Operation & Maintenance MANUAL

VIKOMA INTERNATIONAL

FLEXIBLE FLOATING

STORAGE TANKS

Vikoma international limited

MANUFACTURERS OF
OIL POLLUTION CONTROL EQUIPMENT

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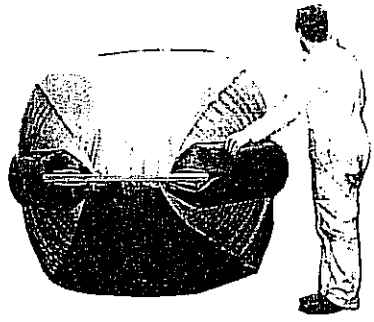
1. INTRODUCTION

VIKOMA Flexible Floating Storage Tanks are produced in heavy duty polyurethane coated nylon fabric. The tanks are extremely tough, puncture and abrasion resistant and provide instant storage in most environmental conditions.

VIKOMA Flexible Floating Storage Tanks are intended mainly for use in conjunction with oil spill recovery equipment although the tanks have many other uses in industrial or emergency service applications.

Each of the various sizes of VIKOMA Flexible Floating Storage Tanks are the same in both shape and type of fittings thereby eliminating the necessity for several different types of spares kits due to the compatibility of the components

The Storage Tank ends are terminated with horizontally bolted Unicon joining sections, these joining sections allow access to be easily gained into the tank for cleaning after gas freeing (expulsion of harmful gasses). See later section on cleaning.



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2. PARTS DESCRIPTIONS

2.1 STANDARD STORAGE TANK SYSTEM CONTENTS

STORAGE TANK	Size as ordered - see 3 below
XG INFLATION ADAPTOR VALVE	
MONSUN/KAMLOCK ADAPTOR	Female
TOWING BRIDLE	

2.2 This section describes the main parts of the Storage Tank, the function of those parts within the system and the way in which those parts should be operated.

The two tank connections (inlet/outlet fittings) situated on top of the tank have bayonet connecting fittings that accept VIKOMA ADAPTORS. The adaptors have either 2 inch female Kamlock or 2 inch hose tail ends.

The tank connections have spring loaded non-return valves that can be held open by depressing the valve lid and turning it clockwise. Turning anti-clockwise releases the valve and allows it to reseal under the influence of the spring. The VIKOMA ADAPTORS automatically open the valve when connected and allow the valve to close when the adaptor is removed.

The inflated (or foam filled) collars either side of the tank are for use when afloat to stabilise the tank when partly full, support it on the surface when empty, and act as a fender when moored alongside. The two flaps each side above the fender are NOT FOR LIFTING, they are for lashing the tank down when being used on dry land. This prevents the tank being blown about in wind when empty.

The Unicon joining connectors are used to both seal the ends of the Storage Tanks and for towing purposes (see next section). the connectors should be visually checked before the tank is used to ensure they will not leak or allow the tank to fill with water while it is being towed.

3. SPECIFICATION

Storage tank size	12.5 tonnes	25 tonnes	40 tonnes
Capacity (floating)	12.5 tonnes	25 tonnes	40 tonnes
Capacity (dry land)	7 tonnes	12.5 tonnes	20 tonnes
Length	6 metres	12 metres	19 metres
Width (flat)	2.5 metres	2.5 metres	2.5 metres
Weight (empty)	45 kilograms	85 kilograms	136 kilograms

$5\ m^3$ / $12.5\ m^3$ / $25\ m^3$

4. FILLING THE TANK AFLOAT

The tank fenders must be inflated and the tank moored in the extended position without twists with the valve connections on top. It must not be moored alongside sharp projections, or where it may "ground" when filled. The tank must never be pressurised and if being filled by pump then an open vent must be fitted to the other connection.

The Unicon joining sections accept small tow-plates and shackles for mooring and special floating towheads for towing. Filled tanks can be towed at up to 8 knots, but all changes in speed and direction must be made gradually and with extreme caution.

5. FILLING THE TANK ON LAND

Ensure the ground at the filling site is flat and has no sharp projections. Cover the area with protective sheeting and lay the tank flat with fittings uppermost.

Secure the Storage Tank by ropes to the side flaps and firmly peg to the ground ensuring there is enough slack to allow for change of shape when tank fills. These flaps WILL NOT prevent the tank rolling whenset up on an incline, so if there is any tendency for this, then a retaining bund wall of soft sand or similar material must be erected before filling operations commence.

IMPORTANT NOTES:

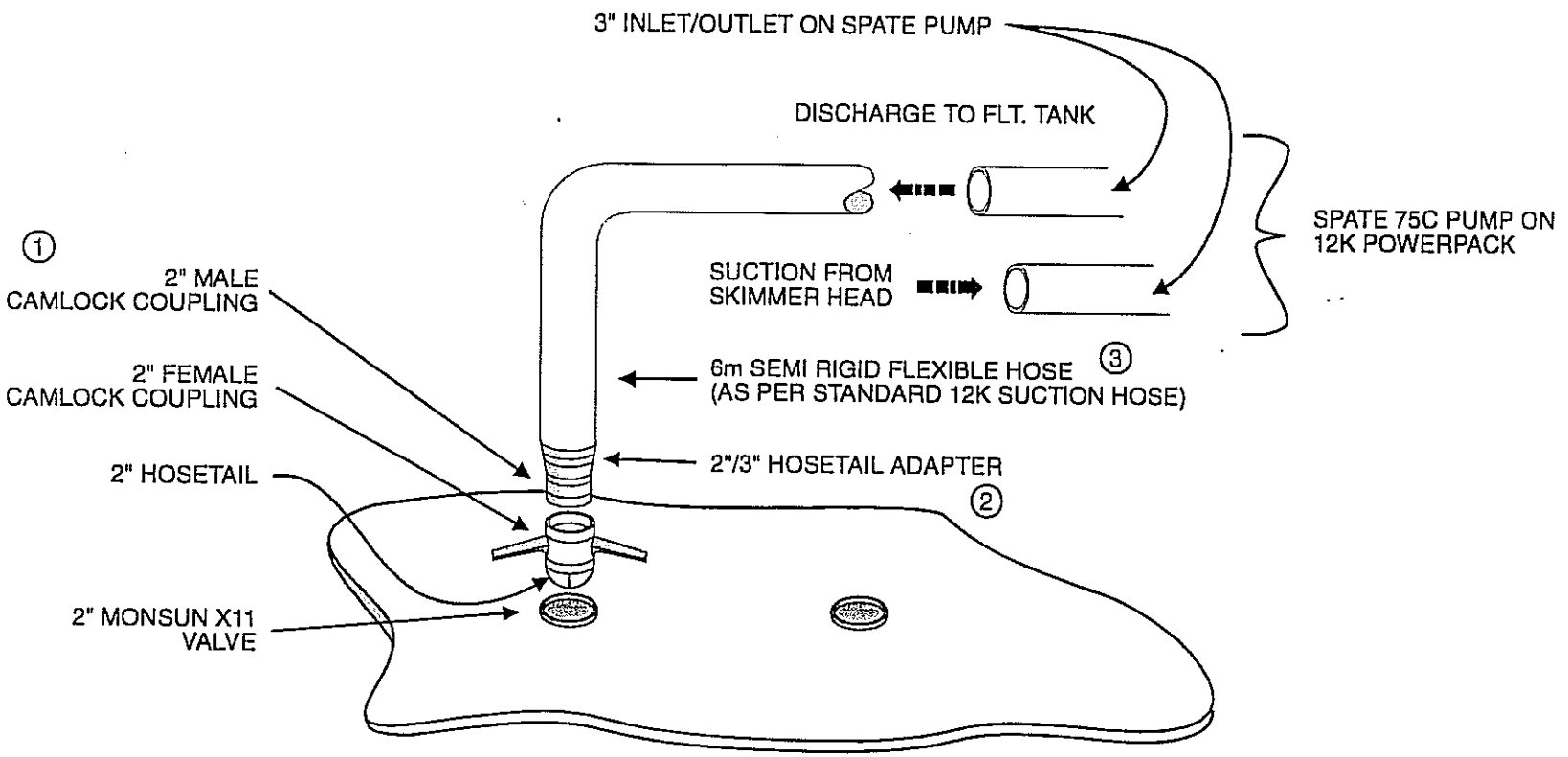
THE TANK CAPACITY ON DRY LAND IS HALF THE RATED CAPACITY WHEN AFLOAT. - SEE SPECIFICATION SECTION 3

NEVER PRESSURISE OR OVERFILL TANKS.

NEVER ATTEMPT TO MOVE OR LIFT TANKS, UNLESS COMPLETELY EMPTY.

WHEN PUMPING OUT TANKS, EITHER ASHORE OR AFLOAT, THERE IS NO NEED TO OPEN A VENT AS THE TANK WILL COLLAPSE PROGRESSIVELY AS IT IS DRAINED.

GENERAL ARRANGEMENT OF KOMARA 12K DISCHARGE TO FLOATING TANK



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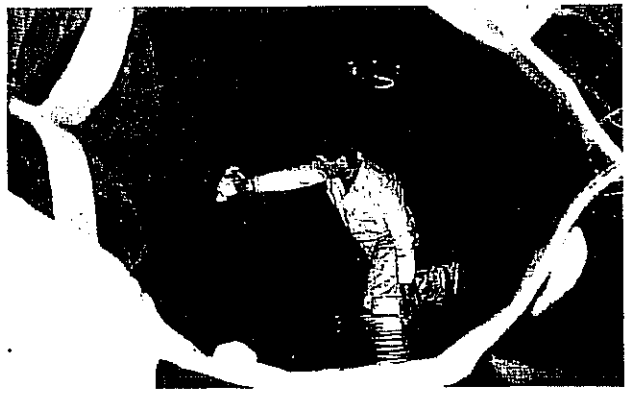
6. CLEANING THE TANK

The tank can be held in shape for this operation with a low pressure air blower delivering air into the tank. To accomplish this the joining sections at one end of the Storage Tank will need to be left in position.



Easy Access for Cleaning

HAZARD WARNING:

IF THERE IS ANY POSSIBILITY THAT THE TANK MAY HOLD HAZARDOUS GASSES OR SKIN IRRITANTS DUE TO THE MATERIALS WHICH HAVE BEEN STORED IN THE TANK. DO NOT UNDER ANY CIRCUMSTANCES OR FOR ANY PURPOSE ENTER THE TANK UNTIL AUTHORIZED TO DO SO.

IN SITUATIONS WHERE SUCH HAZARDS ARE LIKELY TO OCCUR ALL NECESSARY SAFETY EQUIPMENT MUST BE ON HAND BEFORE OPERATIONS OF THIS NATURE BEGIN.

BREATHING EQUIPMENT AND SUITABLE LIFELINES MUST BE INCLUDED IN THIS REQUIREMENT.

If a cleaning agent is to be used to clean the tanks care must be taken that the fabric of the Storage Tank will not be damaged by the chemicals it contains.

Personnel entering the Storage Tanks should not have any sharp protrusions about their person such as buckles rings etc.

For cleaning operations following oil spill recovery we recommend the waste material be loosened with diesel oil and then sprayed with a detergent solution from a pressure washer. The use of a stiff broom or brush will be useful in removing the thicker or more obstinate waste.

CAUTION:
DO NOT USE A STEAM CLEANER AS THE HIGH TEMPERATURES PRODUCED WILL CAUSE DAMAGE TO THE FABRIC OF THE TANK.

6. CLEANING cont.

The Storage Tanks should then be flushed out using large amounts of clean water.

CAUTION:
DO NOT ALLOW THE RUN OFF FROM CLEANING OPERATIONS TO CONTAMINATE THE LOCAL DRAINAGE SYSTEM SO CAUSING SECONDARY POLUTION PROBLEMS.

7. SEALING THE END PLATES

To reseal the Unicon joining sections, first remove the existing sealant. This will need to be peeled off and the joining faces cleaned. Spread the new seal (flexible silicone) evenly on the inner surfaces of the plates and bolt together.

8. TANK FABRIC REPAIRS

1. Thoroughly clean the area to be repaired using M.E.K. solvent, applied with a clean cloth.

N.B. It is not necessary to abrade the fabric surface, either side of the boom material (i.e. dull or finished) will accept the adhesive.

Allow the solvent to dry off.

2. Apply adhesive to both both surfaces to be joined and allow to dry to the touch.

3. Press patch onto the repair area, ensure air is not trapped between the surfaces by applying pressure from the centre of the patch towards the outer edge.

NOTE:
FULL CURING OF ADHESIVE CAN TAKE UP TO 48 HOURS.

THOUGH 24 HOURS USED AS PRACTICAL LIMIT. IN EMERGENCY ALLOW AS LONG AS POSSIBLE BEFORE USE.

HAZARD WARNING:
ADHESIVE AND M.E.K. SOLVENT ARE TOXIC AND INFLAMMABLE. NORMAL PRECAUTIONS SHOULD BE TAKEN, AND REPAIRS MUST NOT BE CARRIED OUT IN AN ENCLOSED AREA.

9. RECOMMENDED SPARES KIT

1	XG Valve
1	XG Kamlock Inflation Adaptor
1	Patch Kit
1	0.25 Litre Dunlop Adhesive
1set	Nuts/Bolts/Washers for Joining Sections

10. WARRANTY

The Seller hereby warrants that the Articles are free from defects in materials and workmanship, but Seller's liability hereunder is limited to making good by replacement or repair without charge to the Buyer any such defects as arise within the period of twelve calendar months of the delivery of the Articles, provided always that such defects are notified in writing to the Seller within fourteen days of their discovery and that the defective parts are promptly sent carriage paid to the Seller's premises. Such liability shall not extend to such faults as are caused by ordinary wear and tear, incorrect handling of the Articles or their defective maintenance or storage.

In the case of components or accessories which have been supplied to the Buyer's design, the Seller shall be under no liability to replace or repair defects arising therefrom.

The guarantee contained in Clause (A) hereof shall constitute the Seller's sole liability for latent and other defects and is in full exclusion of any warranty or liability whatsoever implied by common law, statute or otherwise as to the quality of the goods, their fitness for any particular purpose, their merchantability or otherwise, loss, injury or damage of any nature whatsoever arising out of or in connection with the supply of the Articles.