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## **THE EDGE TRIPLE BAR**

**HISTORY:** The Edge Triple Bar was designed by the late Tony Edge, founder of the B.D.W.W.A. and first used in 1980. His intention was for the triple bar to be freely available so there is no copyright or patent on the device.

**CONSTRUCTION:** Stainless steel centre section, aluminium outer sections and rope sheaves. It is essential that the ropes are attached as shown in the diagram. If the ropes stretch with use, they should be adjusted to the dimensions shown.

**USE:** An inboard tournament boat is preferred, however boats with outboard engines of more than 150 H.P. may be used. The pupil should be given a standard briefing and then made familiar with the working of the triple bar. The pupil uses the centre handle with two strong ski instructors on either side. The instructors put their inside arms under the pupils arms and their inside hands on the centre handle between the pupils hands. The bar can also be used with only two parts and one instructor. When a pupil has an arm disability, one section should be detached and replaced by the tube of a "Delger Sling". It is recommended that with all pupils, separation of the handles takes place as soon as the pupil is skiing reasonably so as to avoid dependence upon the stable support of the connected bar. Progress to using only one instructor and solo skiing should be encouraged as soon as possible. The ropes can become entangled and should be untwisted between ski lessons. To avoid bending the handles, instructors should only disconnect when they are pulling on the centre handle so that there is no tension on their own tow ropes.

**ADVANTAGES:** Pupils gain confidence from the close proximity of the instructors. Faults in skiing position can be corrected by the instructor either verbally or by touch. Progress to solo skiing is quicker than other methods such as a boom on the side of the boat. The pupil is kept away from the boat noise, wash and propeller which can make disabled pupils apprehensive. The Edge Triple Bar is effective with single leg or arm amputees, blind, deaf, and other disabilities who are able to walk.

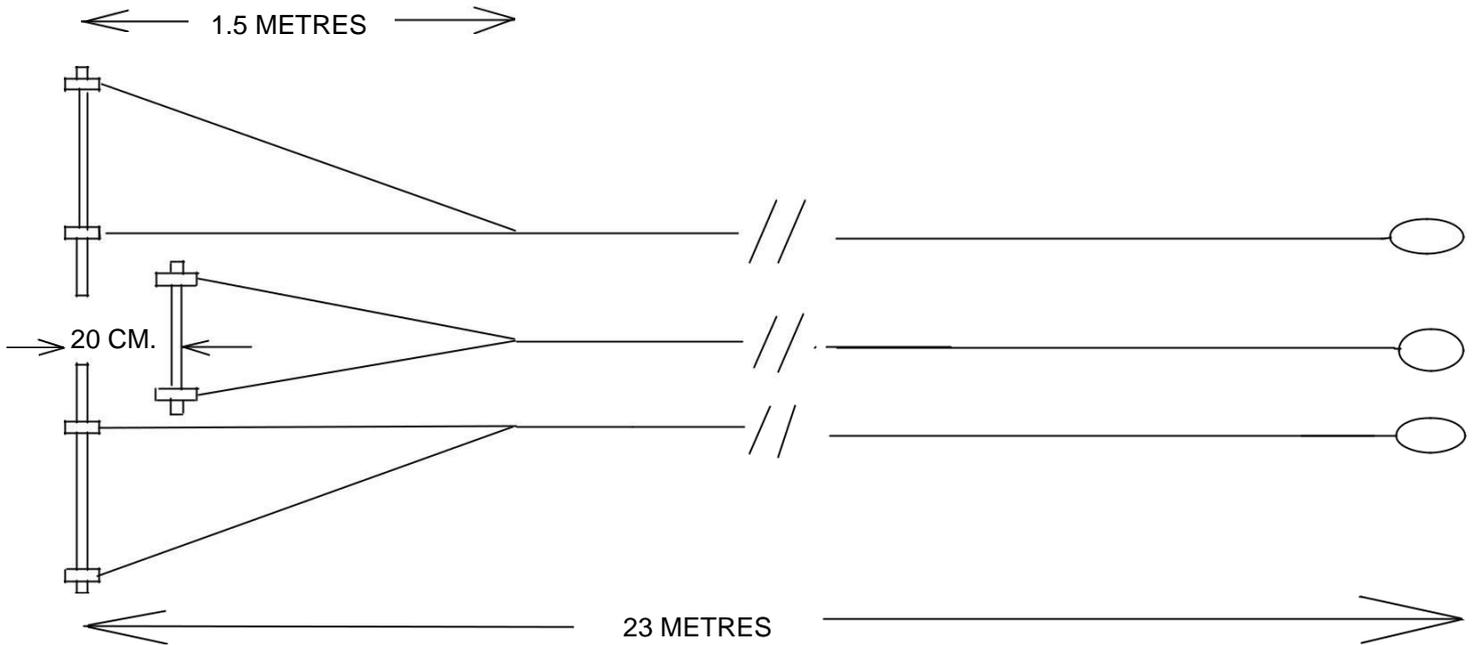
**DISADVANTAGES:** Requires two strong instructors and a powerful boat.

**SAFETY:** Attach the ropes to the boat with a robust quick release such as the type which might be used for show skiing or towing parachutes. It has been found that some disabled pupils do not release the handle when instructed.

**DISCLAIMER:** This equipment is experimental and not professionally constructed. There are no guarantees or warranties either expressed or implied. No responsibility is accepted for any injuries incurred during use of the equipment and instructors or pupils using the equipment must be told they do so entirely at their own risk.

# EDGE TRIPLE BAR CONSTRUCTION DIMENSIONS DIAGRAMS NOT TO SCALE

## ROPE LAYOUT



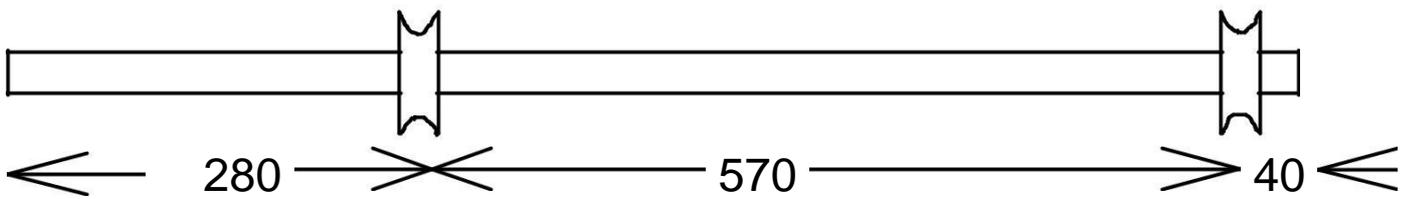
*N.B. OUTSIDE ROPES 20 CM. LONGER AND OUTSIDE BRIDLES ASYMETRIC*

## METAL BAR DIMENSIONS IN MILLIMETRES

2 OUTSIDE BARS OF ALUMINIUM OUTSIDE DIAMETER 22mm. INSIDE DIAMETER 15mm.

4 FLOATS

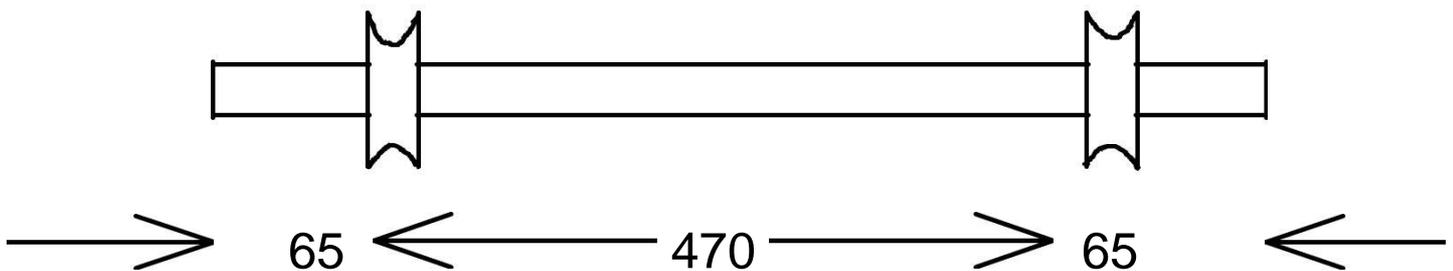
2 FLOATS



INSIDE BAR OF STAINLESS STEEL OUTSIDE DIAM. 25mm INSIDE DIAM. 23MM

4 FLOATS

4 FLOATS



## APPENDIX – ANSWERS TO VARIOUS E-MAIL QUESTIONS



Do not drill triple bar handles. They will be weakened and break or bend under load.

What we suggest is to get a friend to machine "sheaves" to position the rope on the handle.

Attached is a photo of a couple of sheaves both of which work satisfactorily. One is machined from very hard plastic and the other is machined from Aluminum. Either type is secured on the triple bar by small "Grub Screws" that prevent the sheaves moving along the bar.

You can just see the Grub Screw at the top of the red sheave.

Because of the loads we use thicker 3/8 hollow braided ski rope that might be used for ski shows or towing inflatables although you can use good quality tournament line. You need about 80 metres for the 3 lines and bridles so you might consider buying a drum. Of course the bridles are asymmetric and the outside ropes are 20 cm. longer so that you can pull the handles out while skiing.

We have been successfully using the Triple bar for over 30 years. It was designed by our Founder Tony Edge but there is no patent or copyright. The usual warning we give is that it needs 2 strong helpers or instructors otherwise the pupil suffers. They don't have to be tournament skiers but they



must hang on with determination, especially if the pupil is heavy. If you don't have strong skiers to help, use a conventional boom or bar at the side of the boat. Best boats are tournament boats, Correct Craft, Mastercraft, Malibu etc or similar power outboards. It provides very much quicker learning for the blind and single leg or arm amputees. It can be used with one side detached and a Delger sling on the end for arm amputees or other problems with one hand.

The handles have 1.5 metre deep V sections separately attached to individual ropes and have a total length of 23 metres which is the standard jump rope length. Using this length of line gives a greater width between the boat wash for the skiers. The handle deep V's are obviously asymmetric and the outside ski lines are 20 cm. longer so that there is no load on the handle when an instructor separates their handle or reconnects it. All parts of the rope construction separate easily for adjustment or replacement. The metal lasts pretty well indefinitely and we have triple bars 25 years old. The metal handles are wrapped with bicycle handle bar tape which needs periodic replacement.

For people with disabilities the primary benefit is for single limb amputees and blind. With the triple bar the pupil still has to hold on very tightly but if the pupil is not exactly in the correct knee to the chest and ski at 45 degrees position, the strength of the instructors may overcome this error and help the pupil onto the water and of course give the stability to avoid falling to one side on a single ski. Being alongside the instructor can shout instructions, most commonly "straight arms", "head up", "bend ankles" (to attain correct body position of the bum forward and chest back) and if appropriate touch the arms or body to get them to learn the correct skiing position. They can greatly assist the new pupil to crouch down to absorb the rough water of wake crossings. With blind people you can

give much better oral instruction when alongside and the pupil feels safer when away from the boat as opposed to being alongside on a boom or bar.

The triple bar is like a crutch or aid to learning and it is easy to become dependent on it so progress away from the aid should be as quick as possible. As soon as the pupil has a half decent skiing stance you should separate the handles. As soon as possible let the pupil start with just one instructor and 2 parts of the triple bar and of course progress to solo starts. With a leg amputee either above or below knee, solo deep water start may be achieved by anything between 3 and 30 training sessions. Our quickest was 3 sessions for an army veteran who lost a foot on a land mine. More commonly leg amps need 20 to 30 lessons. Blind learn at the same rate as sighted skiers of similar physical abilities. For an 18 year old totally blind and athletic person you should expect to have separated the triple bar by the first boat turn and to be doing a solo start on the next training session. Arm amps and single hand novices should have similar results to blind novices. The pull on the hands and arms of the pupil is not decreased by use of the triple bar unless you use a Delger sling.

### SUGGESTED COACHING NOTES FOR LEG AMPUTEE NOVICE PUPILS

The best type of ski for a new amputee is a large simple beginners ski like an old type of jump ski. Do not use a concave slalom ski which is designed for easy turning. You need a ski with a flat bottom and fairly sharp edges which will be more stable going in a straight line.

A wide ski is preferable because width helps in getting up.

The binding should be as tight as possible because it helps the amputee control the ski.

Binding position on ordinary skis does not need moving.

An amputee takes longer to learn to ski than a 2 legged skier because the foot has to learn "muscle memory" and how to balance on one foot on the water. Initially when all the muscles are tensed up the foot tends to over react and twitch from one side to the other in order to balance. As the skier gains more experience the foot muscles become more relaxed and the foot reacts in a calmer manner.

When you brief a new leg amputee it is similar to that for an able bodied 2 leg skier doing a deep water start for the first time. Straight arms of course and the body needs to be tucked into a tight ball with the knee tight to the chest. The ski and chest should both be at 45 degrees to the level of the water with the ski tip out of the water. Some amputees have difficulty positioning their stumps but ideally it should be trailing behind to reduce drag. When the boat accelerates the skier should put their head down to tighten up the ball and keep the chest forward over the ski. They should not try to look up or forward to see where they are going because if they do this the chest will move back and be at right angles to the direction of travel and the skier will have to let go. Throughout the start the ski must be at 45 degrees to the water level to come out. The skier and the instructors should stay low and not stand up too soon. The correct skier stance when skiing is demonstrated by jumping up and down on the ground. When you land on the ground the ankles bend and the body weight is over the center of the feet. Always tell the pupil to bend the ankles to get the correct position. Do not say bend the knees because then they just put their bum backwards. Bending the ankles they will also bend their knees without adopting an incorrect sitting position.