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"Gracht"-MTA/"Indian Ocean"-MTA:

MTAs are modern and highly advanced Sporting Boomerangs. Therefore they are not intended to be used by beginners or children. The "Gracht", made from 3 mm birch, does, like ordinary wooden long flight boomerangs, complete a circular flight path with a diameter of approximately 30 m. The "Indian Ocean", made from 2 mm phenolic material, will, if correctly thrown, fly almost 50 m outward, before it will start to make its turn and to gain height (20-25 m). During the flight the "Indian Ocean" will gradually change from a perpendicular to a flat, autorotational position.

Throwing the "Gracht" and "Indian Ocean":

Never lay over an MTA! Neither should an MTA be thrown at ground level! The commonly used angle between the boomerang and the ground is 40-50 degrees. The angle between boomerang and wind is fairly small. First try 5 degrees, later you may vary that angle. Try to throw the "Indian Ocean" using arm 1. This might first appear a bit more difficult, but it will allow the MTA to get up higher and therefore fly longer.

Tuning the "Indian Ocean":

Arm 1 needs a positive angle of attack, arm 2 needs a negative angle of attack. Both arms should be bent upwards. Usually arm 1 needs more bending up than arm 2. My personal competition "Indian Oceans" are bend up 6-10 mm on arm 1 and 2-5 mm on arm 2.

How to change the flight path:

The "Indian Ocean" does not achieve any height!

> Give more positive angle of attack to arm 1 or throw harder and higher.

The flight of the "Indian Ocean" seems perfect: It goes out far, climbs up high, stabilizes, but loses height far too fast!

> Reduce angle of attack both on arm 1 and 2.

The "Indian Ocean" climbs up high, stabilizes for a short period of time, but soon starts to swing and spiral out of the autorotational position!

> Reduce tuning on both arms.

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"Space"-Doubler:

In Short:

For better separation push the weights on the outsider more to the tips and bend it up, while giving it not too much positive dihedral (the less, the better). The insider should be Fast Catch-tuned: Bend it slightly down and give it positive dihedral. This always works for me and all the customers, who purchased them so far. This doubling pair should be thrown vertical and with lots of spin and power!

Tuning:

Bend the "Inner Space" slightly up and give it positive angle of attack on every wing (Somewhat like a FC boom). Bend the "Outer Space" slightly down and give it negative angle of attack on every wing (Somewhat like an MTA tri-blader). The "Inner Space" and the "Outer Space" have three coin weights each. Only one of the weights (smaller weights for the "Inner Space" and bigger weights for the "Outer Space") of the "Inner Space" is on the upper surface, all the other are on the bottom of the booms.

Throwing:

Hold them like this: The "Inner Space" on top of the "Outer Space". Hold the wing of the "Inner Space" with the weight on the upper surface. Throw them very much into the wind, about the height of usual TC booms and hold them straight. Use lots of spin.

If you need to get more separation time, decide, if you want the "Inner Space" to fly faster or shorter in distance (or both) or if you want the "Outer Space" to fly longer in time or in distance (or both).

To make the "Inner Space" fly faster or shorter in distance (or both):

- a. Add more FC-like tuning (bend the "Inner Space" slightly up and give it positive angle of attack on every wing).
- b. Put weights closer to the center.

To make the "Outer Space" to fly longer in time or in distance (or both):

- a. Add more MTA-like tuning (bend the "Outer Space" slightly down and give it negative angle of attack on every wing).
- b. Put weights closer to the wing tips.

How to get them land closer to each other:

Throw more into the wind. Since the flight of the "Inner Space" doesn't take long, you'll catch it anyway. The "Outer Space" will be blown to you. So the booms are to land/be caught on a line "wind direction"/"Outer Space"/You/"Inner Space".

If there is no wind, the "Inner Space" will land/be caught very close to you and the "Outer Space" might not quite make it back.

- a. Shorten the distance of the "Outer Space" by reducing the negative angle of attack.

If there is (much) wind, the "Inner Space" will land/be caught behind you and the "Outer Space" will land/be caught very close to you or even behind you, too. This usually is not a problem.

- b. Run.

How to make them stop hitting each other in mid-flight:

The "Inner Space" and the "Outer Space" have three coin weights each. Only one of the weights (smaller weights for the "Inner Space" and bigger weights for the "Outer Space") of the "Inner Space" is on the upper surface, all the other are on the bottom of the booms.

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Hold them like this:

The "Inner Space" on top of the "Outer Space". Hold the wing of the "Inner Space" with the weight on the upper surface. Throw them very much into the wind, about the height of usual TC booms and hold them straight. Use lots of spin.

Better not put them onto each other perfectly, but, holding them tight at the wing tips, push the "Inner Space" slightly towards the flight direction. The center of the booms will not be at the same position, but the "Inner Space" will fly into the air just a tiny bit earlier (it will also fly lower, too).

If they still hit each other:

- a. Hold them in pinch grip, using only the first finger to touch them around the trailing edge corner of the wing tip.
- b. Use more spin.
- c. Hold them straight. **DO NOT LAY DOWN** (i.e. the boomerangs!)
- d. Do **REALLY** follow the instructions thoroughly (Ask a friend if you do.)!

Greetings...
Günter Möller

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