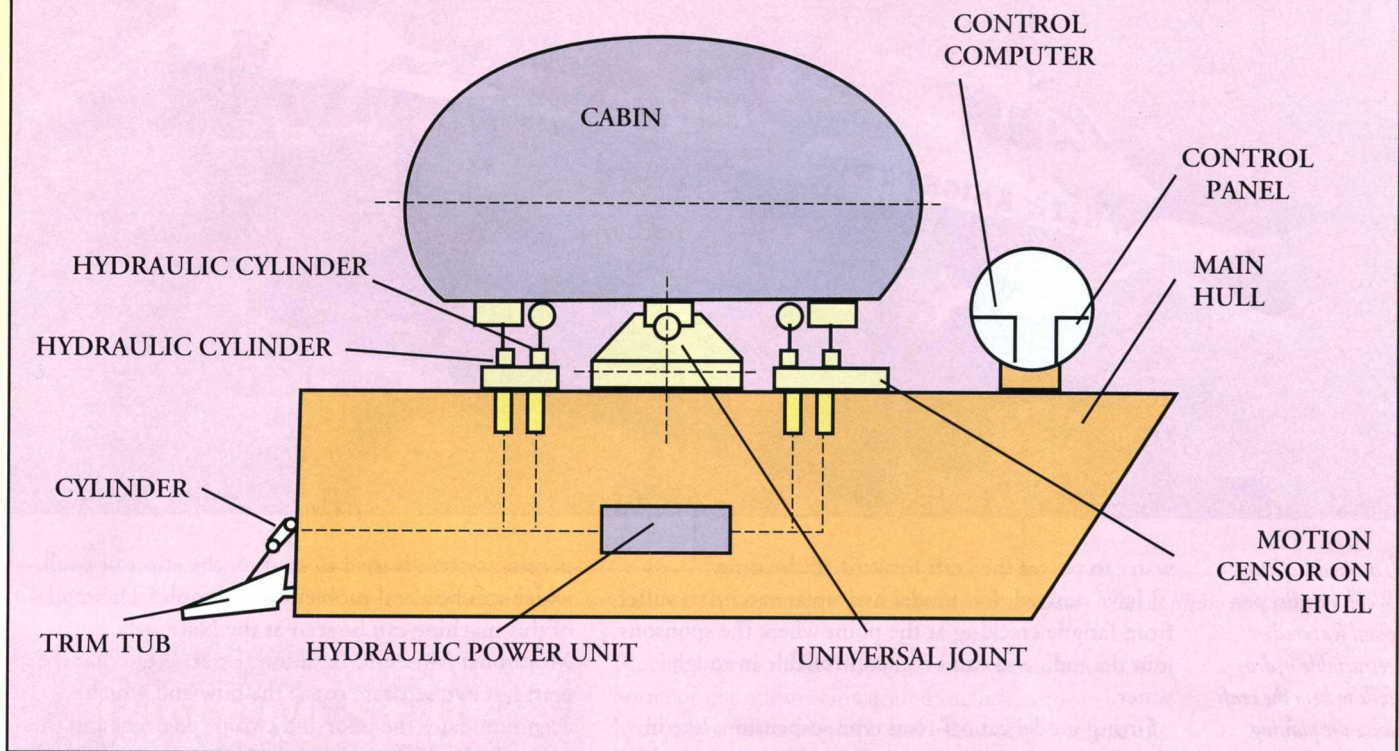


The suspension system of the Mitsubishi Hi-Stable design.



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well in some conditions and not in others. The problem is that it is difficult to control the amount of lift generated by the hull as it slams across waves, which means that it loses efficiency with every splash due to sub-optimal angles of attack, increased wetted areas and the extra energy needed to drive the whole weight of the boat up and over the disturbance. Even the smallest ripples deflect the whole craft, and the wrong ripple in the wrong place can spell disaster. A suspension system would allow a boat to ride across waves without such a loss of efficiency, since only the lightweight planing surfaces would be deflected, while the rest of the boat remains stable.

From the drawing board.

Sketch 1 shows a sequence of frames (1 - 4) depicting typical behaviour of a monohull as it passes a wave. Note how the wetted area increases in (2) which causes drag and slows the craft. The boat then has to drive up the wave (3), which uses more energy. It may become airborne (4) leaving the propeller out of the water resulting in loss of thrust. The energy used to lift the boat from the level of its centre of gravity in

(1) to (4) is lost. A similar sequence (5 - 8) shows how a conceptual boat fitted with soft suspension remains level. The suspension system smooths out the waves without lifting the boat and the propeller stays in the



Craig O'Neill's i/c powered waterski 'Bat Boat' shows what is possible if you dare let your imagination go!