

## Aquaculture Diving Frames Tool Box Talk Operators Procedure



### Introduction

This is a procedure for safe use of the Surface Supplied Lifting Frame including a transportation, mobilisation and equipment setup, diving operational procedure, demobilisation of equipment and storage for transit. These instructions are to be followed primarily as a safety control measure but will in turn reduce damage to equipment. The equipment is Life Support Equipment and as such, should be treated in a manner fitting its importance.

## Operating Procedure

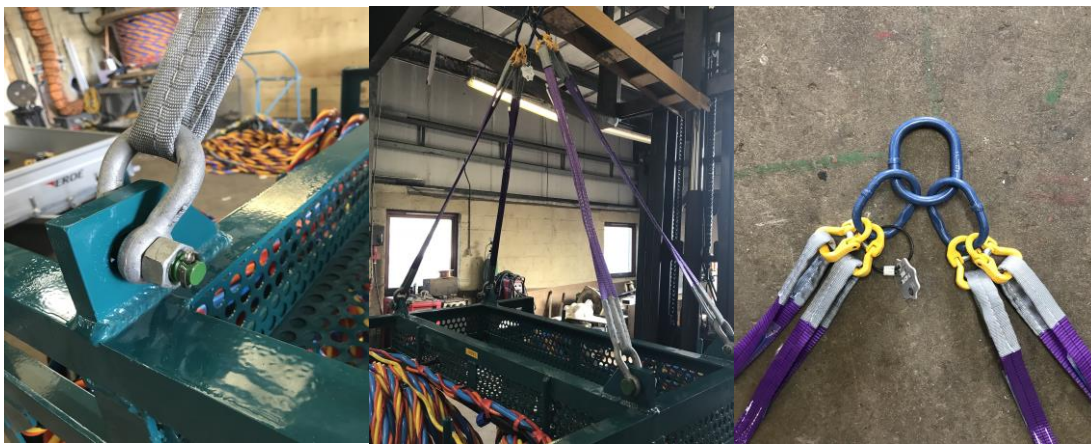
**Step 1 – Moving the Frame from yard floor to Trailer.** The frame should be lifted using the forklift and should only be lifted using the Fork Toe Pockets only. The operator should carry out a brief visual check of the frame and its surroundings prior to the lift and exercise good special awareness when carrying out this task. The Trailer should be opened from the side and prepared prior to any lift. The Frame should then be lifted and placed on the trailer inside the securing points so that it can be secured on completion of the lift after the frame positioning.

**Step 2 – Securing Frame to Trailer and Trailer Inspection.** Once the frame has been placed in its resting position on the trailer, it should be secured using a ratchet strap and the internal securing points. The straps should be secured round the feet of the frame to the internal securing points. Once the ratchets have been secured, they should be visually checked by another member of the work party prior to the trailer being in transit. The side doors of the trailer should be shut and secured.

**Step 3 – Trailer Connection and Trailer board.** Once the trailer is loaded and the checks have been completed, it should be connected to the van. When the trailer has been hitched to the van, and trailer board connected then a final visual check of the trailer and lights check should be carried out along with the van checks prior to transit.

**Step 4 – Positioning of Trailer for unloading of equipment on arrival on Site.** When arriving on site then the Trailer should be placed in position for unloading. When unloading on Piers or finger jetties then a member of the dive team should check for any obvious obstruction on the pier and guide the driver to the vessel ready for unloading. When the trailer is in position for the Frame transfer to the vessel and the van has stopped, then all covers and fastenings may be removed. The Cover requires 2 personnel,1 at each side to remove it due to the tight fitting. Once removed, it should be placed in the van securely. (At no point should covers for plant be left in the trailers.)

**Step 5 – Safe lifting of Frame and Lifting Equipment Visual inspections.** On the top of the frame is a Certified lifting arrangement for the safe lifting of the Frame from the trailer to the Vessel. This is a 4 leg Certified lifting arrangement, secured to lifting eyes by shackles. These shackles have a pin, securing nut and retaining pin. All 4 of these shackles need to be visually inspected prior to any lift taking place. A visual inspection is required of the strops to check for any integrity damage on all 4 legs of the arrangement. The Masterlink connection arrangement needs to be checked, all fixings appear to be secure, and that the Masterlink is in good condition with no obvious deformation or integrity damage.



The above pictures show how the various parts of the lifting arrangement should look. Once these checks have been completed, then the Frame should be prepared for lifting. It is important that the rigging is not twisted and is only lifted from the designated central Masterlink as shown in the picture on the right.

A tag line should be attached to the Frame at any of the lower corners to control the lift from trailer to the vessel/resting place. When the frame is in position, the lifting arrangement should be removed from the crane, and placed in upper tray.

Prior to any lift taking place, a visual inspection should be carried out of the frame to insure there are no loose items on the frame of which could cause a 'Dropped Object Risk' during any planned lift. A plan should be agreed on arrival on site with the Contractors Client Representative or Skipper as to where the frame will be landed on the deck of the vessel and the work party should be informed of this prior to any lifting operations commencing. Good communication between all personnel is imperative. No personnel should be situated under any suspended loads.

Note – At no point should the lifting arrangement be removed from the frame unless being changed out due to reportable damage for replacement or removed for periodic Inspection by a competent person.

**Step 6 – Setting up of Diving Equipment on Vessel.** The Panel can be set up in 2 configurations. The HP Hoses allow for the panel to be set up on the Panel Frame or can be set up in a Cabin/Wheelhouse. The HP Backup bottles whips are **Orange**. The HP Backups are split by manifold to Diver 1 and Diver 2. All hoses are labelled in relation to the Panel. You should check the correct fitting and label matches the Panel and fixings prior to attaching and tightening of the hose to the connection to avoid damage to fixings. All panel connections should be tightened up by hand and nipped up using an appropriate Shifter/Ring Spanner that is fit for purpose. If in doubt as your Diving Supervisor for assistance.

Note – If required, an alternative HP Back Quad can be used as Primary or Backup. The Diving Supervisor can decide as to which source he or she uses as the primary air source. If using the Frame HP bottles then this should be noted on the daily Operational Dive Report Form 154 and all diving personnel on site should be made aware of this in the daily TBT Form 62.

**Connecting the Umbilical, Camera Connections, Communication Cables, and Pnuemo.**



**Diver 1 and 2 Main Air Umbilical – Blue**

**Pneumo Panel Connection – Yellow**

**Camera C-Technics Dive Control System Connection – Orange**

**Communication Cable – Red**

The above photo shows you the Panel end of the connections. When setting up the diving equipment and attaching hoses it is important that the equipment is installed with Tools that are fit for purpose to avoid damage to fixings, that all protective covers are looked after and attached when the hoses are disconnected and are installed with care. Should any issues or defects be noticed with the equipment then these should be highlighted to the Diving Supervisor Immediately.

The Camera Connection should be connected to the C-Technics Box C-Vision Box which is labelled. When connecting the Camera Umbilical to the Box, you should check the plug alignment as this plug has a guide pin located at the 12 o'clock position. This should be checked prior to instillation. Care should be taken when installing the male umbilical end and at no point should this fitting be forced to seat with the female box end of the connection due to risk of damage to either the umbilical fixings or box.



The above Picture shows the labelling of the female ends of the C-Technics C-Vision Box with the Upper Fitting Being the AC Power and the Lower fitting being the Camera Umbilical Fitting. You will notice the internal seating on the female ends which should be checked and matched up appropriately. The AC Power Input lead is **Yellow**. This should be visually inspected prior to use and placed in placed in the Peli case when not in use.



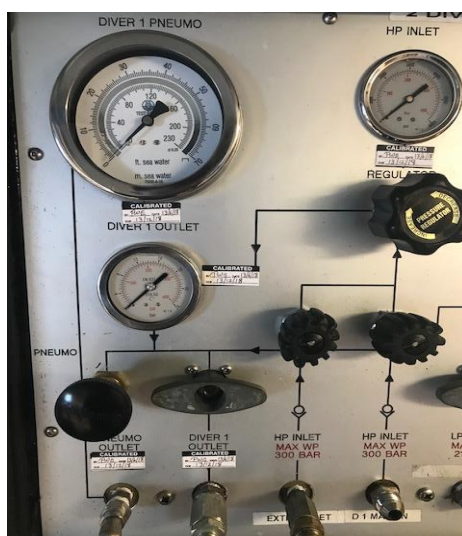
The **Red** Communication Connection should be connected to the Comms Box. Care should be taken That Diver 1 is plugged to Diver 1 input and likewise for Diver 2. These are labelled and a Comms check on both Divers will be carried out to function check these prior to any Diving operations commencing. Above is a photo of the Comms Boxes highlighting the Diver 1 and 2 Comms Cable inputs for both the SMP and Chamber Oceanic Boxes.

### Connection Arrangement



The above picture shows the configuration of the Diving Panel and hoses as they are fitted while sat on the Panel shelf on the frame. Ideally the Panel and C-Vision Box can be used on the frame in good conditions, but where it is practicable then should be used in a Wheelhouse or Shed to protect all equipment from the elements. Prior to installing any equipment on the vessel, it is important to get permission from the contractor to install before beginning any wheelhouse instillations.

**Panel Checks** – The Panel should be visually inspected prior to use. On the panel, Valve and all gauges will have Calibration stickers which are Black and White. These have them a Date which the Gauge or Valve was Calibrated and a date when this is due for Test. Check that all are in date prior to commencing diving operations. Should any Issues be found with the labelling, then the Panel not be used and you should report this to the Diving Foreman/Dive Technician immediately.



**HP Bottle Bank Diver 1 and 2** – Each Divert has 2 bottles assigned to each. These have been split via manifold. Each of these Bottles should be opened fully with the valve turned half a turn back. Whip Checks have been installed on the bottle to the hose and this visually confirmed prior to any pressurisation of Hoses. Should this not be the case then a competent person may disconnect the hose using a Shifter or Spanner which is fit for purpose. Should you be unsure on how to do this or have any issues then seek guidance from your Diving Supervisor.

**Regulating the Panel** – The Panel has in built regulators of which you can see in the above Panel Photo. The HP Backups require regulated to 10bar. The Regulator is clearly marked Increase and Decrease. You can see the pressure Output in on the Gauge located above this regulator. Be aware that the Panel is fitted with internal blow off relief valves which are set at 15bar. Take care when setting these.

Note – The Compressor output is set to 10.5bar. This is the recommended pressure for running the Kirby Morgan 18 and 28. The Compressor Relief Valve is set to 11bar.

When the Panel is not pressurised then the Manufacturer recommends that the Internal Regulators are wound off.



**HP Hose** – The HP Hoses (Orange) that connect the HP Back Up Bottles to the frame should be attached to the panel with care taken that they are connected to the relevant inlets on the panel which are clearly labelled. These should be hand tightened by hand on the male fitting and then nipped up using a fit for purpose shifter or ring spanner.

**Umbilical End** – The Umbilical ends should be attached to the Panel. The umbilical female fitting should be attached to the male fitting on the panel. This should be tightened by hand and the nipped up using a fit for purpose shifter or ring spanner.

The Footprint of the Surface Supplied Frames is slightly larger than a fish bin, and in most instances, will be able to sit in the areas where the equipment has historically been located.

**Pneumo End** – The Pneumo fittings on both Diver 1 and Diver 2 Umbilical's should be attached to the male fitting on the Panel.

**Compressor Hose** – The compressor hose (LP) should be connected to the LP Input located at the centre of the panel. Care should be taken that the fitting is secure prior to being pressurised.

### **Compressor Checks and Start Up – (See Supporting Paperwork)**

**Umbilical Blow Through** - Once all Air inlet hoses have been connected to the panel then the umbilical require blown through. Avoid using HP Backup Bottles in the frame to preserve them for primary use only. Using the LP Air supply, you should turn on the Main Air on at the LP. Make sure that the umbilical you intend to blow through is securely in hand of the tender and this has been verbally confirmed. Once this has been confirmed then the Umbilical can be pressurised to begin the blow through. This should take 15 seconds to complete. Once this has been carried out on both Diver 1 and 2, then the Umbilical is ready for instillation to the Hat.

**KM 18 Instillation** – Hat Instillation to be carried out by a competent person following the Manufacturers Recommended Instillation Procedure. If there are any doubts about the instillation of the Hat, speak to your Diving Supervisor immediately for Guidance. **(See Kirby Morgan Band Mask KMB-18 A/B and KMB-28B Operations and Maintenance Manual Chapter 5.0 Pages 37 to 41)**

**Hat Checks** - Once all Diving Hats have been installed, then a comms check is required prior to any Diving Operations commencing. The Camera on Diver 1 should be checked that it is working correctly on the C-Vision Box and it should be confirmed that the Camera is orientated correctly. A hat function test including the Nonreturn Valve should be carried out on completion of these checks. The Hood on the Band mask should be visually inspected and Retaining Band and Band Keepers checked. **(See Kirby Morgan Band Mask KMB-18 A/B and KMB-28B Operations and Maintenance Manual for reference)**

**AR-Vest Checks** – The vests should be visually inspected prior to Diving Operations beginning. A visual inspection of the Buckles, Webbing, Weight Arrangement and Release Mechanism is secure, and the Bail out bottle is secure. Make sure that a knife is in the harness, and a rescue strop is in place on the Standby Vest. The Lifting points on the shoulders should be checked and any visual damage should be reported to the Diving Supervisor Immediately.

**Recovery Lifting Sling Checks** – The Purple Recovery Strop requires a visual inspection. The Webbing should be checked for any obvious signs of integrity damage, Master links integrity checked for any obvious deformation or fracturing, and that all Clips are able to operate freely. Any damage found should be reported to the Diving Supervisor and a Malakoff Defect Report (Form 55) should be filled in.

**Note** – Divers and Tenders should make sure that the appropriate Weights are in the Vest prior to the Diver entering the water. As a rule of Thumb, you should always have to little weight and request the tenders to supply pocket weights when in the water should you require. This reduces the risk of the Diver being over weighted causing potential risks due to being negatively Buoyant. As the Diver you should be aware of your Vest requirements prior to getting dressed in.

Note – The contractor is the client, and therefore reserves the right as to where the equipment is situated and installed on the vessel. The Diving Supervisor should liaise with the Client to find a suitable laydown area for the frame that will not be affected by any potential Vessel Simultaneous Operations that may impede any of the work party or place anyone at Risk during Diving Operations.

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The Following Employees have read and undersood the above Aquaculture Dive Frame.  
Tool Box Talk Operators Procedure by Signing below.

ATTENDANCE SHEET

Employee	Signature	Date

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