

HEELING FORCES

THIS DIAGRAM REFLECTS THE CONDITIONS APPLICABLE TO CATAMARANS AND IS NOT APPROPRIATE FOR CONSIDERATION OF BALLASTED MONOHULL VESSELS.

TYPICALLY THE SPAR AND RIGGING LOADS FOR CATAMARANS ARE 1.5 TIMES HIGHER THAN FOR MONOHULLS OF SIMILAR SAIL AREA DUE TO THEIR HIGH RESISTANCE TO HEELING

MAST COMPRESSION
= HEELING MOMENT / HEELING ARM
=204,000ft.lb. / 10.5ft.
=19,428 lb.
TIMES SAFETY FACTOR OF 3,
USE 60,000 lb. FOR MAST AND BULKHEAD DESIGN

SAFETY FACTOR ACCOUNTS FOR:
INERTIAL LOADS,
EXTREME CONDITIONS
VARIATIONS IN VESSEL WEIGHT,
MATERIAL PROPERTY VARIATIONS

MAST DESIGN CONSIDERS:
COMPRESSION LOADS,
BENDING LOADS DUE TO SAILS,
INERTIAL LOADS DUE TO MOTION

RESTORING MOMENT
= VESSEL WEIGHT X RIGHTING ARM
=24,000 lb. X 8.5ft.
=204,000 ft.lb.

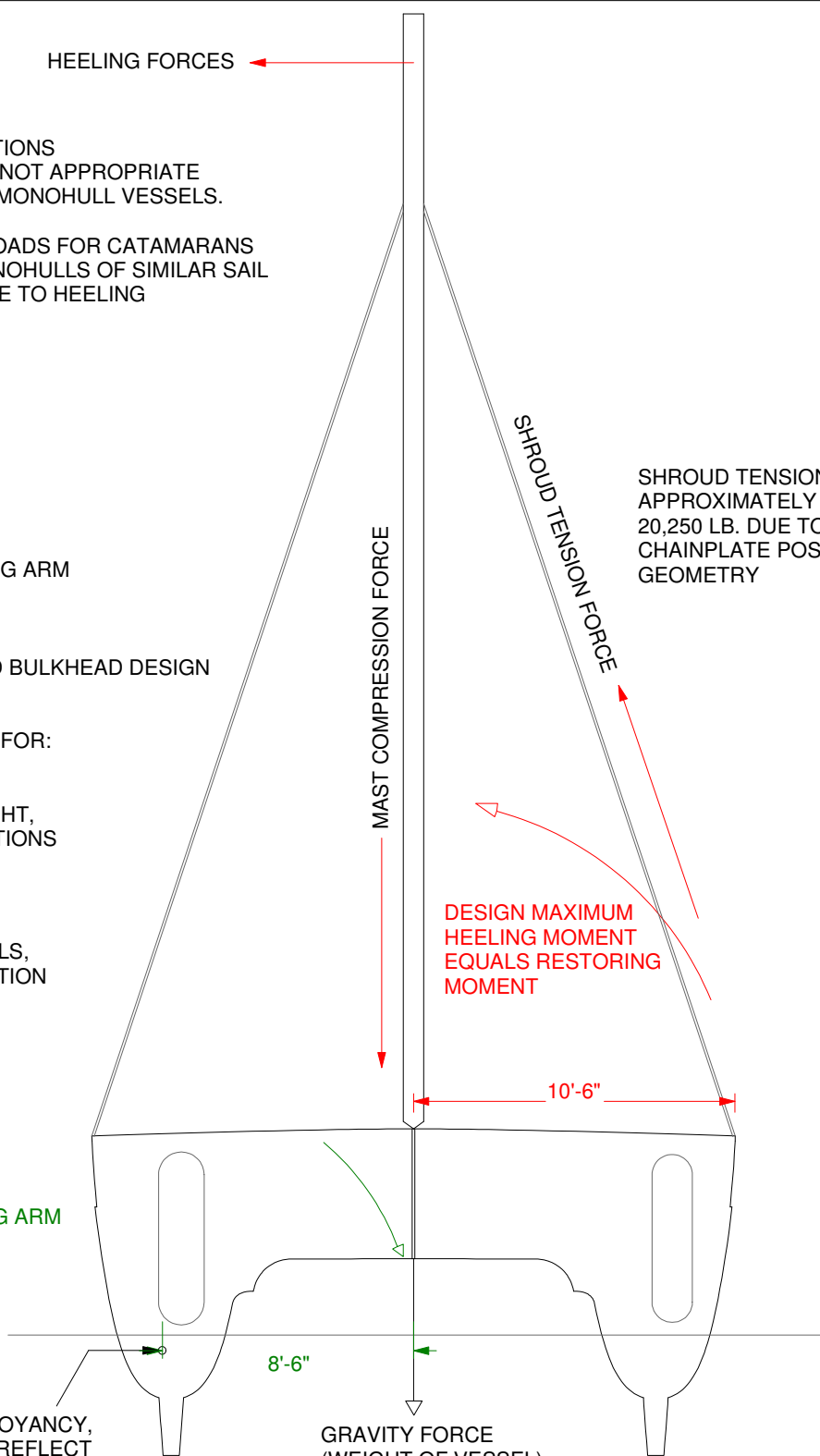
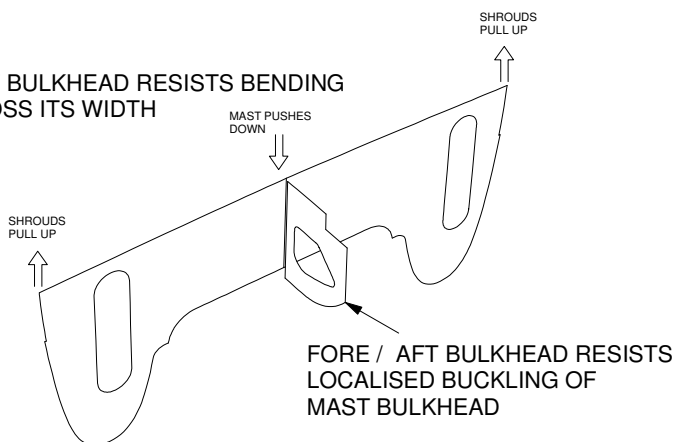
SHROUD TENSION IS APPROXIMATELY 20,250 LB. DUE TO CHAINPLATE POSITION GEOMETRY

DESIGN MAXIMUM HEELING MOMENT EQUALS RESTORING MOMENT

HEELING PIVOT IS CENTRE OF BUOYANCY, OUTBOARD OF HULL CENTRE TO REFLECT HEELED CONDITION AT 15°+/-

GRAVITY FORCE (WEIGHT OF VESSEL)

MAST BULKHEAD RESISTS BENDING ACROSS ITS WIDTH



ANTARES 44 CALCULATIONS MAST LOAD DIAGRAM CA-04-04

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