



Accident Report
Arrow II
Machinery Failure at Picton
on 3 January 2004



REPORT NO.: 04 3388

VESSEL NAME: *ARROW II*

Casualty Details:

Date of Casualty:	31 January 2004
Time of Casualty:	2030 hours New Zealand Daylight Time (NZDT)
Casualty Type:	Machinery Failure
Casualty Location:	Picton
Investigator:	Domonic Venz



REPORT NO.: 04 3388

VESSEL NAME: *ARROW II*

Vessel Details:

Vessel Name:	<i>Arrow II</i>
Vessel Category:	Water Taxi
Registered Length (m):	8.4
Tonnage:	6
Official Number:	105433
Flag:	New Zealand
Owner's Name:	Arrow Water Taxis



SUMMARY

The Master installed the gear/throttle mechanism incorrectly resulting in the foundering of the vessel shortly after start up.



KEY EVENTS

- 1.1 On 3 January 2004 the water taxi **Arrow II** was operating in the Marlborough Sounds. During the afternoon, after dropping off passengers at Erie Bay in Tory Channel, the combined gear and throttle mechanism failed in the wheelhouse. The Master made temporary repairs by manually engaging the gearbox directly in the engine room.
- 1.2 The vessel successfully returned to the berth in Picton.
- 1.3 The Master and his father (the owner of the company) then acquired a second hand gear /throttle mechanism, similar to the original, and started to fit this in the wheelhouse.
- 1.4 As this was nearing completion, the father was called away to operate another water taxi. This left the Master to finish the final assembly.
- 1.5 Shortly before 2030 hours, the Master returned to the vessel to do a trip. He started the main engine and immediately the gearbox went ahead and the engine revolutions went to maximum. He then attempted to use the electric shut off but found this did not work. The vessel parted the stern line and was starting to force itself via the bowline vertically up the wharf. The Master pulled the emergency fuel shut off valve as he exited the vessel onto the wharf alongside.
- 1.6 By 2030 hours, the vessel had forced itself into an almost inverted position and ran for a short period upside down while the remaining fuel was used. The vessel then settled stern first onto the seabed, still made fast to the wharf by the bow line.



KEY CONDITIONS

- 2.1 The vessel is 8.40-metre aluminum vessel of 6.0 gross tonnes and was built in 1990. The 136 kW main engine drive is via a stern leg. It has a valid Safe Ship Management Certificate (SSM) with SGS M&I that expires on 30 September 2007. The limits were set at Nelson Marlborough Inshore and Enclosed.
- 2.2 The vessel is owned by Arrow Water Taxis of Picton.
- 2.3 The Master, aged 23 (the owner's son), was also of Picton. He holds a Local Launch Operators Certificate of Competency (LLO), issued on 16 July 2003 and endorsed for **Arrow I** and **II**.
- 2.4 The vessel was in its usual berth made fast using a bow and stern line.



CONTRIBUTING FACTORS

N.B These are not listed in order of importance

- 3.1 An electrical switch failed to operate as designed, so that the main engine could not be started when engaged in gear.
- 3.2 The stop switch also failed while the main engine was running at maximum revolutions.
- 3.3 The stern line failed allowing the vessel to ride up the wharf.

CAUSE

Human Factor

<input type="checkbox"/> Failure to comply with regulations	<input type="checkbox"/> Drugs & Alcohol	<input type="checkbox"/> Overloading
<input type="checkbox"/> Failure to obtain ships position or course	<input type="checkbox"/> Fatigue	<input type="checkbox"/> Physiological
<input type="checkbox"/> Improper watchkeeping or lookout	<input type="checkbox"/> Lack of knowledge	<input type="checkbox"/> Ship Handling
<input type="checkbox"/> Misconduct/Negligence	<input type="checkbox"/> Error of judgement	<input type="checkbox"/> Other . . .

Environmental Factor

<input type="checkbox"/> Adverse weather	<input type="checkbox"/> Debris	<input type="checkbox"/> Ice	<input type="checkbox"/> Navigation hazard
<input type="checkbox"/> Adverse current	<input type="checkbox"/> Submerged object	<input type="checkbox"/> Lightning	<input type="checkbox"/> Other . . .

Technical Factor

<input type="checkbox"/> Structural failure	<input type="checkbox"/> Wear & tear	<input type="checkbox"/> Steering failure
<input type="checkbox"/> Mechanical failure	<input type="checkbox"/> Improper welding	<input type="checkbox"/> Inadequate firefighting/lifesaving
<input checked="" type="checkbox"/> Electrical failure	<input type="checkbox"/> Inadequate maintenance	<input type="checkbox"/> Insufficient fuel
<input type="checkbox"/> Corrosion	<input type="checkbox"/> Inadequate stability	<input type="checkbox"/> Other . . .

- 4.1 The Master installed gear/throttle mechanism incorrectly resulting in the foundering of the vessel shortly after start up.



OPINONS & RECOMMENDATIONS

- 5.1 The owners have removed the vessel from service and are in the process of installing a new engine and leg and associated electrical systems. This will include gear/ throttle mechanisms.

- 5.2 It is recommended that in future any modifications or repairs be carried out by a qualified service technician and thoroughly tested before starting the main engine.

