National Transportation Safety Board

Marine Accident Brief

Fire aboard and Subsequent Sinking of Fishing Vessel *Master D*

Accident type	Fire/Explosion	**No.** DCA18FM037
Vessel name	*Master D*	
Location	Gulf of Mexico, 45 miles southeast of South Padre Island, Texas 26°07.82' N, 096°27.41' W	
Date	August 31, 2018	
Time	0030 central daylight time (coordinated universal time – 5 hours)	
Injuries	None reported	
Property damage	>$162,000 est.	
Environmental damage	Oil sheen observed	
Weather	Clear, visibility 10 miles, winds southeast 15 mph, air temperature 80°F, water temperature 70°F	
Waterway information	Gulf of Mexico, open water	

About 0030 local time on August 31, 2018, the fishing vessel *Master D* was transiting with three crewmembers in the Gulf of Mexico 45 miles southeast of South Padre Island, Texas, when a fire in the engine room was discovered.[1] After unsuccessfully trying to extinguish the fire, the crew abandoned the vessel without injury. The fire continued to burn until the vessel sank the next day. An oil sheen approximately 400 yards by 1 mile was visible in the water after the sinking. The estimated property damage exceeded $162,000.

***Master D* burning on the day after the crew rescue. (Photo by Coast Guard)**

[1] All miles in this report are nautical miles (1.15 statute miles).

Location where the engine room fire ignited on the *Master D* off the coast of Texas near South Padre Island, as identified by a red triangle. (Map data from Google Maps)

Background

The *Master D* was a 68-foot-long, single-propeller commercial fishing vessel powered by a Caterpillar 3408 diesel engine capable of producing 402 horsepower. Previously named the *Texas Ann*, it was built in 1973 by David Shipbuilding in Freeport, Texas. The steel-hulled vessel had a layout typical of a shrimper operating in the Gulf of Mexico. Above-deck structures included a wheelhouse, crew quarters, and an internal access to the engine room. The spaces within the deckhouse were separated by wooden frames covered by wood paneling. Deck gear included a boom, outriggers, winch, and nets for trawling. Below-deck compartments from forward to aft included a forepeak, an engine room, a fish hold, and a lazarette (which contained the rudder post and steering system).

The crew of the *Master D* consisted of a captain and two deckhands. One served as the winchman and the other as the header, who assisted the winchman with deploying and retrieving the net. The captain had served on the vessel for 5 years; the two deckhands were sailing on board for the first time. The captain would normally navigate the boat while trawling, and the deckhands sorted, bagged, and stowed the shrimp.

Accident Events

On August 31, about 2100, while the vessel was engaged in shrimping, the captain directed the two deckhands to retrieve the sample net, which was used to help them determine the potential size of the catch. As they were attempting to pull in the net, the electrically powered winch used to position the sample net lost power. At the same time, the crew noticed that the lights on the stern

began to dim and flicker before they too went out. When the captain and the header investigated the problem, they found that the electrical breakers to the winch and lights in the engine room had tripped. Upon resetting the breakers, the crew was able to retrieve the sample net using the winch. However, the lights in the stern did not turn back on until an hour later. Due to the electrical problems, the captain decided not to redeploy the sample net. After the net was secured, the captain remained at the helm, and the two deckhands went to bed, intending to return to work a few hours later at 0100.

About 0030, while on watch, the captain noticed that electricity in the wheelhouse was lost. Assuming the breaker to the wheelhouse had tripped, he proceeded to the engine room to reset the breaker and restore power. On the way there, he encountered a burning odor. At that time, one of the deckhands woke up and also smelled a burning odor. Shortly thereafter, they heard the fire alarm for the engine room and then the generator failure alarm.

When the captain and the deckhand opened the engine room hatch, they discovered that the engine room was filled with smoke and flames. They also saw sparks being emitted from overhead cables inside the space. The captain ran to the sleeping quarters and awakened the other crewmember. He stated to investigators that the fire seemed to be coming from the area around the generator. Because the generator stopped working shortly before the fire was discovered, the crewmembers could not use the electric water pump to extinguish the fire. In addition, they could access only five of the seven portable dry-powder fire extinguishers on board; two extinguishers were stored in the engine room and could not be reached because of the heat and flames.

The crew was able to briefly decrease the intensity of the fire with the fire extinguishers, but as they were emptied the fire regained its intensity and continued to spread before a new extinguisher could be applied. While the two deckhands were trying to control the fire, the captain decided to prepare the liferaft, so that they could abandon the vessel if the fire was not extinguished. The captain also retrieved the emergency position-indicating radio beacon (EPIRB) from its mount and placed it in a bucket of water to activate the EPIRB alert, which was received by the US Coast Guard District 8 Command Center at 0150.

After all five fire extinguishers were expended, the captain and the deckhands recognized that they had to abandon ship. However, the expanding fire and billowing smoke in the living quarters of the vessel prevented them from retrieving the lifejackets. The fire and smoke also prevented them from entering the wheelhouse to broadcast a Mayday call. The crewmembers then moved the liferaft from the top of the wheelhouse to the deck. They also removed the fill covers from the fuel tanks as a measure they believed would prevent the tanks from exploding from the heat of the fire. Next, they made their way to the stern and put the liferaft into the water, inflated it, and abandoned the vessel, approximately an hour after the fire was discovered.

Once in the liferaft, the crewmembers started to set off flares in hopes that other vessels in the area would respond. Although they tried to maneuver the liferaft away from the burning vessel, the current prevented them from getting far from the *Master D*.

For about 2 hours in the darkness, the crewmembers tried to signal other vessels they thought were in the area but were not successful in making contact. After seeing a spotlight of a vessel on the horizon, one of the crewmembers lit off another parachute flare. The Coast Guard cutter *Coho*, which had been dispatched to the area in response to the EPIRB alert received by the District 8 Command Center, turned toward them and sped to the scene. At 0330, the crewmembers were rescued and remained on board the cutter until a small boat from Station South Padre Island arrived to take them back to land.

The red parachute flare above the *Master D* seen by the Coast Guard cutter. (Photo by Coast Guard)

Although the intensity of the fire decreased following the rescue of the *Master D* crew, it continued to burn for 26 more hours, until the vessel sank at 0530 the next day in 380 feet of water. Approximately 18,000 gallons of diesel fuel and lube oil had been on board the vessel when the fire started. A 400-foot-by-1-mile oil sheen was observed on the surface.

Additional Information

Prior to the accident voyage, the captain had notified the company that there was a lubricating oil leak on a seal on the vessel's single diesel generator. The company contracted a mechanic to repair the seal while the vessel was at the dock. However, prior to departure, the captain noticed that the oil leak continued, but he thought the issue was manageable.

When the *Master D* departed the Port of Brownsville, Texas, on August 16, all fuel tanks were filled and enough supplies were on board, including 120 gallons of lube oil in the forepeak, to enable the crew to remain at sea for 45 days to catch shrimp and conduct underway maintenance of the vessel. Initially, the voyage proceeded as normal, until the winchman encountered a problem with the control levers for the mechanical winch on the aft deck, which prevented him from positioning the outriggers as well as raising and lowering the booms for the shrimp nets.

When the vessel returned to port on August 26 for repair of the malfunctioning winch, the clutching mechanism for the winch, which operated off the main diesel engine and controlled the direction of the winch, was determined to be the problem and repaired. Yet, after the *Master D* resumed shrimping on August 28, the winch became difficult to operate again due to the clutch. As a workaround, the crew would enter the engine room to engage the clutch manually by pulling the handle under the main engine, rather than on the aft deck remotely. The captain, therefore, decided to remain at sea.

The fuel oil supply valves for the main diesel engine and the generator were located in the engine room. After the fire was discovered, the valves could not be reached by the crew due to the intensity of the fire and smoke. The burning vessel's diesel engine continued to operate for about an hour after the crew departed.

Also, in the engine room were through-hull fittings below the waterline connected to flexible nonmetallic hoses providing seawater to the vessel's machinery.

***Master D* on fire while the crew is rescued by the Coast Guard. (Photo by Coast Guard)**

Analysis

Considering that prior to the loss of power, the captain, who was awake at the time, did not hear anything unusual from the engine room, the propulsion engine or the generator's engine most likely did not experience a mechanical failure or a crankcase explosion. The loss of electrical power to the wheelhouse and a burning odor was the first indication that something was wrong. Investigators determined that the previous electrical system breaker trips (winch and lighting) were not related to the initial fire because the intensity of the fire and smoke was too large when it was discovered. Additionally, the main engine continued to operate for an hour after the fire was discovered, indicating that both its fuel supply remained adequate and its lube oil system was operating properly.

Based on the location of the flames seen by the captain, along with the intensity of the fire and smoke when it was discovered shortly after the power went out on the bridge, the fire most likely started at the generator. As noted by the captain, the generator had a lube oil leak, which was not properly repaired prior to the accident voyage. Although the source of the ignition could not be determined, there would have been several hot surfaces around both the operating main engine and the generator to ignite a fuel or lube oil leak from either engine. The final loss of power was most likely a result of fire damage to the generator and/or the electrical distribution system near it.

While initial efforts to extinguish the fire by the crew were partially successful, the fire continued to return and expand after each fire extinguisher was emptied and before a new one could be applied. Thus, the fire had a steady source of material or fuel to support combustion. Depriving the fire of fuel, especially during the early stages of the incident, could have prevented

further ignition of flammable materials and increased the likelihood of saving the vessel. However, because the vessel was not fitted with fuel shutoff valves that were remotely operable, the crew had no way of securing the fuel supply to the diesel engines from outside of the engine compartment once the fire expanded. The fire's expansion to the wooden frames, furniture, and dry supplies located inside the forepeak, which included 120 gallons of lube oil, provided additional fuel to sustain the fire. Even as the vessel sank, the fire continued to burn.

The cause of the vessel sinking, which occurred about 30 hours after the fire began, was assessed by investigators. Because there were no further firefighting efforts by the Coast Guard cutter or by other vessels utilizing water from firehoses, the source of the flooding of the *Master D* was not external. The destruction of the nonmetallic hoses connecting intake piping to the vessel's through-hull fittings, due to the long-term exposure to the heat of the fire, most likely resulted in the sinking of the vessel. As nonmetallic hoses failed, water would have entered the hull causing the vessel to slowly sink.

Probable Cause

The National Transportation Safety Board determines that the probable cause of the fire aboard the fishing vessel *Master D* was leaking lube oil from the diesel generator that contacted a hot engine surface and ignited. Contributing to the eventual sinking was the failure of fire-damaged nonmetallic hoses connected to through-hull fittings below the waterline.

Vessel Particulars

Vessel	*Master D*
Owner/operator	L&O Trawlers Inc
Port of registry	Brownsville, Texas
Flag	United States
Type	Fishing vessel
Year built	1973
Official/IMO number	549774
Classification society	N/A
Construction	Steel
Length	68 ft (20.8 m)
Draft	12 ft (3.7 m)
Beam/width	22 ft (6.7 m)
Gross tonnage	122
Engine power; manufacturer	Caterpillar 3408 diesel engine, 402 hp (299.7 kW)
Persons on board	3

NTSB investigators worked closely with our counterparts from Coast Guard Marine Safety Detachment Brownsville throughout this investigation.

For more details about this accident, visit www.ntsb.gov and search for NTSB accident ID DCA18FM037.

Issued: July 30, 2019