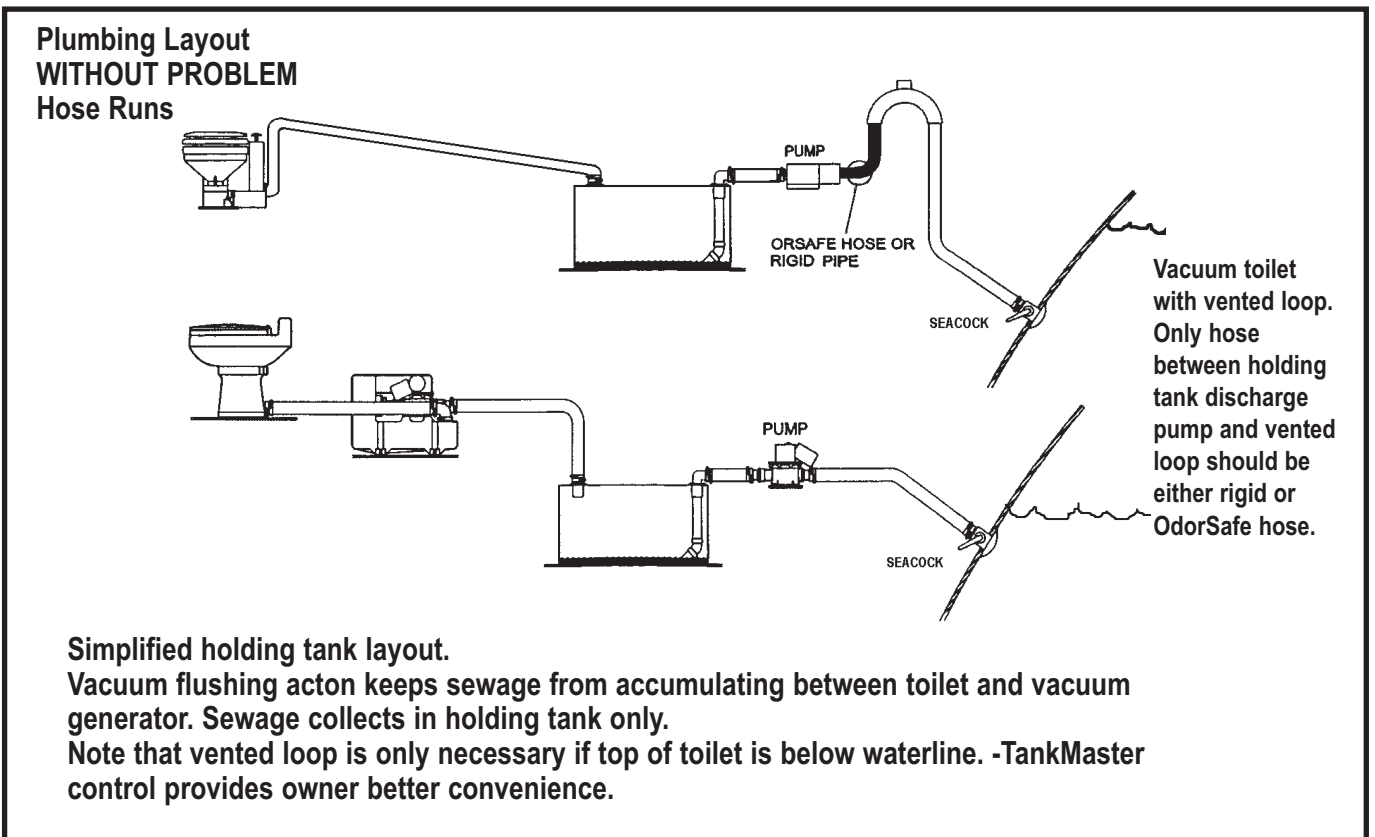
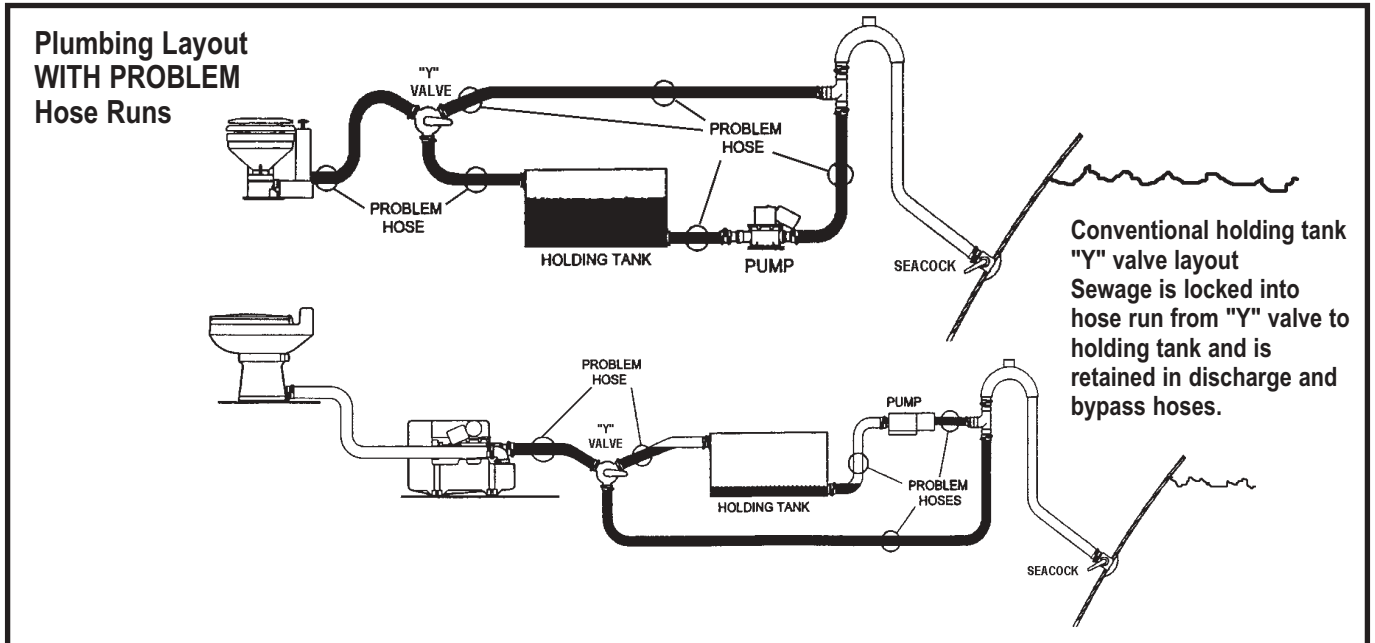
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DATA SHEET No. 055-4 SANITATION HOSE



ODOUR PROBLEMS INCREASE WHERE THERE IS "STANDING" EFFLUENT WITHIN THE PLUMBING SYSTEM This is explained in the diagrams below.



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