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FISHING INDUSTRY RESEARCH TRUST ACCOUNT

FOR THE YEAR JULY 1ST 1982 - JUNE 30TH 1983

IMPROVED METHOD AND APPARATUS FOR FISHING

* PHOTOS ENCLOSED

ALASTAIR WOOD

FIRTA PROGRESS REPORT
NOVEMBER, 1982
A.C.C WOOD.

I am writing to report progress on my FIRTA project for 1982-3, namely to develop a remote-controlled fishing craft suitable for operation in heavy surf.

After learning in May, 1982, that my FIRTA grant application had been successful I approached the Secretary requesting that an entirely new boat be developed under the conditions of the grant. This was a result of further practical surf tests with the existing twin-hulled craft after the FIRTA application had been lodged. This request was granted as the basic aims of the project were not to be altered.

On the strength of the grant I created a new bank account - A.C.C. WOOD FISHING ACCOUNT with an overdraft of $4,000.00. I then had a series of meetings and talks with a number of relevant experts. They were shown the existing boat, the proposed area of operation, namely Younghusband Peninsula, at the Mouth of the River Murray and the fishing method that I wanted to use. These people included:-

Mr. Phill Curran, Fremantle, Naval Architect and Commercial Boat Designer.

Mr. Kel Steinman, Melbourne, Naval Architect and Designer of my existing twin-hulled craft.

Mr. Bob Bruce, Victor Harbour, president Port Elliott and S.A. S.L.S.C. and authority on jet rescue craft.

Mr. Geoff Gowing, Adelaide, National Power Boat Officer.

Mr. Alan Wright, formerly N.Z. and current S.A. agent of Hamilton Jets (N.Z.).

Mr. Tony Markowski, Adelaide, Qualified Electronics Technician.

As a result of these meetings the enclosed Drawings were prepared by me. It had been conclusively decided that aluminium provided the most suitable material for the construction of an unusually shaped 'one-off' boat such as the one proposed. Accordingly after further talks and two firm quotations, I decided to give the job to Alufarm Products, Goolwa, S.A.

EXISTING CRAFT MAY 1982

NOTE:

1. TWIN HULL.
2. EXPOSED MECHANICAL AND ELECTRONIC GEAR UNDER RED AND WHITE CANOPY.
3. EXPOSED RECEIVER ON ALUMINIUM MAST.
4. GEAR STOWED FORWARD (TRIM) IN BLUE MESH-COVERED CHUTE.
5. CLUMSY AND BULKY ENCLOSED NET CHUTE, TO FEED GEAR OVER STERN.
6. LIGHT SURF CONDITIONS.

General Side Views of Remote-Controlled Net Boat. Goolwa Oct. 1982

Note:

1. Protected dash board with all necessary instruments.

2. Nose shape to 'cleave' large waves.

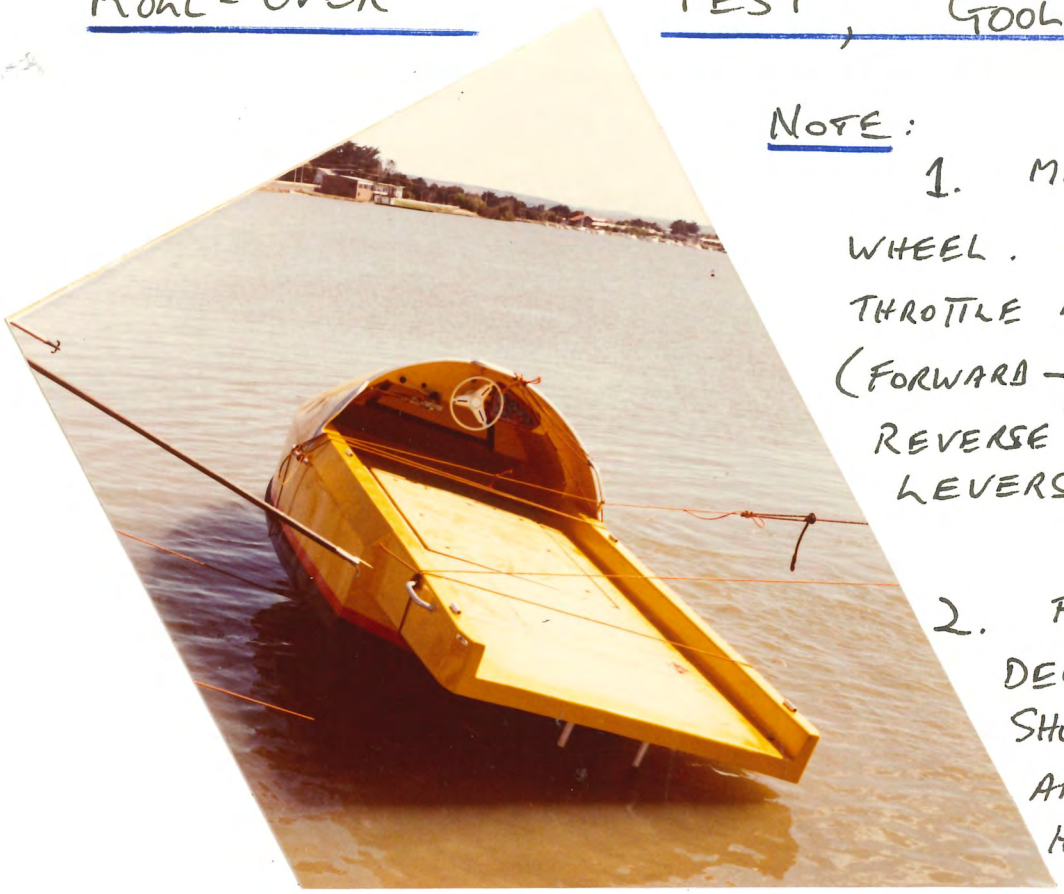
Construction began in June and the basic boat, fitted out to be manually controlled was finished and launched in the River Murray approximately seven weeks later. During construction aluminium allowed us excellent flexibility; for example an angle or curve could be added, looked at and discussed and then altered if not suitable. This could not have been done in the case of a timber boat or one built of fibreglass from a mould.

Since then a series of tests have been done with the boat in still water and in surf ranging in size from light to heavy. One of the aims of the project is ultimately to have a craft with an interchangeable system of controls namely fully remote, fully manual and a manual operation using the electronics to control the craft. Mr. Tony Markowski has been working to perfect these systems since June.

In order to fully understand the conditions the craft will fish under it is necessary that I gain a fair level of competence in manually controlling it in surf. To do this I have had the continuing assistance of Mr. Geoff Gowing and the members of the Port Elliott S.L.S.C. which has proved of great value. Several of the enclosed photos show a roll-over of the boat at Goolwa. This was a controlled test to prove the effectiveness of the various sealed chambers and breathers and the general upside-down buoyancy of the craft. This was, in my opinion, a most valuable test as it indicated a series of minor faults in the boat that have since been rectified. Without this test a surf roll-over would have been 'fatal'. Bear in mind that due to the extremely severe conditions under which the boat will operate we have built, as far as possible, a craft that will survive a roll-over in the surf and will be operational almost immediately afterwards. This incorporates three fully sealed chambers in the craft, nose, engine compartment and stern overhang. All gear including radio and mechanical will be contained in one of these compartments (compare this to the previous craft where all gear was on deck and suffered greatly in the event of a roll-over).

One of the tests currently underway is the running of gill nets off the craft in still water. To the basic craft a 'verandah' and a mesh-enclosed canopy are fitted (see photo). The nets are folded and stowed in the chamber under the nose, on top several hundred metres of 7mm. rope is coiled carefully.

ROLL-OVER TEST, GOOLWA OCT. '82



NOTE:

1. MANUAL STEERING WHEEL. MANUAL THROTTLE AND GEAR (FORWARD – NEUTRAL – REVERSE) SELECTION LEVERS.

2. FULLY FLUSH DECKING, SHOWING ENGINE AND JET HATCHES, LEADING INTO NET CHAMBER.

3. SEALED DECK OVERHANG, PROVIDING STERN BUOYANCY WHEN UPSIDE DOWN.

(2)

ROLL-OVER TEST, GOOLWA OCT '82.

NOTE:

1. JET PROTECTION BARS.

2. GOOD STERN BUOYANCY DUE TO FLOTATION OF OVER HANG.

The actual fishing method involves the end of this rope being left on or near the shore, the operator then climbs some handy vantage point and guides the craft out through the surf. As it goes forward it is paying the line into the water, until a point is reached somewhere just beyond the surf line where the rope will run out and will then pull the nets out of the chamber, under the thick rubber flap along the non-slip rubber decking and into the water. Once done the craft returns to shore and the nets, controlled from the shore via the rope are free to move with the currents for up to four hours. They are then retrieved from the shore.

To enable a direct and efficient steering system using the electronic controls the craft was fitted with a 'Hydrive' hydraulic system. The original Teleflex Cable system has been retained giving an interchangeable alternative.

At present the craft, having successfully undergone these tests is in Adelaide and is being fitted with the electronic remote control equipment. Approximately 60% of this has been done successfully. I estimate that it will be entirely installed and ready for testing by the end of the year.

As a vital part of the project I am having made by OPSM in SYDNEY a specially designed pair of mini binoculars which will be mounted in a pair of conventional spectacle frames. This will allow me to keep meaningful track of the craft when it is a long way away and yet allow me the use of both hands with which I will hold and operate the transmitter.

When these two stages have been attained, namely the craft is fully controllable by manual and remote means and the binoculars are finished I will then undertake lengthy still water trials in the sea at Victor Harbour. When these have been successfully completed I will take the craft into small surf in the vicinity of Middleton, S.A. in conjunction with the Port Elliott S.L.S.C.'s jet boat and do further manoeuvres. The purpose of these and the still water trials is to become fully expert at controlling a very small, distant object moving at different speeds and directions in relation to the operator. At this stage I envisage setting up a type of obstacle course with fishing buoys around which the craft will be sent at different speeds. Already as a result of sea and surf tests the most favourable speed for running gear has been determined at 2,000 r.p.m.

Only when these tests have been successful will nets be run off, firstly in light conditions around Middleton and then progressing to heavier surf nearer the Murray Mouth. When the method has been actually practiced and used for fishing successfully, I will then turn my attention to adapting it to other similar environments. There are many coastal areas around Australia where heavy surf conditions that exist at the Murray Mouth occur. Among the methods that could be looked at are, ring netting and seining off the beach, longlining, which may be suitable in areas where nets would snag on reefs etc., where quite a number of baited hooks could be easily runn off through inaccessible waters. Also in deep water operation I would like to look at the possibility of seining fast-moving school fish (e.g. skipjack tuna) using such a craft controlled from a helicopter. Not having any experience in these fisheries I would have to consult other people and discuss its potential with them.

In addition to these possible adaptations to other fisheries and other methods there are a number of refinements and improvements that could be made to improve the current craft. These include minor changes in shape and size with a slightly different layout. The breathing apparatus and method could also be looked at. In the event of a worthwhile demand for the craft I would like to look at the possibility of modular (kit form) construction which would greatly reduce the cost.After a great amount of intense work to develop a reliable electronic control system I would like to be able to spend more time and money to develop it to a stage where it could be almost 'mass-produced'. I believe it has a real future in the fishing industry in all sorts of mechanical control situations. I further believe that this work is necessary to enable ordinary fishermen and electronic technicians to set-up and maintain this sort of system.

There are many surf bound beaches around the country which are completely inaccessible to all forms of conventional commercial fishing, especially netting. The proposed craft will allow the operator to position different types of gear (e.g. gill, seine or ring nets or longlining) at a precise spot, inside or outside the surf. Schooling fish could be more effectively encircled when the operator maintains an elevated position throughout the operation.

In view of the above I request that funds as set out below are made available for Year 2 on this project.

	YEAR 1	YEAR 2
Salaries and Wages		
A. WOOD	$15,500	$13,500
A. MARKOWSKI	1,500	3,500
K. STEINMAN	800	-
CASUAL	1,000	-
OTHER (NOT SPECIFIABLE)	-	4,500
Total Salaries and Wages	$ 18,800	$ 21,500
Operating Expenses		
Travelling	2,200	3,300
Boat and Equipment Hire	500	500
Fishing Gear	2,100	1,500
Total Operating Expenses	$ 4,800	$ 5,300
Capital Items		
IMPROVEMENTS		
Renew and redesign Trailer	850	-
Rebuild Boat Shed	500	-
PLANT		
Rebuild Aluminium Framework	500	-
Redesign Shape and Layout of Craft	-	2,500
Development of Boat Construction Mould	-	3,500
EQUIPMENT		
Replace 25 H.P. Mariner Outboard	1,550	-
Total Capital Items	3,400	6,000
GROSS TOTAL COST	$ 27,000	$ 32,800

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NOVEMBER, 1982
A.C.C. WOOD.

SPECIFICATIONS OF REMOTE-CONTROLLED FISHING CRAFT.

TYPE OF VESSEL: Remote-Controlled net launcher.
HOME PORT: Victor Harbour, S.A.
BUILDER: Alufarm Products, Goolwa, S.A.
DESIGNER: A. Wood & Associates.
L.O.A.: 22' 3"
BEAM: 6' 11"
DRAUGHT: 9"
HULL CONSTRUCTION MATERIAL: 3 & 4mm Marine grade Aluminium.
ENGINE: Falcon 250 cu. in. Cross Flow Alloy Head.
PROPULSION: Hamilton 770 2 Stage Jet.
STEERING: A. Hydrive Hydraulics - B. Teleflex Cable Drive.FUEL CAPACITY: 16 gall.
FUEL CONSUMPTION: At 3,000 r.p.m. - $2\frac{1}{2}$-3 gall./Hr.
MAXIMUM SPEED: 39 knots (light)
FISHING SPEED: 2,000 r.p.m. (Gear Running Speed)
GROSS WEIGHT (UNLOADED): 1,900 lbs. (approx.)
ELECTRONICS: A.V.J.M. Full Radio Control System.

BASIC HULL DESIGN + DIMENSIONS

210

1:26

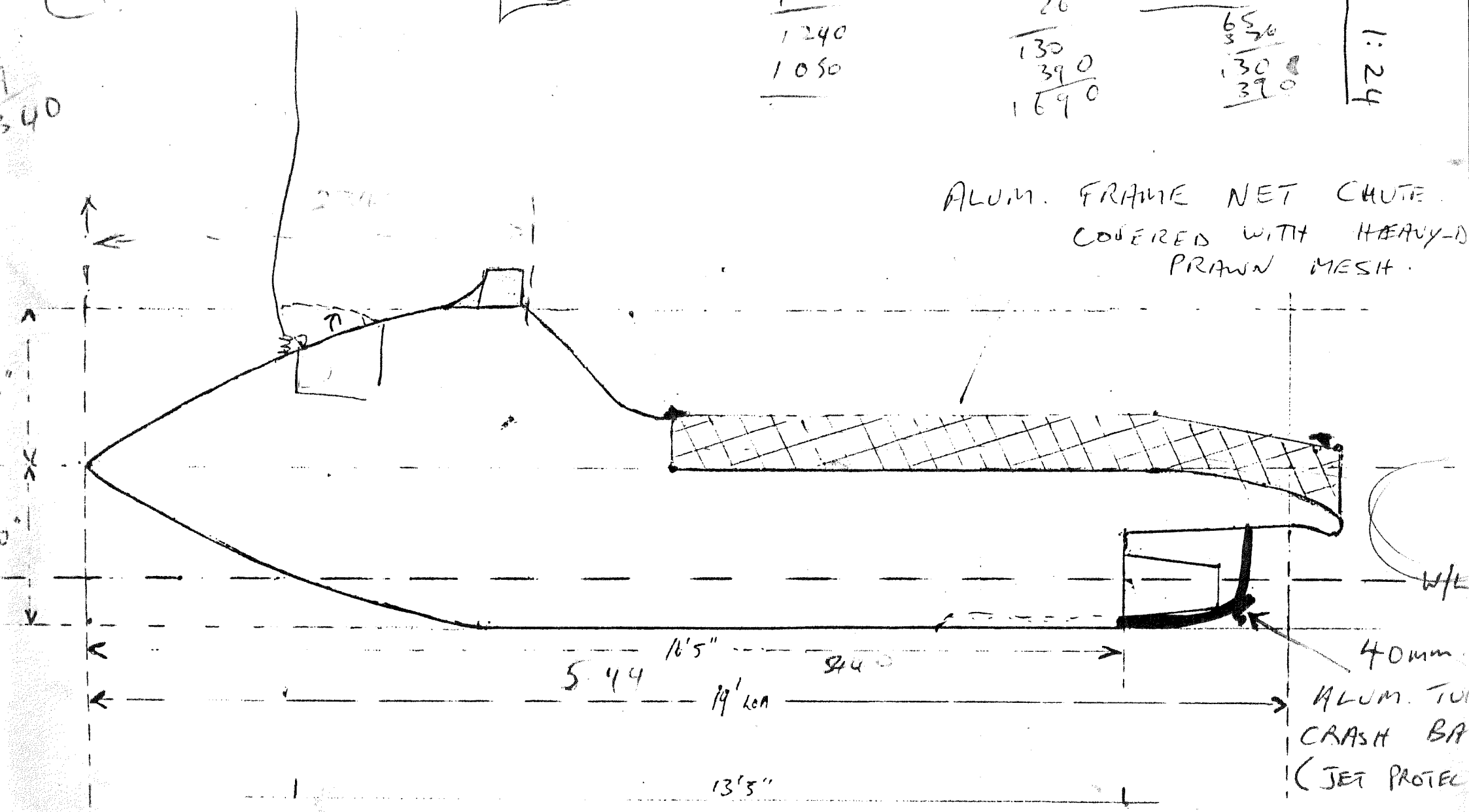
$5,500

210) 5544 (25
420
1240
1050

65
26
130
390
1690

5,500
2000
65
26
130
390

Scale: 1:24

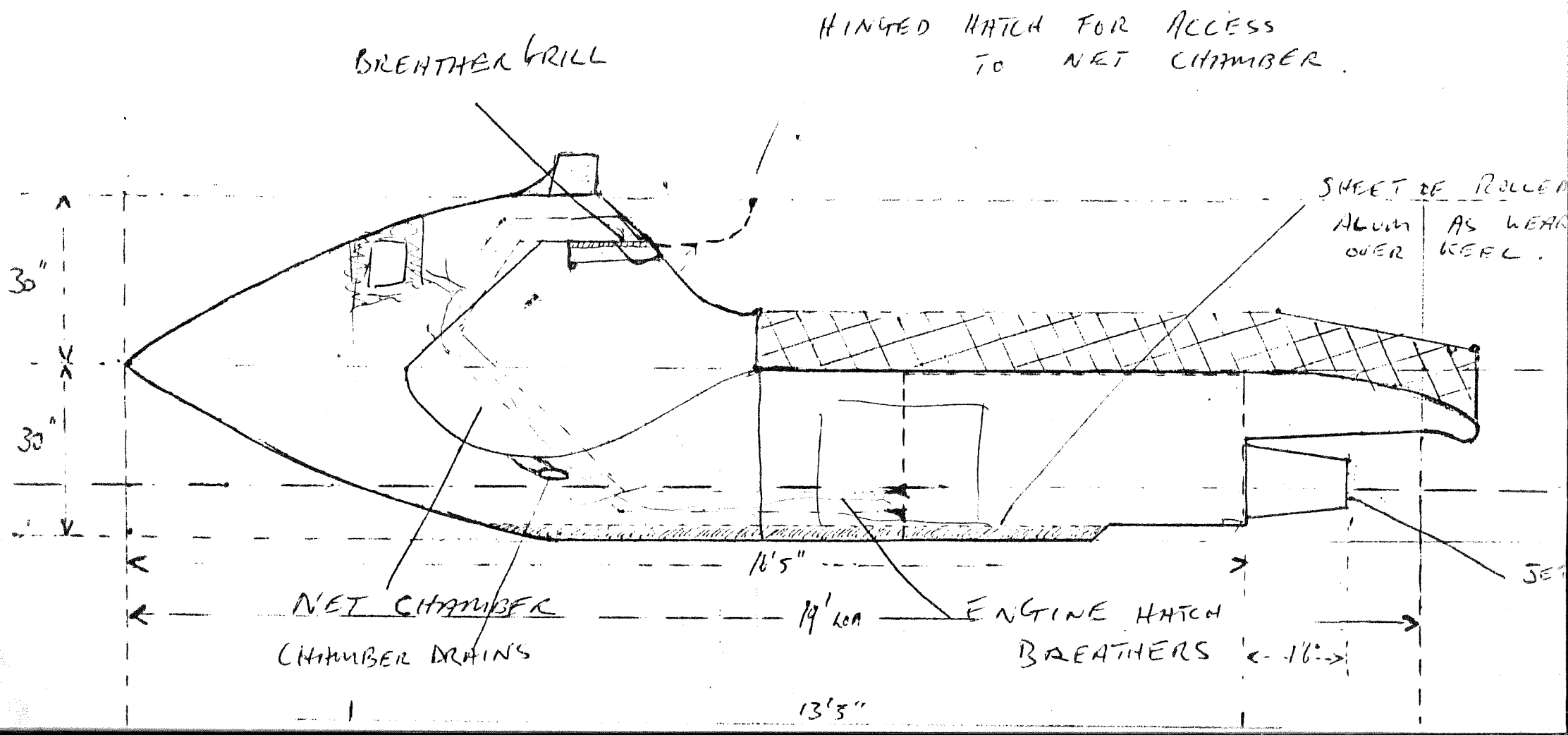


TOP + DECKING: 3mm. ALUM. SHEET.

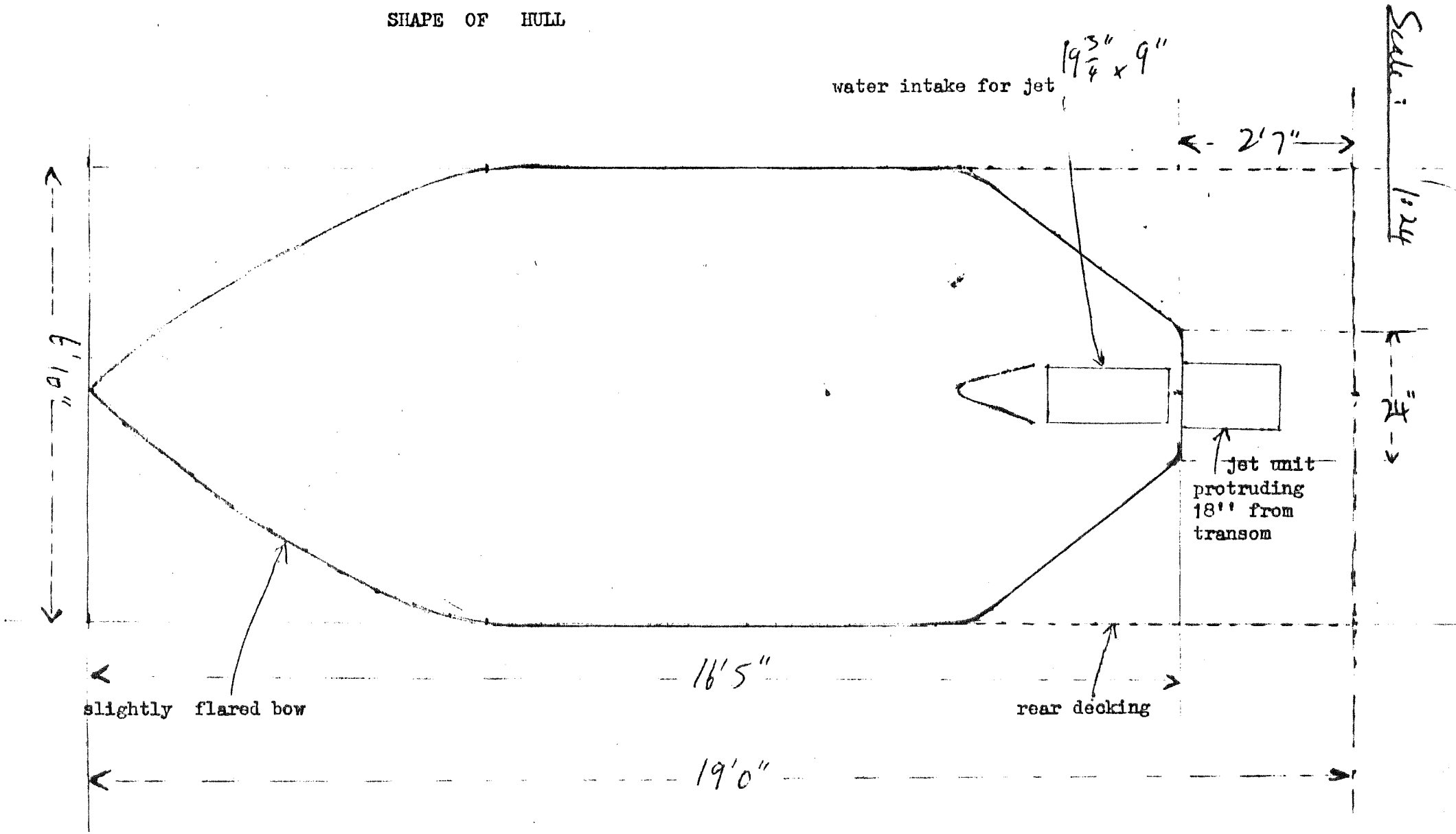
DISPLACEMENT 31.9 cu ft.

17", 12" x 12'

Scale: 1:24

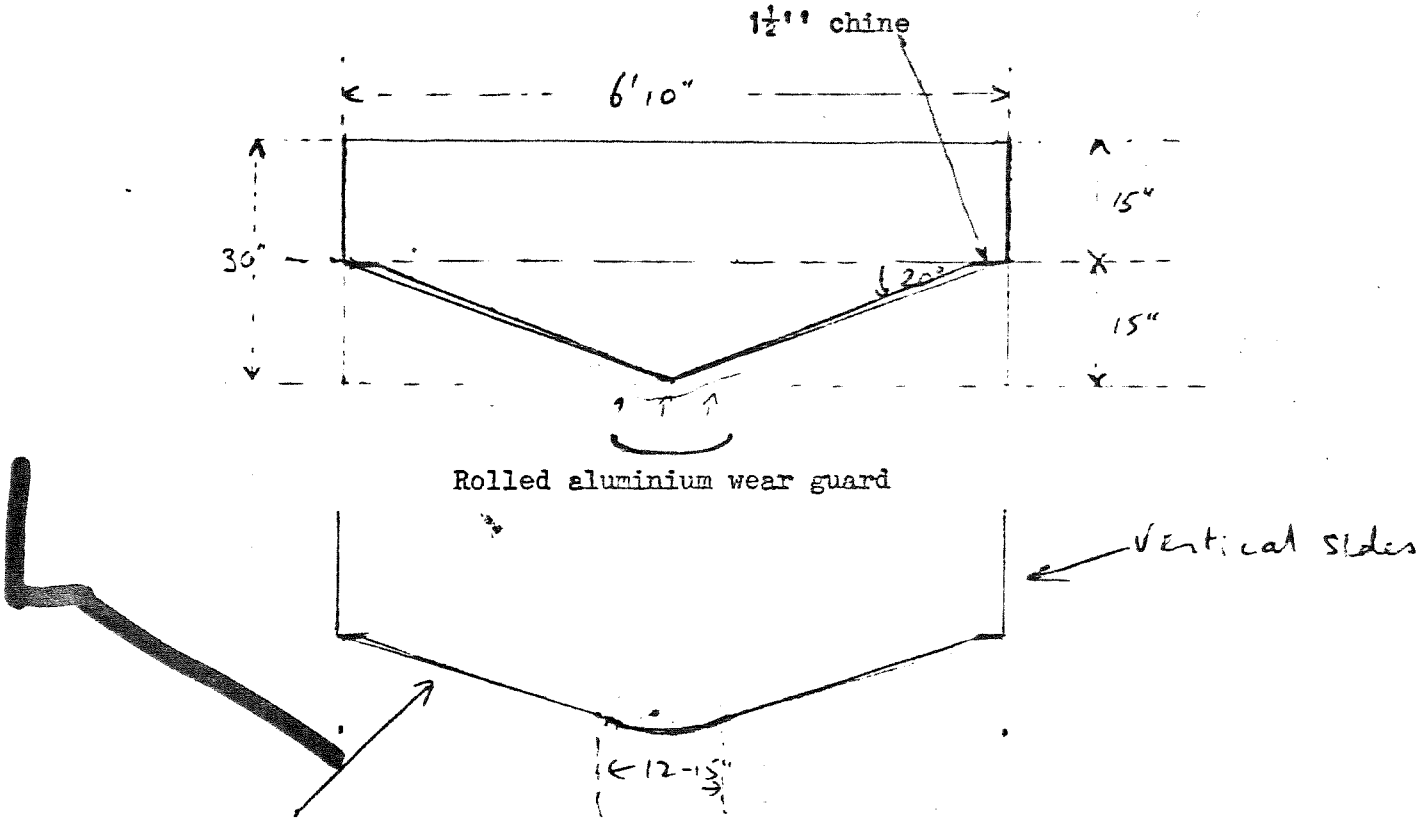


SHAPE OF HULL

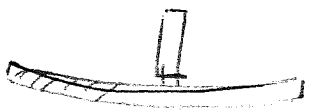


CROSS SECTION OF HULL TO BE BUILT FROM @ 4 MM ALUMINIUM

Scale : 1:24



Sides to be flat with 1½ inch chine. Welded into keel. Bottom to be rounded out by welding along keel a rolled section of aluminium, 2½ - 3 mm thick to form an effective wear guard. When fitted this piece will be 12 - 15 inches wide.



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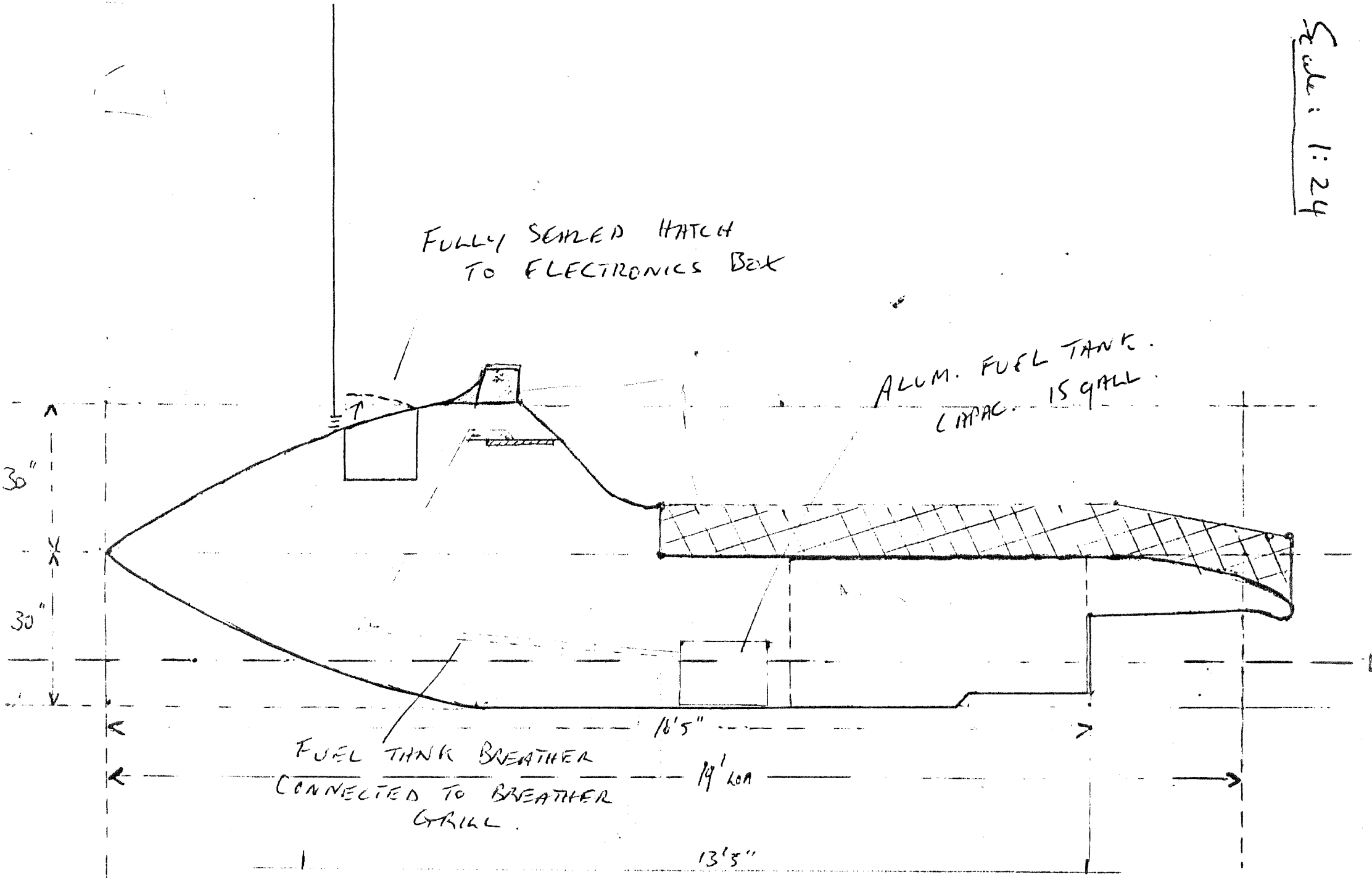
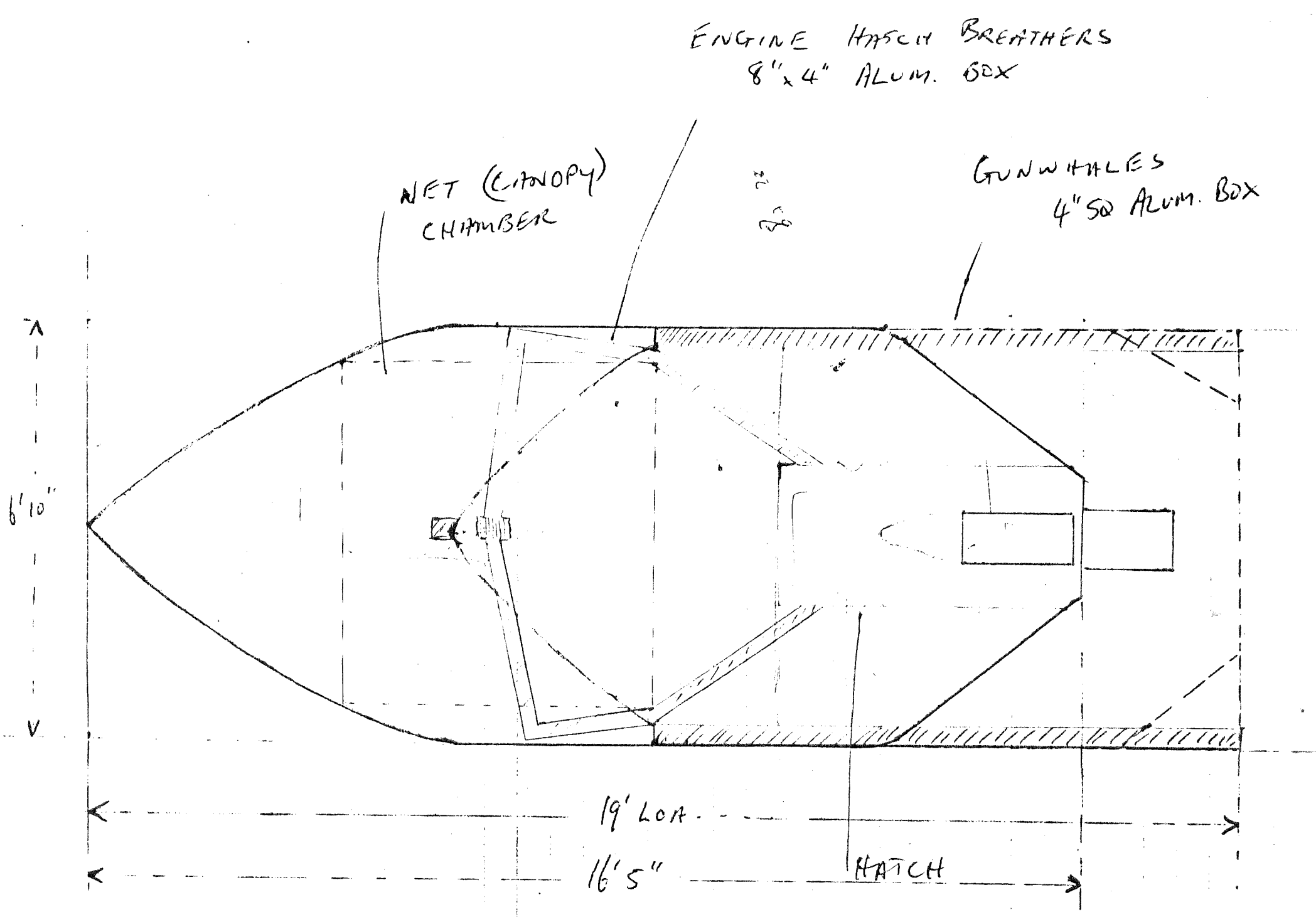
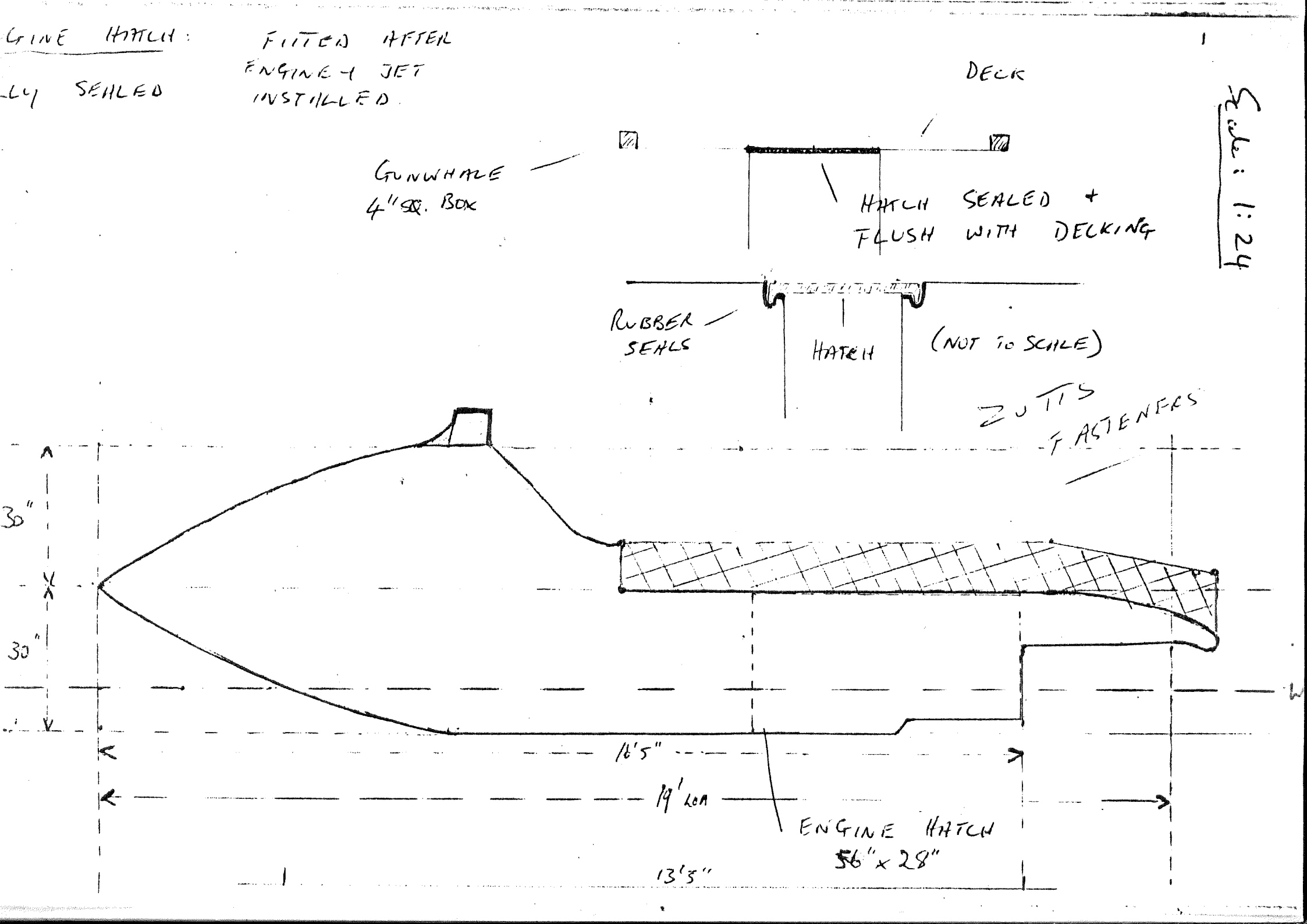

FULLY SEALED HATCH
TO ELECTRONICS BOX
ALUM. FUEL TANK.
CAPAC. 15 GALL
30"
30"
16'5"
FUEL TANK BREATHER
CONNECTED TO BREATHER
GRILL.
19' LOA
13'5"


ENGINE HATCH BREATHERS
8" x 4" ALUM. BOX
NET (CANOPY)
CHAMBER
GUNWHALES
4" SQ ALUM. BOX
6'10"
19' LOA
16'5"
HATCH

GINE HATCH: FITTED AFTER ENGINE + JET INSTALLED

LY SEALED



KEEL COOLING.

ALUM. BOXES. FORMED AS PART OF KEEL. 3 @ 1½" DEPTH × 8"-12" WIDTH × 4½' LENGTH

2½ MM ALUM PLATE.