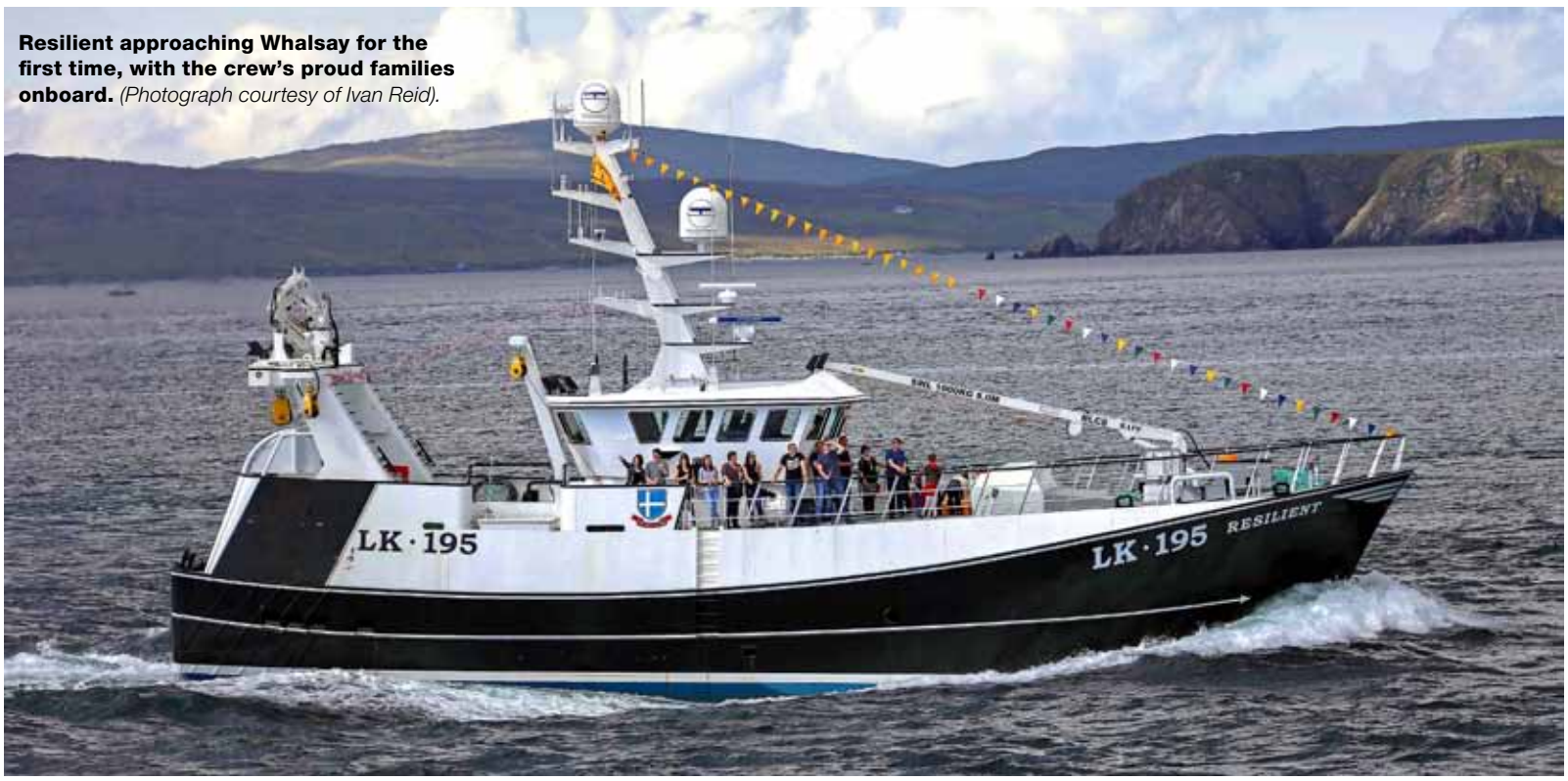
ADVANCED RESILIENT FOR WHALSAY PARTNERSHIP

PARKOL MARINE ENGINEERING 27M DUAL-PURPOSE SEINER/SINGLE-RIG TRAWLER

Hundreds of Shetland people gathered at Lerwick and Symbister harbours earlier this month to welcome home the new whitefish vessel Resilient LK 195, reports **David Linkie**



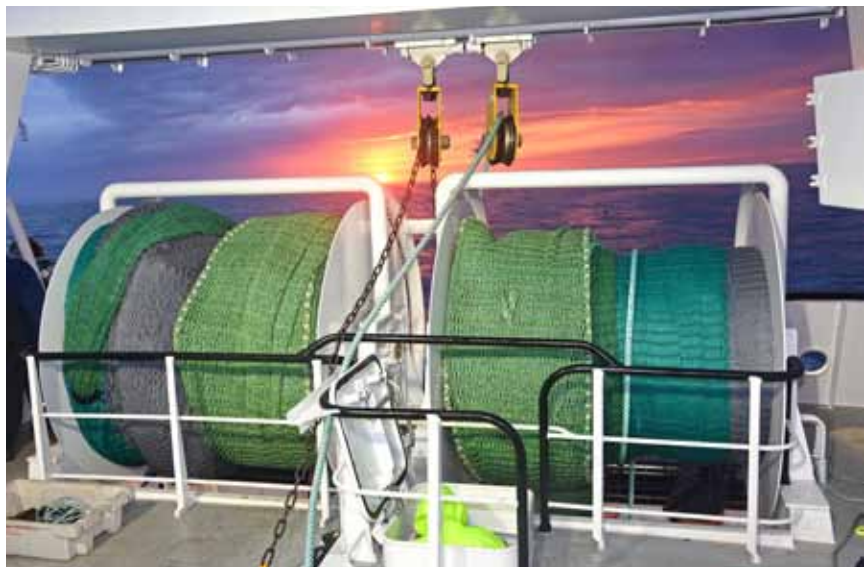
Resilient approaching Whalsay for the first time, with the crew's proud families onboard. *(Photograph courtesy of Ivan Reid).*

The level of interest generated by the arrival of Resilient also provided a timely reminder of the vitally important socio-economic benefits that the local whitefish fleet generates throughout Shetland. While the dual-purpose seiner/trawler will operate with a seven-man crew, it is worth remembering that well over 10 times that number of people, including fish processors, supply personnel, office staff and school teachers, in addition to the crew's families, will be either directly or indirectly associated with the seiner/trawler in one way or another, for years to come.

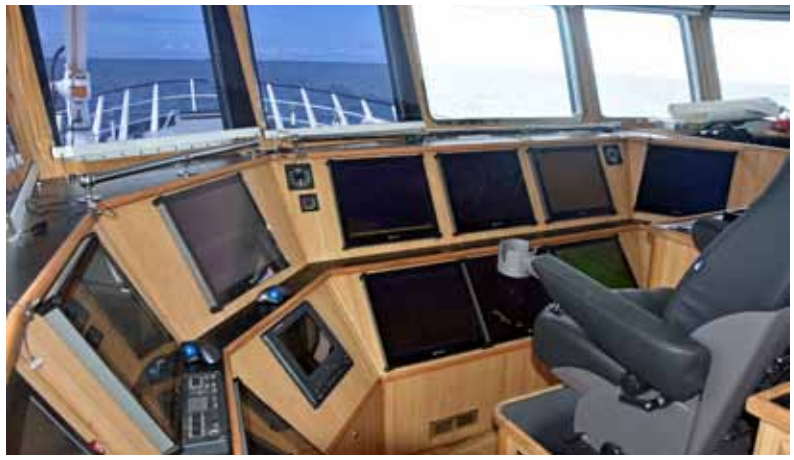
That Resilient is the first new whitefish vessel to join the Whalsay fleet for 16 years added further significance to the welcome home reception that thronged Symbister pier, when the numerous friends and family members who looked over the boat couldn't believe the high standard of finish and workmanship they saw.

Owned by Whalsay skipper Arthur Polson, together with partners Edward Jamieson, John Irvine and John Montgomery of the Resilient Fishing Company Ltd, the 27m vessel was built by Parkol Marine Engineering at Whitby.

When the partners took the decision to consolidate their business by ordering a new vessel, in opting to go down the route of a dual-purpose



Grass rope and hopper seines are worked from two split net drums positioned aft atop the shelterdeck.



The main electronics console is arranged on the portside of the wheelhouse.

General view of Resilient's well-arranged engineroom. *(Photograph courtesy of Ian Reid).*

fly-shooter/single-rig trawler to replace their previous 24m twin-rig trawler of the same name, it could be said that they took a step back in time in order to move ahead.

Some 30 years ago, when the local clean grounds were populated by traditional gadoid species, dual-purpose seiner trawlers formed the backbone of the Shetland whitefish fleet. For still unknown reasons, apart from natural cycles, these fish gradually moved onto harder bottom, as a result of which a number of skippers made the transition to either single or twin-rig trawling. Today, with healthy stocks of whitefish again abundant on the softer bottom, the wheel of natural evolution, helped by the forward-looking conservation measures fishermen have embraced in the past 15 years, has effectively turned full circle.

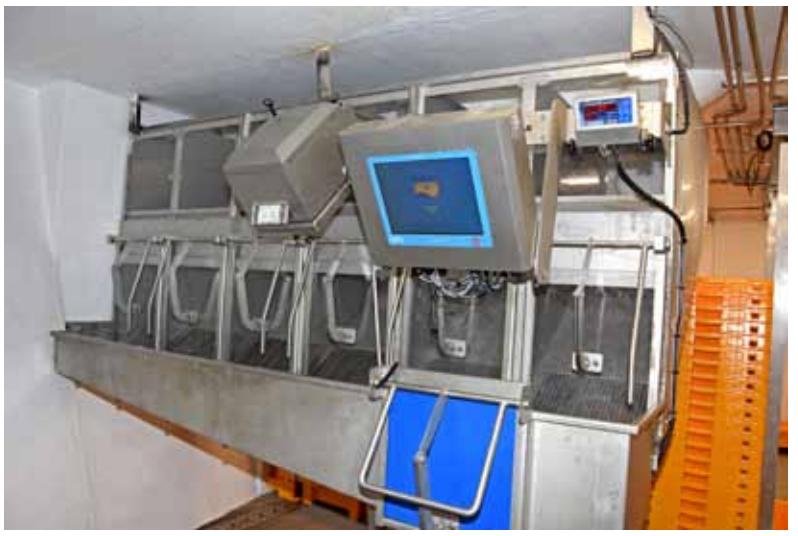
Together with crewmen Ian Reid, Brian and Steven Anderson, skipper Arthur Polson and partners expect to work 10-day trips around Shetland, during which time they will make three landings, usually into either Lerwick/Scalloway, or Cullivoe if working north.

Working through Lerwick agents LHD Ltd, and insured by British Marine, Resilient's catches will be sold electronically on the Shetland Seafood Auction.

While returning to Whitby after completing back-to-back trawling and fly-shooting trials when everything went smoothly, skipper Arthur Polson said: "We are extremely happy with the way in which Resilient performed on engine and fishing trials. With regard to fishing efficiency, ease of operation and fuel economy, the initial signs are highly encouraging and bode well for the future, although of course much more stringent challenges inevitably lie ahead.

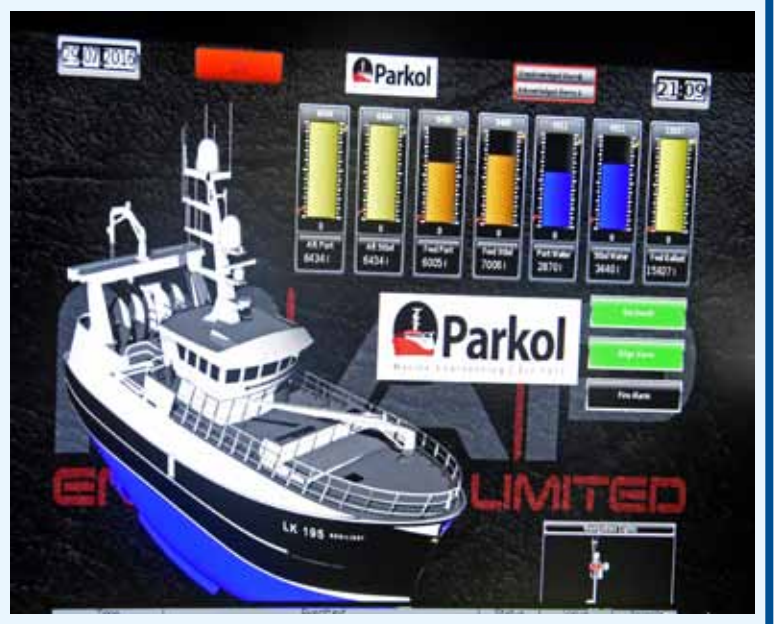
"From making the initial contact with Parkol Marine Engineering and Ian Paton (designer) it has been an absolute pleasure to work with the boatyard team, especially Jim Morrison and Andrew Oliver, who ensured that initial ideas were embraced and developed fully to make them realities. The end result is a well-deserved credit to everyone who worked on the new build, the quality of which more than fulfils our expectations."

The financial support required to build Resilient was provided by a combination of commercial loans from the Royal Bank of Scotland in Lerwick, and the



Marel electronic scales and a catch management labelling system are incorporated into the fishroom selection hoppers.

Technology enhanced safety



MAP Engineering supplied a comprehensive touch-screen vessel management and alarm system.

The owners and builders have taken every opportunity to utilise modern technology in order to maximise crew and vessel safety on Resilient.

MAP Engineering of Bournemouth supplied a customised touch-screen vessel management system that provides comprehensive coverage of all the bilge and fire alarms, navigation lights, fuel and freshwater tanks throughout Resilient.

Strategically located close to the main navigation position, the advanced system enables the crewman on watch to easily monitor vessel safety at all times.

In the unlikely event of a bilge pump failure, the system is automatically activated via the relevant high-level bilge alarm, even though all is normal in the associated compartment.

The vessel management system can also be accessed from a nominated iPad via wifi. Warning texts can also be sent to a selected mobile. These functions will be useful when Resilient is tied up between trips.

A stainless-steel-lined 10t ice locker is arranged across the fore end of the 1100-box fishroom.

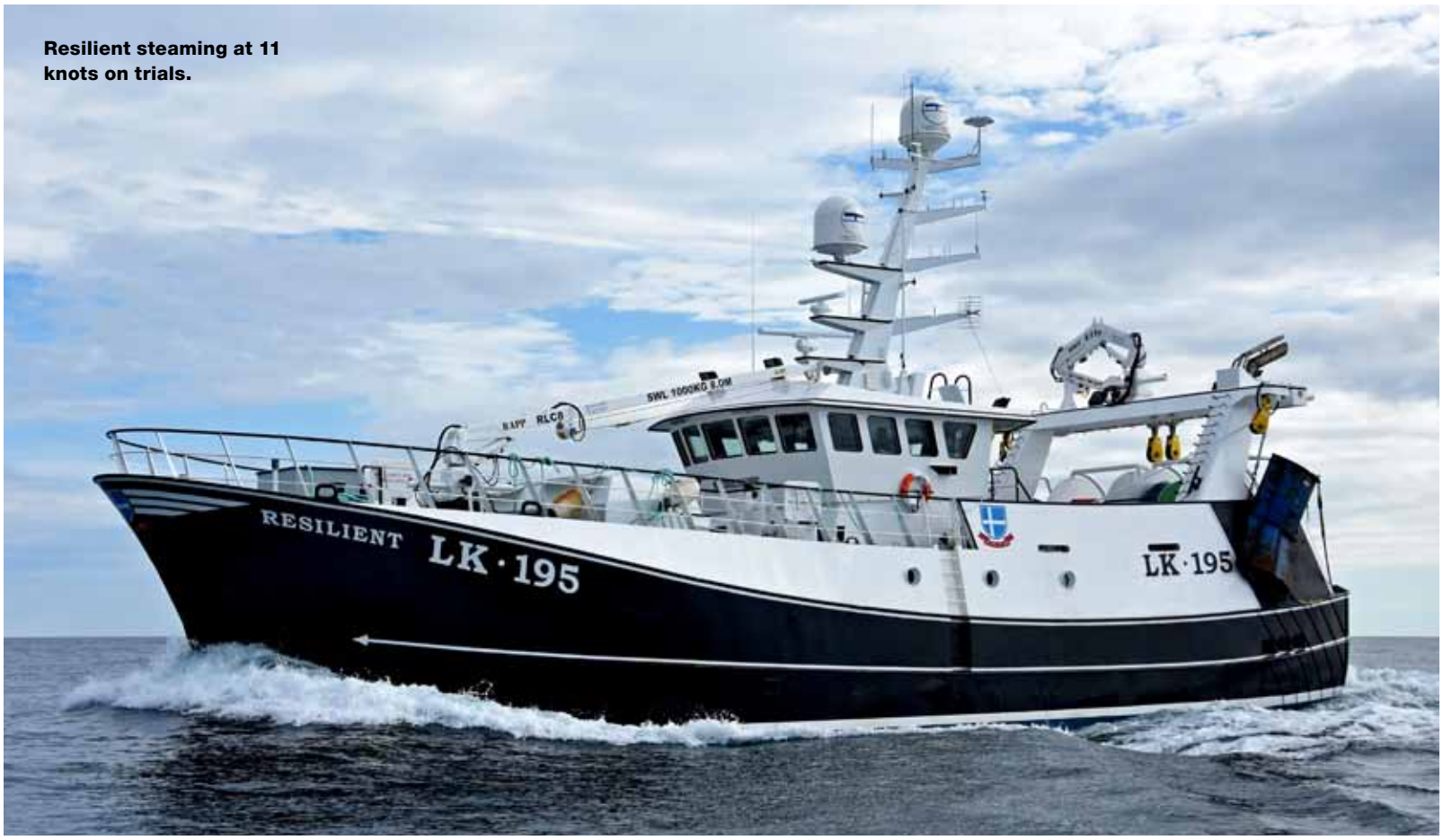
Economic Development Service of Shetland Islands Council.

Chair of the Council's Development Committee, Alastair Cooper, said: "I am pleased to see this successful business continue its strong commitment to whitefish catching by building a new vessel to join the Shetland fleet. Without reinvestment such as this, the fleet cannot rejuvenate and be fit-for-purpose for the future."

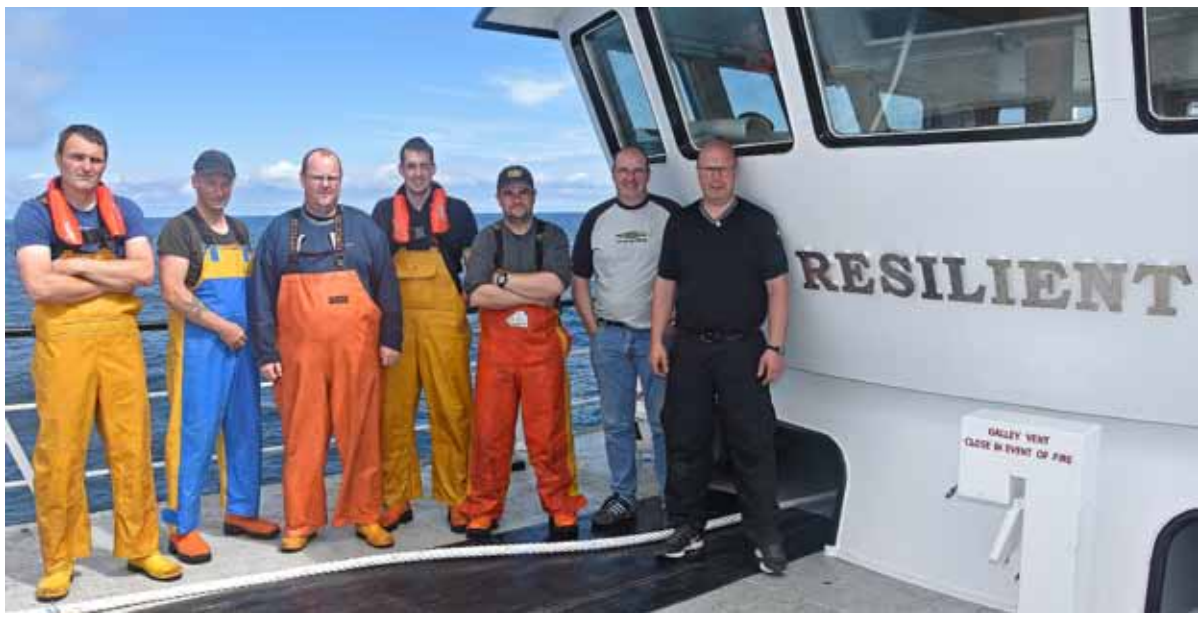
High-specification innovations

Although freely acknowledging that they are embarking on a considerable learning curve during an initial period, Resilient's crew will benefit from the high level of technical specification featured prominently onboard their new boat, which incorporates a number of innovations for this class of vessel. These include:

- Synchronised electrical generators
- Touch-screen/remote alarm/ vessel management system
- Silent-running harbour genset
- Automated fly-shooting/ trawling systems
- Low resistance seine nets
- Propulsion efficiency



Resilient steaming at 11 knots on trials.



Resilient's crew: Left to right – John Montgomery, John Irvine, Brian Anderson, Steven Anderson, Ian Reid, skipper Arthur Polson, and Edward Jamieson.

Resilient is also a landmark completion for Parkol Marine Engineering, as, in addition to being the Whitby yard's biggest fishing vessel to date, she is also the most complicated build, including being the first with variable pitch and load sensing hydraulic system.

Designed by Ian Paton of SC McAllister & Co Ltd, Resilient features a round bilge hull, the main dimensions of which are 27m, registered length 23.95m, beam 7.8m and depth 4.3m.

Particular consideration was given to the bow and underwater stern sections, from the differing perspectives of combining maximum deck space forward, load carrying and vessel trim throughout a trip, with propulsion efficiency and seakeeping qualities. The result is a full, bulbous bow and fine waterline entry, above which there is a considerably concave raked stem and strongly flared bow section to ensure that the vessel's not inconsiderable 7.8m beam is carried well forward, while the aft lines sweep up to a well-curved transom.

Being designed as a dual-purpose fly-shooter/single-rig trawler, Resilient understandably features a slightly different profile

Forward, the flared bow shell plating blends stylishly into the traditional tumblehome shelter sides at the sweeping sheerline rail. Further emphasised by the stand-out black and white livery, the bold sheerline is a key visual signature mark of Resilient.

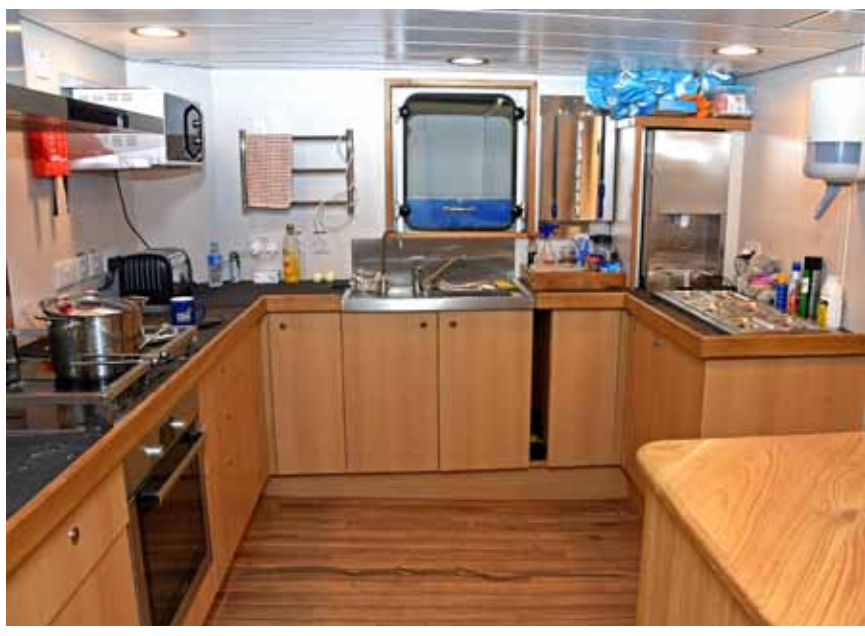
When the hull design was finalised, Deri Jones Associates generated the cutting information which was then transferred to Holland for cutting and forming of the double-curvature shell plating.

Being designed as a dual-purpose fly-shooter/single-rig trawler, Resilient understandably features a slightly different profile to accommodate bespoke working arrangements at main and shelterdeck levels, compared to the single-rig trawler Guardian Angell LK 272 Parkol completed 12 months ago, which is based on a similar hull form.

Arrangement summary

The most obvious differences are the open quarter at the end of the virtually full-length shelterdeck on Resilient, and the raised full-width coaming forward at the shoulders, housing the guiding-on gear.

Seining and trawling activities on Resilient are handled by two 20t core pull power reels housed in a dedicated compartment



The central section of Resilient's well-equipped galley.

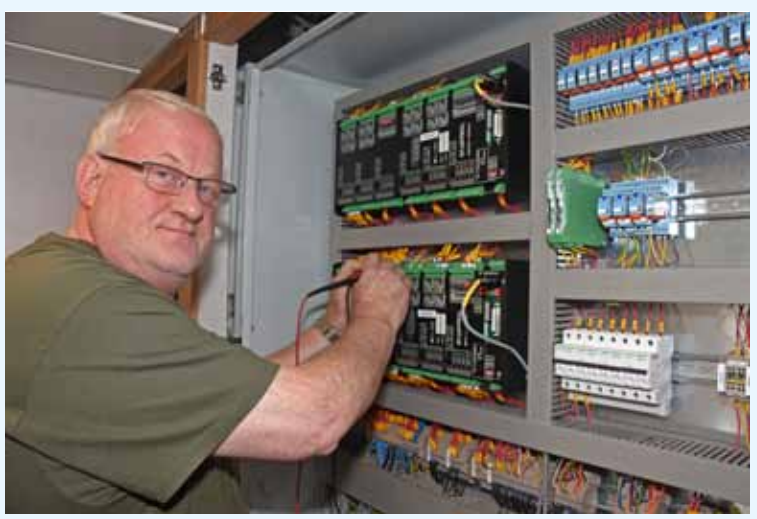
Scantrol control

Fly-shooting and single-rig trawling activities on Resilient are carried out using a set of combi power reels manufactured by Thyborøn Skibs and Motor A/S, operating at all times through Scantrol's advanced Isym and Autotrawl systems.

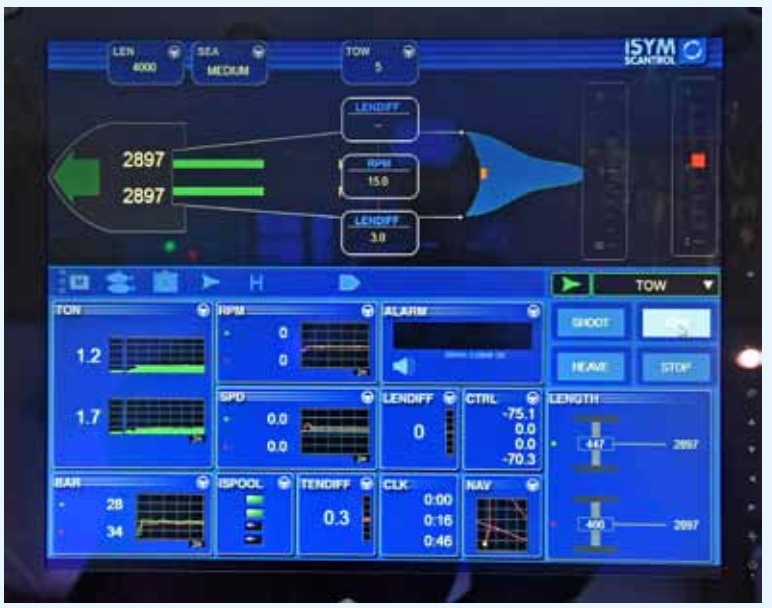
Shooting, towing and hauling of the seine net is handled by an advanced Isym software package interfaced to an Ispool system that controls the hydraulically-operated guiding-on gear.

Although the solid-state electronics mounted in the two main control cabinets on Resilient look extremely complex, Scantrol's guru Thorleifur Gislason, togther with Stinus Lilleore and Anders Nees from Thyborøn Skibs and Motor A/S, displayed high levels of professional ability and confidence when fine-tuning the systems, which performed efficiently from the start.

Comparable to auto-trawl systems, Isym provides a constant display of hauling speed, hydraulic pressure, tension, rope length and the differential between port and starboard warps. When the selected differential is exceeded, the reel on the longer side is automatically slowed down in order to keep the port and starboard ropes level in the water astern, before reverting to the chosen rate. The system also caters for four modes of operation – towing, stopped, heaving and shooting. When shooting away the ropes, the main motor is disengaged, allowing the power reels to freewheel, with a smaller hydraulic motor being used to apply a slight braking tension to prevent the rope from jumping.



Thorleifur Gislason carrying out a final check of Scantrol's Isym and Ispool automated systems.



The Isym display panel operating in towing mode with 2897m of rope to come.

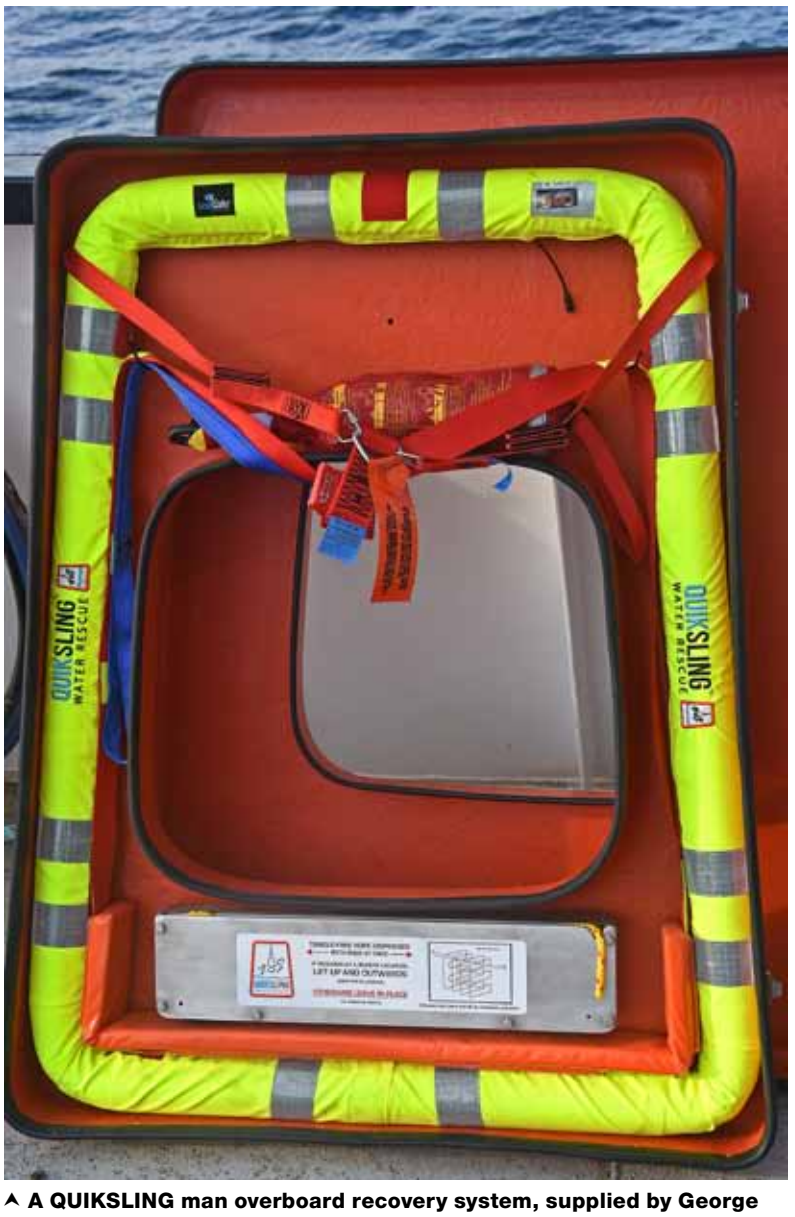
The electronically controlled and hydraulically operated guiding-on gear is built into the shelterdeck above the 20t power reels.

The 42mm-diameter seine net ropes are usually run off at 300m per minute. This equates to one side of rope being shot in just 12 minutes.

On picking up the dahn, the Isym towing mode is selected, in which there are two main options: constant reel speed in rpm, or constant rope speed in m/min. Constant reel speed is generally favoured by most skippers, particularly in Denmark where Scantrol Isym is widely used.

In constant reel mode, the rate of heave gradually increases as the core diameter of rope on the drum starts to build up. For the first coil, with the reels turning at 12-15 revolutions per minute, the ropes are heaved at a rate of 15-20m per minute, slowly increasing towards 55m-min.

When the ropes close up, heave mode is employed, typically with around 1500m of rope on the reels. With the reels now turning at 21rpm, the ropes start to come in at up to 125m/m before increasing towards a coil per minute.



A QUIKSLING man overboard recovery system, supplied by George West of Peterhead, was installed on Resilient before sea trials.

forward of the fish-handling area. Seine net ropes and trawl wires spooled off the full width of each reel pass through wide openings under the wheelhouse floor to two pivoting sheaves.

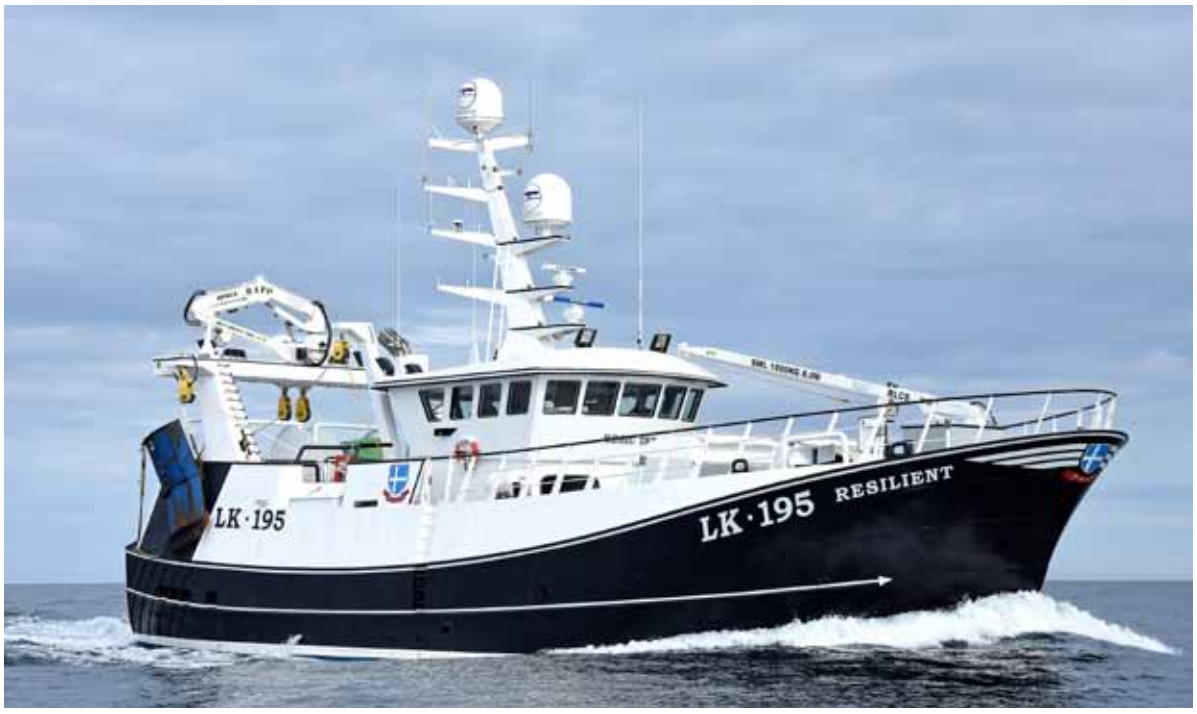
Mounted on the shelterdeck at the aft end of the wheelhouse, the sheaves play a pivotal role in the vessel's dual-purpose capability by guiding ropes to moveable hanging blocks on the underside of the transom gantry, while wires lead outboard to dedicated blocks positioned on the outside of the trawl gallows. Although the end result looks and sounds deceptively simple, as is often the case in new situations, arriving at this solution was challenging.

Grass rope and hopper seine nets are worked from two split net drums arranged across the end of the shelterdeck, the outer sides of which are continued under the trawl gantry to form walkways extending to directly above the transom rail. Torn seine nets can be flaked down for repair on the large and well-sheltered quarter, where the presence of a third split net drum to starboard, primarily intended for use when single-rig trawling, provides further flexibility when the crew are repairing torn gear.

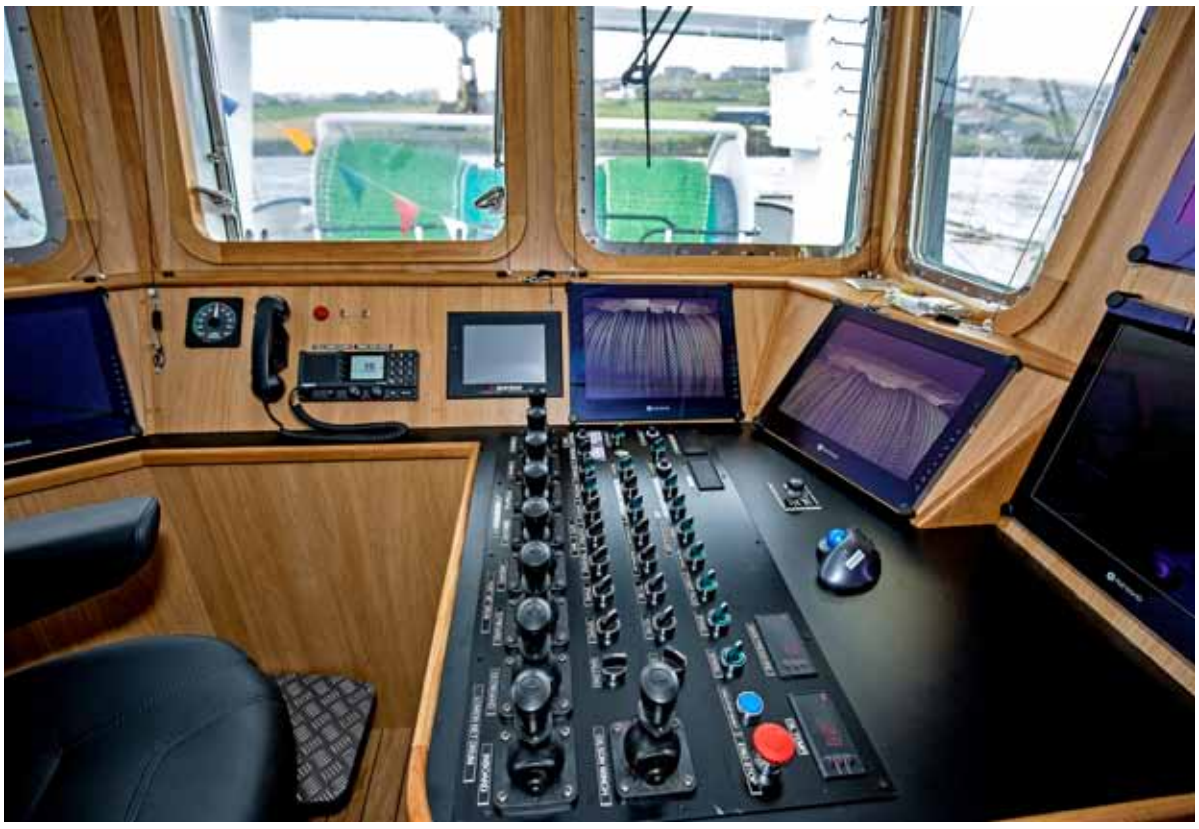
In traditional seine net custom, catches are taken aboard on the starboard side abaft the wheelhouse where a 6t codend winch is positioned forward of a heavy box-section single leg gantry. From the reception hopper, whitefish are moved forward by conveyor for delivery onto the selection/gutting conveyor, from where they are placed into an automated drum-style fish-handling system supplied by VCU of Holland.

The fish-handling area is connected to the quarter by a passageway arranged towards the starboard side, inboard of fish conveyor leading forward from the catch hopper. In addition to giving access to the main accommodation areas and the engineroom, the outer side of the connecting passageway is lined with deep full-height storage lockers housing the crew's protective deck clothing and safety gear. Laundry facilities are built into a wide lobby at the aft end of the passage.

The spacious galley and messdeck, in which two mess



Resilient's clean lines are enhanced by the vessel's striking black and white paintwork.



Resilient's 'bay window' fishing console provides a commanding view of fishing operations at the stern of the seiner/trawler.

tables are arranged, extends across the vessel's centreline from the port rail. The high level of specification found throughout Resilient is also prominent in the galley area, where the usual range of modern cooking equipment is further complemented by heated food storage trays, instant boiling water, and floor-to-ceiling fridge and freezers.

A shower/toilet compartment is located on the portside of the aft stair leading to the sleeping cabins. These are arranged to give four single-berth cabins positioned forward of two twin-berth cabins on either side of the compartment housing the Wills Ridley steering gear.

All internal accommodation areas on Resilient are finished to an extremely high standard using natural-coloured oak laminates and timber facings, many of which are rounded, to give an attractive and homely feel which is appreciated by the crew.

The customised wheelhouse

New design of seine nets

Resilient's crew put the hopper seine net aboard which, like the grass rope net, was made by LHD using high-strength Magnet netting.

Resilient is now fly-shooting around Shetland using two new designs of clean and harder ground seine nets, designed and made by Richard Young and his team in the LHD net store at Lerwick.

The common dominator between the grass rope and the hopper seine nets is that both incorporate the extensive use of new technology material in the form of high-strength Magnet Grey netting supplied by Hampidjan.

The braided high-density polyethylene netting has maximum strength-to-diameter ratio to minimise drag during towing. The twine is round and compact, with both the core and cover engineered to optimise knot-breaking strength. The clean ground net is made from a twine diameter of just 2.1mm, which has a knot-breaking strength of 170kg, while the harder ground net features 3.1mm-diameter twine with a knot-breaking strength of 310kg.

When fishing on clean ground, skipper Arthur Polson is using a modern version of the traditional leaded grass rope seine net. Measuring 250ft on the foot rope and with 687 x 6-inch meshes in the fishing circle, this high standing net gives a typical headline height of 5.5-6 fathoms.

For taking fish off harder bottom and ground edges, Resilient uses an equally high standing four-section box hopper seine that has 560 x 8in meshes in the fishing circle and is rigged on 105ft of 8in and 10in discs flanked with 120ft of rubber legs.

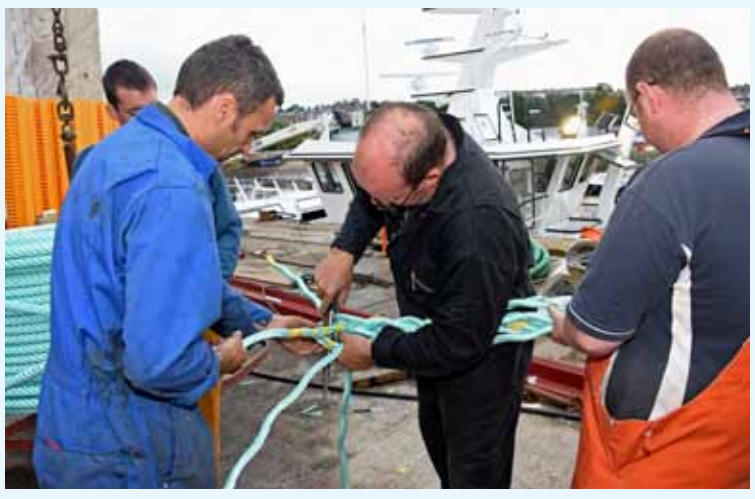
LHD also supplied the codends, made from Sicor high-tenacity 5mm-diameter netting which, due to excellent non-shrinkage qualities, is popular with Shetland whitefish skippers.

Both nets are worked in conjunction with 30-fathom rubber leg and 16mm combination splits.

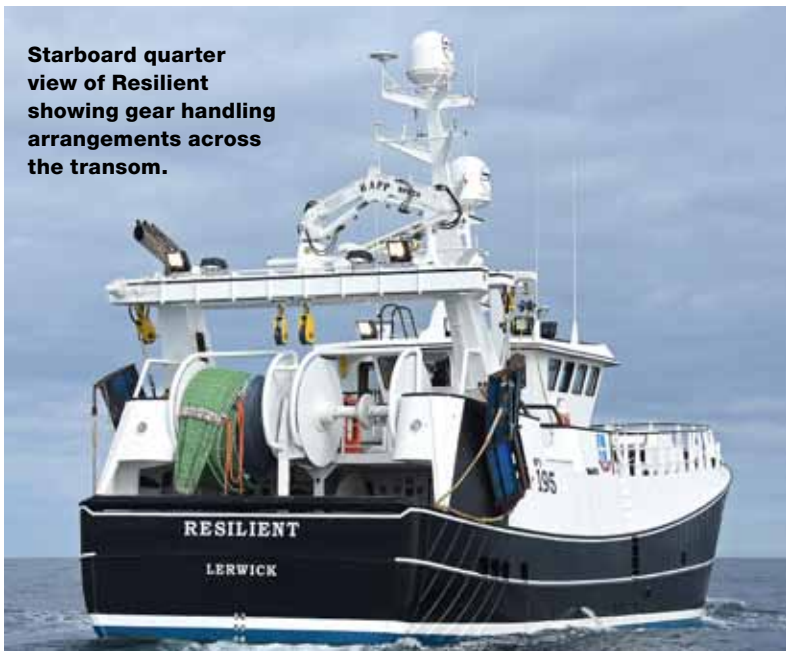
Resilient is working 14-15 coils aside of Selstrad 42mm four-strand combination seine rope. Weighing 1.4kg per metre, the ropes had a combined dry weight of 8.7t when spooled onto the power reels.

When targeting monkfish rather than higher-swimming gadoid species, Resilient will use a new design of combi scraper net supplied by Thyborøn Trawl Binderi and rigged on 220ft of 8in and 10in discs. Bent Larsen is currently making a higher standing version of this net for use on the new 27.5m fly-shooter Boy Andrew, which Vestværftet ApS is scheduled to deliver to Wick skipper Andrew Bremner towards the end of this year.

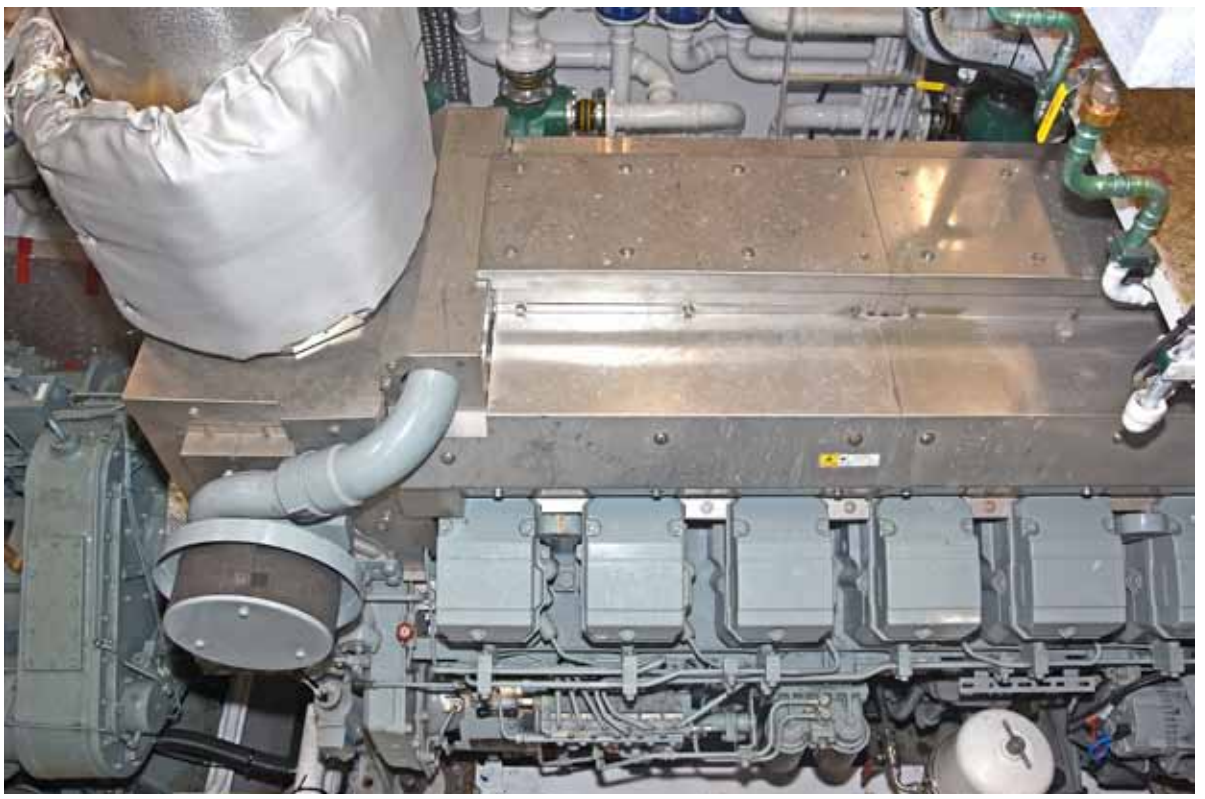
When single-rig trawling, Resilient will use a set of Thyborøn Type 14 3.75m² (1100kg) doors to spread the combi scraper net.



Splicing the Selstrad 42mm combination rope in preparation for seine net trials from Whitby.



Starboard quarter view of Resilient showing gear handling arrangements across the transom.



Resilient's 12-cylinder Mitsubishi S12R-MPTAW main engine. *(Photograph courtesy of Ian Reid).*

Twin tables are positioned in the portside mess deck.

reflects the high level of thought the owners gave to their long-term investment while liaising closely with the builders. The main navigation console is arranged in the forward port quarter, with the corresponding area on the starboard side housing an office desk and generous bench seating. A second NorSap helmsman's seat is positioned on the centreline, in the middle of the aft-facing 'bay window' style fishing console.

Engineroom

The engineroom on Resilient is particularly spacious, with a well thought-out arrangement ensuring that John Montgomery has maximum ease of access for all levels of service in years to come.

Following the initial contact, Resilient's owners spent considerable time discussing the choice of propulsion system with naval architect Ian Paton and Parkol Marine Engineering.

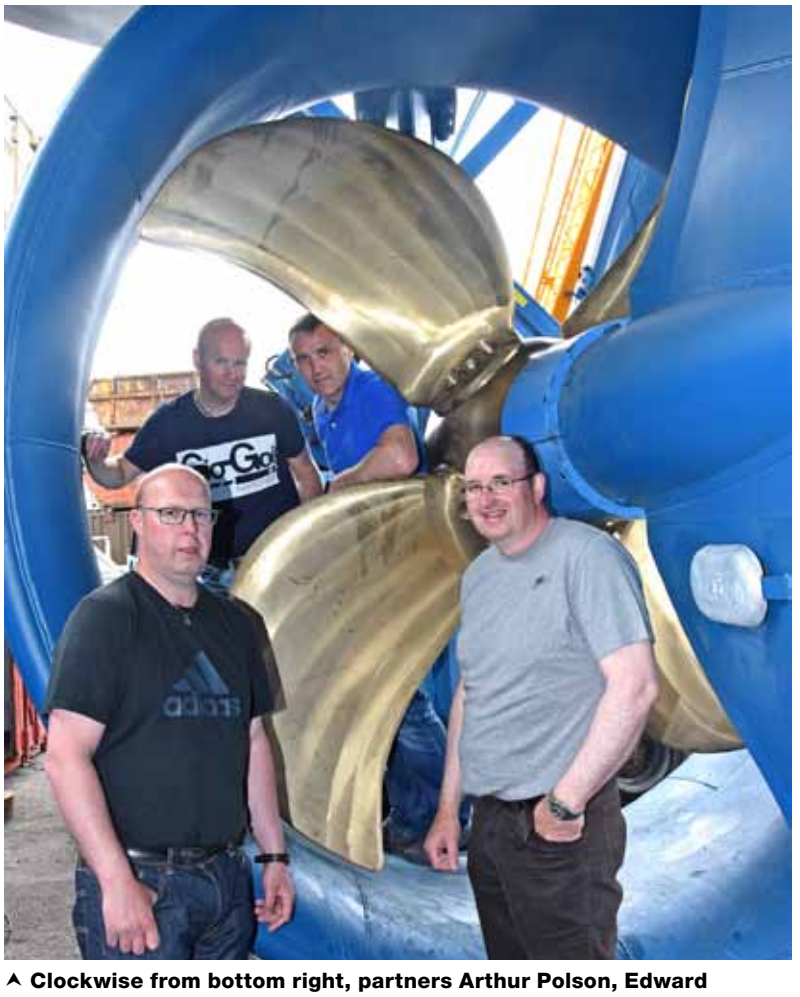
Maximising propulsion and towing efficiency in order to deliver optimum levels of fuel economy were key factors in the design process, as were fishing efficiency and safety.

When these and other factors were taken into account, the decision was taken to go for a controllable pitch propeller turning at a constant speed. As a result, Resilient features a Mitsubishi S12R-MPTAW main engine of 588kW @ 1400 rpm driving through a Finnøy G50 FKV 10.75:1 reduction gearbox to a Finnøy 2700mm-diameter four-bladed CP propeller turning at 130rpm in a high-efficiency nozzle designed and fabricated by the boatyard.

The Finnøy gearbox is operated through a hi-spec Brunvoll control system.

That Resilient returned an

Two PTOs mounted on the Finnøy gearbox drive the main hydraulic system. *(Photograph courtesy of Ian Reid).*



Clockwise from bottom right, partners Arthur Polson, Edward Jamieson, John Irvine and John Montgomery add a scale factor to Resilient's 2700mm-diameter CP propeller and custom-built nozzle.

average top speed of 11.4 knots of engine trials, and towed at a propeller pitch setting of around 60%, immediately highlighted the benefits of the selected centreline package.

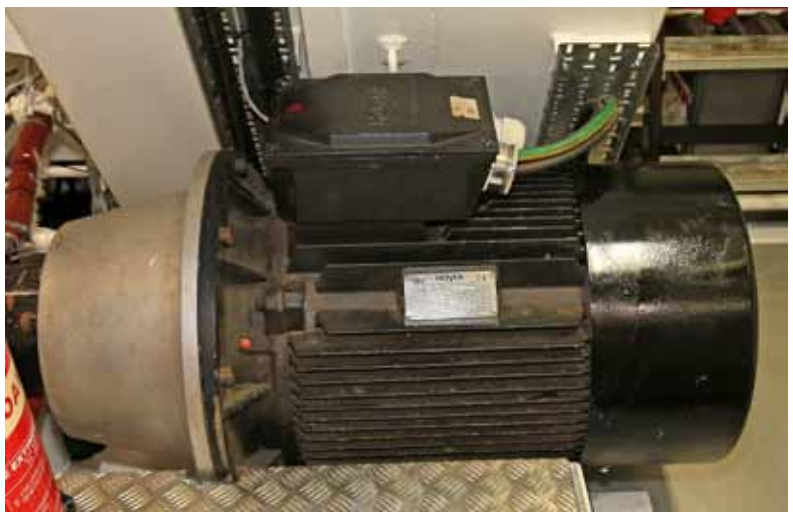
Resilient uses 85-90 litres of fuel per hour when steaming at 10 knots at 80% pitch, and similar levels when towing, depending on conditions. The owners are also delighted with the level of fuel economy their new vessel is now returning, which equates to a fuel saving of nearly 30% when steaming 10% faster, when compared to their previous boat.

The choice of a CP propeller turning at a constant speed also brings the double benefit of enabling Resilient's load sensing (and quieter) hydraulic system to be run off two gearbox-mounted PTOs and ensuring that increases in propulsion power are immediately available when required.

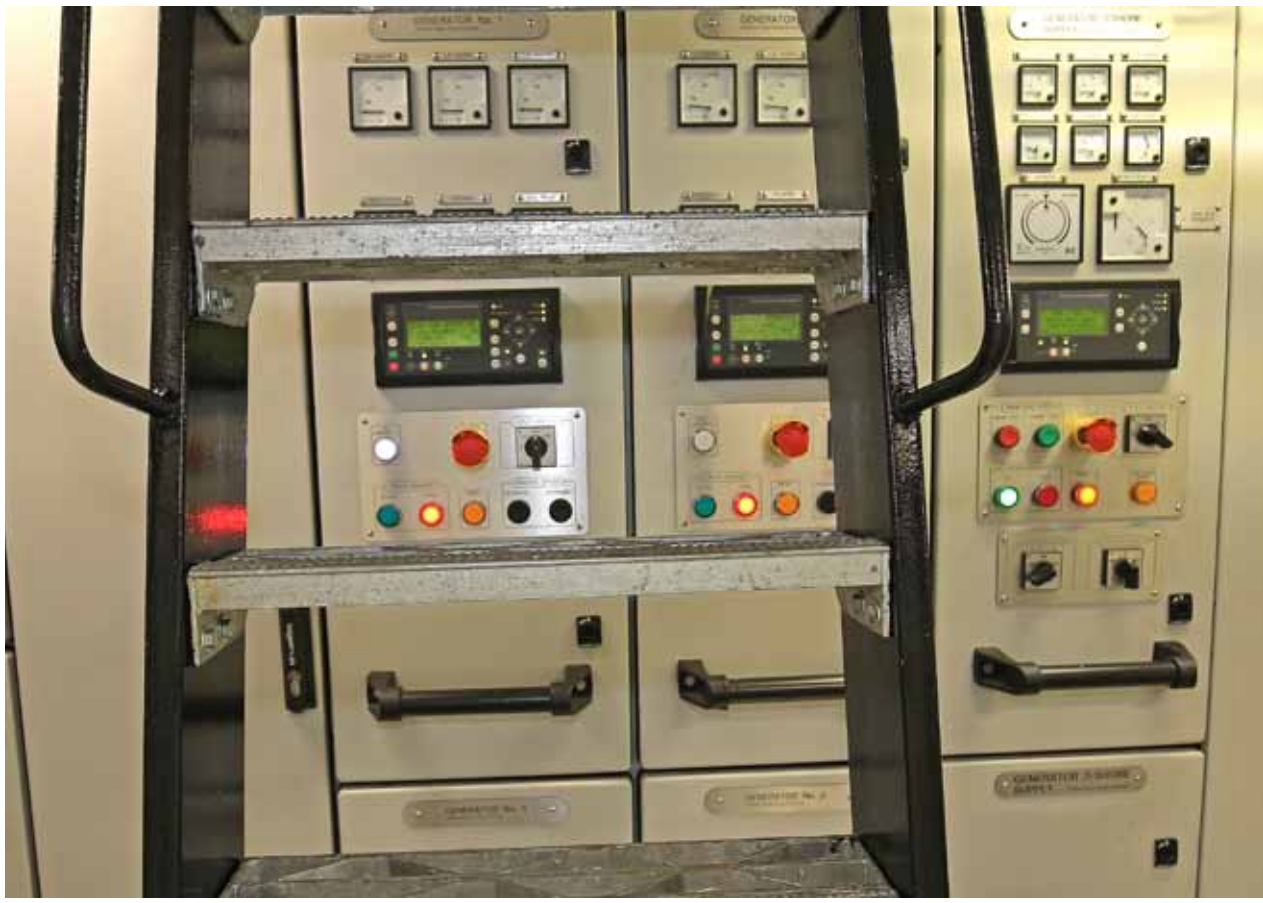
In order to minimise noise levels the main engine is mounted on anti-vibration mounts. Fitted with a hi-spec silencer, the engine exhausts, which are led up through the stylishly aft-raked port leg of the trawl gantry, are also flexibly mounted in order to reduce resonance through the steelwork, the benefit of which is immediately apparent.

In addition to the 12-cylinder propulsion unit, North Yorkshire-based Diamond Diesels also supplied two Mitsubishi 6D16T auxiliary engines (106kW @ 1500 rpm) driving 100ekW 125kVA Stamford Newage 415/3/50 electrical generators.

Unusually for a vessel of this class, the electrical generators are fully synchronised through the switchboard panels to give load



The towing/back up hydraulic pump is driven by a 48kW electric motor. *(Photograph courtesy of Ian Reid).*



The electrical distribution and switchboards were supplied by MJR Power & Automation of Stockton and give full load-sharing synchronisation and automated auxiliary start-up... *(Photograph courtesy of Ian Reid).*

Comprehensive electronics package from Scalloway company

Resilient is equipped with a comprehensive array of electronics equipment that was supplied, installed and commissioned by H Williamson & Sons Ltd of Scalloway, Shetland.

A total of 27 Neovo X-Series (12 x 19in, 6 x 17in and 9 x 15in) flat screens provide displays from Resilient's fishing, navigation and CCTV systems. In addition to the wheelhouse, screens are also fitted on the messdeck, and forward of the fish-handling system in a watertight cabinet.

Bottom sounding and fish detection onboard Resilient are provided by a Simrad ES80 70kHz chirped sounder c/w real time hardness, interfaced to an Olex 3D seabed mapping system. A Furuno FCV single-frequency (50 KHz) colour sounder with a 10-inch display is also fitted.

A Simrad PX trawl monitoring system with 2 x PI trawl hydrophones and receiver, PX catch/temperature sensor and two PX multi sensors is also fitted.

The PX sensors can be re-programmed onboard the vessel at sea using Simrad software and programming lead, which means that combinations of PX sensors can provide a variety of measurements, including trawl door spread, trawl geometry, trawl door or headline height from sea-bed and trawl door pitch/roll. An end cap can be fitted to a PX sensor to give depth or water temperature readings.

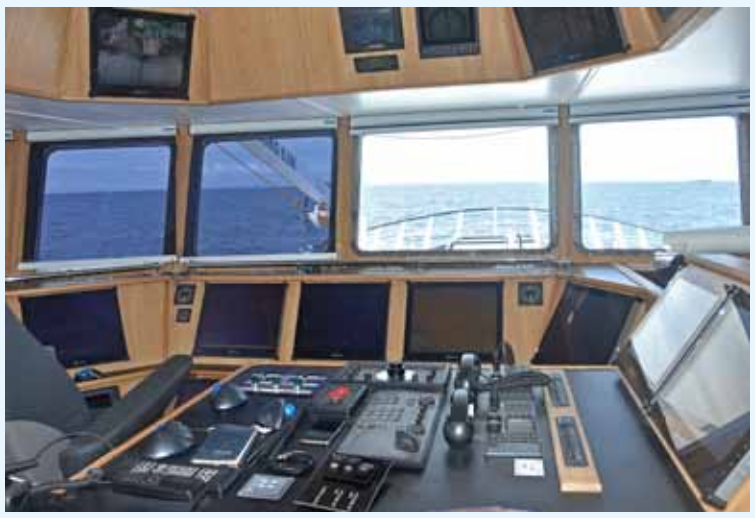
Details of Resilient's location are processed by two Furuno GP 32 GPS navigators, and vessel heading is provided via a Furuno SC-50 satellite. Positioning data received is interfaced to three fishing and navigation plotters – Olex 3D (c/w ground discrimination), and two Sodena Turbowin plotters – supporting a combination of Tide T8 charts, AIS and ARPA tracking. A FishSafe unit is also fitted.

Both the Furuno FAR-2127 25kW main and secondary Furuno AFR-1513 12kW radars, coupled with a Furuno FA-150 Class A AIS transceiver and with ARPA, provide radar and AIS tracking both within the radars themselves and also through the plotters.

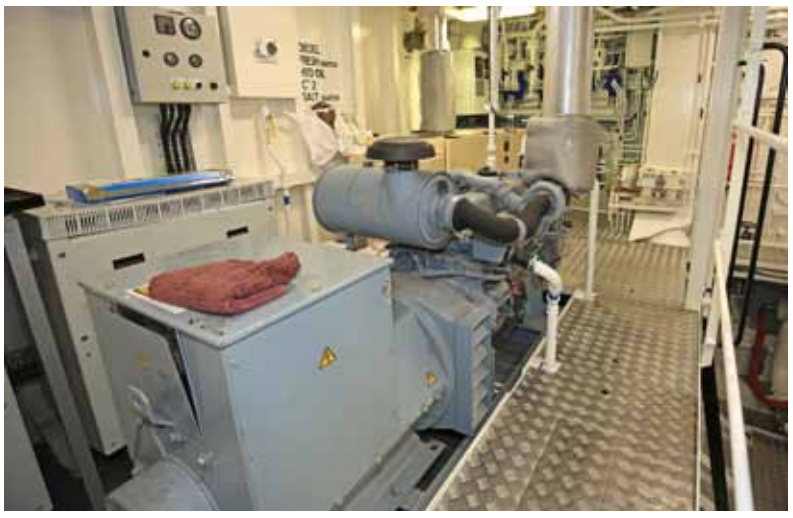
Steering is handled by a Navitron NT921G autopilot c/W 3 x NT920 non-follow up controls, 3 x NT921RAI rudder indicators and Navitron NT9920WA watch alarm. Resilient is also equipped with an AIS fly-shooting dahn buoy system which incorporates a high-intensity winkie, thereby eliminating the need for a traditional high standing pole and flag.

Communications and safety equipment include a Sailor 6310 MF/HF 150W DSC radio telephone, Icom M323 DSC VHF maritime transceiver, 2 x Sailor 6248 VHFs, Entel HT649 handheld GMDSS VHF, Furuno Turbosailor VSAT system, and Seatel 80 satellite TV system.

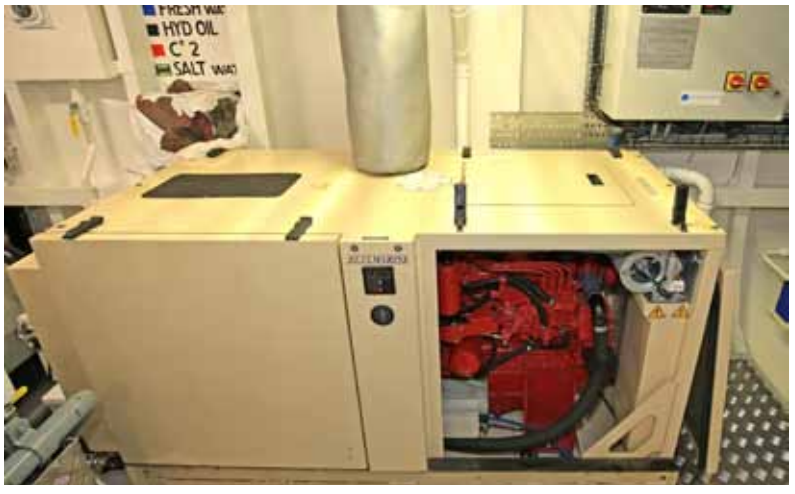
Williamson and Sons also installed a comprehensive eight-camera CCTV system to provide continual coverage of the power reels, gear-handling activity on the quarter, and the engineroom.



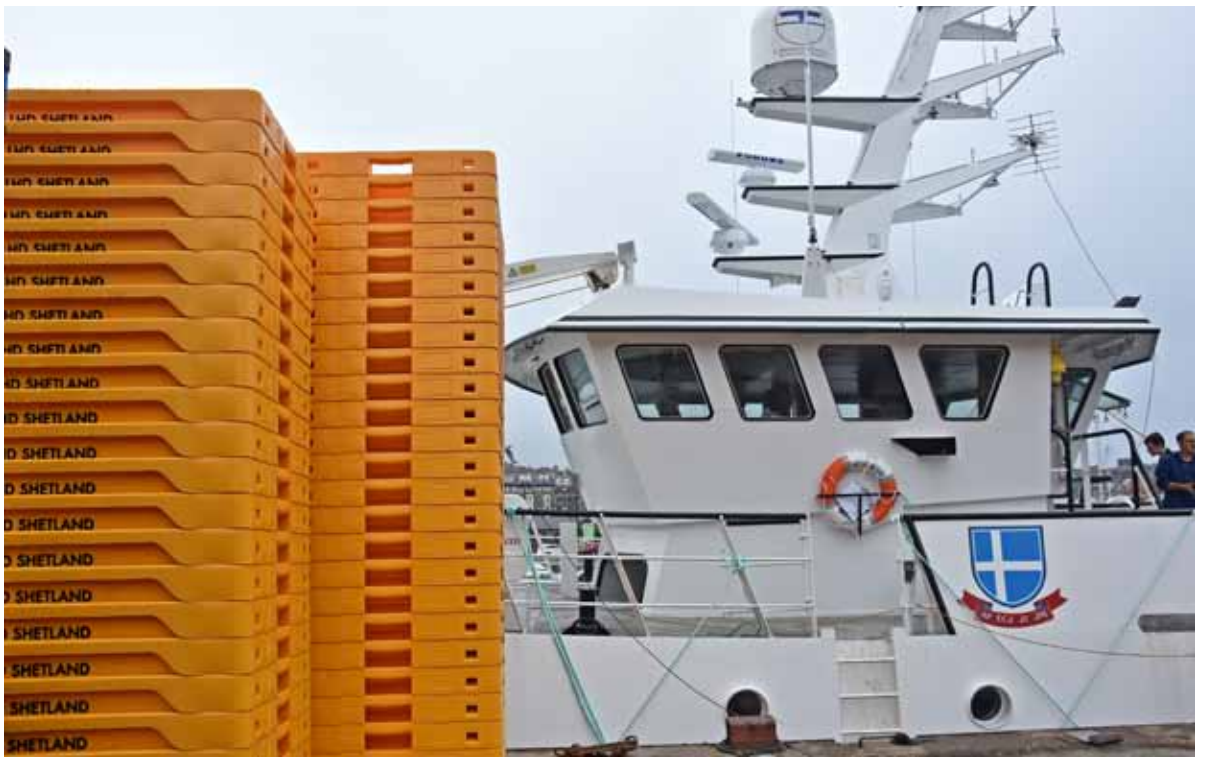
H Williamson & Sons Ltd supplied and installed a comprehensive array of wheelhouse electronics equipment.



... of the two Mitsubishi 6D16T auxiliary engines (106kW @ 1500 rpm) that drive 125kVA Stamford Newage generators. *(Photograph courtesy of Ian Reid).*



The Beta Marine 26 super-silenced harbour genset. *(Photograph courtesy of Ian Reid).*



Distinctive LHD boxes supplied by Craemer UK ready to be stored in Resilient's fishroom.

sharing and automated auxiliary start-up.

Resilient was fully wired by Parkol electricians, while MJR Power & Automation of Stockton built the electrical distribution and switchboards, in additional to supplying full schematic diagrams.

An electrically-driven 48kW power pack is used to drive a load sensing triple-vane hydraulic towing pump as well as providing back-up hydraulic power. This arrangement also enables the deck machinery to be operated in harbour when the crew are either mending or taking on gear while routine maintenance work is carried out on the main engine.

The presence of a Beta Marine 26 super-silenced harbour genset is another unusual feature in Resilient's engineroom. The genset is housed in a soundproof cabinet on the starboard side, which is extremely effective, to the extent that when immediately used on launch day after Resilient had been lowered into the water, guests visiting the engineroom assumed the vessel was running on shore power.

Two Vikron 100amp 24-volt chargers are also fitted in the engineroom.

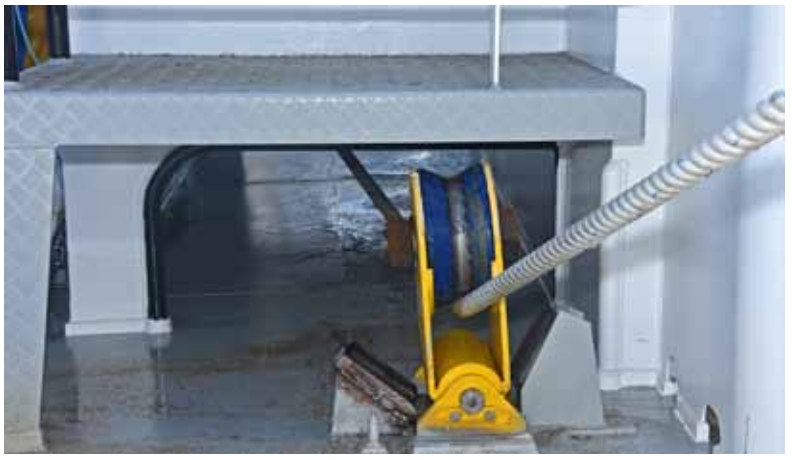
Cooling for all four engines and the hydraulics is provided through NRF box coolers arranged across the forward end of the engineroom.

A hydraulically-powered Thrustmaster bow thruster of 186kW is fitted, to give maximum vessel manoeuvrability in restricted areas.

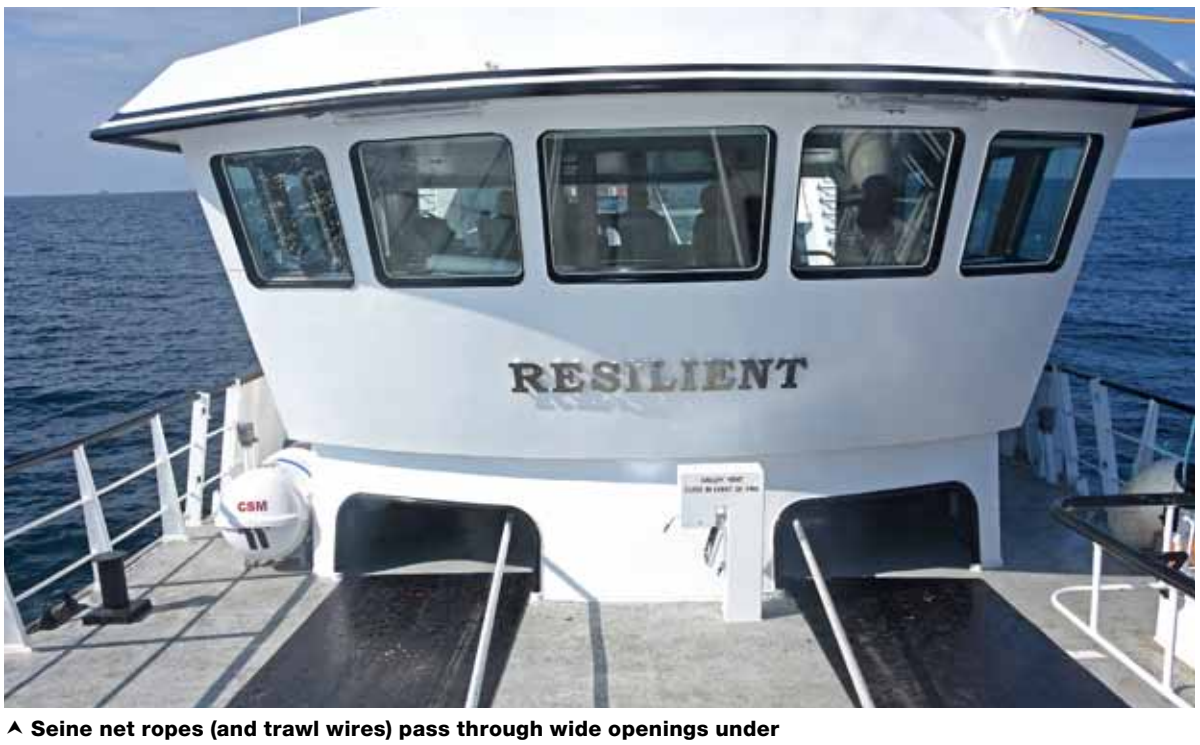
Fuel capacity is 32,500 litres, housed in a combination of engineroom wing tanks and two double bottom tanks under the concrete floor of the fishroom. 25,700 litres of freshwater are carried in the bulbous bow and double bottom tanks.

Deck machinery

Thyborøn Skibs and Motor A/S supplied Resilient's full deck machinery package and designed the hydraulic system, the installation of which was completed in-house by Parkol, with stainless steel being used throughout. In order to minimise noise levels associated with resonance, flexible mounting brackets were used throughout to secure the hydraulic pipes to the shell plating. At the same time, heavy-duty rubber grommets were used to cushion the hydraulic pipes every time they passed through steelwork.



... to pivoted deck sheaves abaft the wheelhouse...



Seine net ropes (and trawl wires) pass through wide openings under the wheelhouse floor...

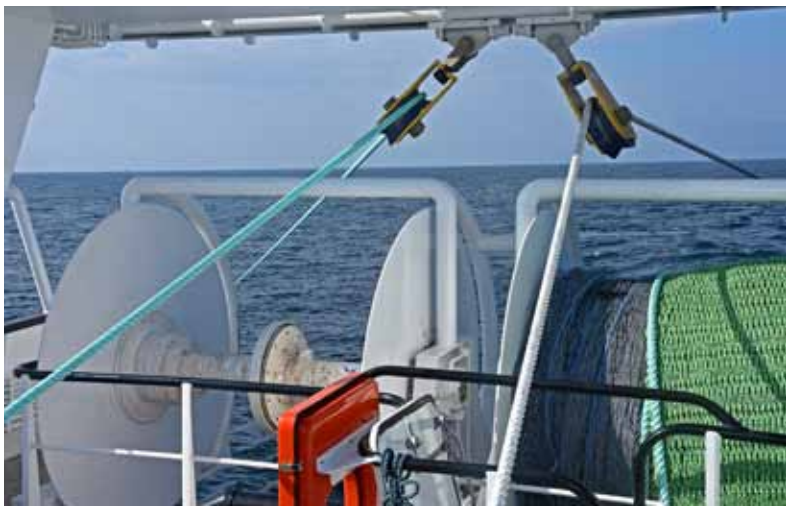
Designed and built to the designers' and owners' specific requirements, the hydraulic deck equipment includes two power reels from which seine net ropes and trawl wires are worked. With a core pull rating of 20t and a capacity of 3900m (16 coils) of 42mm-diameter seine rope, the power reels are housed in a dedicated winch room, forward on the main deck. Housed in a virtually full-beam coaming incorporated into shelterdeck, the computer controlled guiding-on gear is positioned above and slightly aft of the power reels. This arrangement brings two key benefits of keeping the fish-handling deck clear of sand/mud, and separating the crew from the fast running ropes at all times.

When running the ropes and subsequently heaving back, they are shot through moveable hanging blocks mounted on the underside of the aft-raked stern gantry. These blocks are positioned remotely from the wheelhouse by a hydraulic motor mounted on the portside of the gantry that drives a large sprocket wheel and a heavy-duty chain.

All the necessary Fleming Fairleads hanging blocks and deck rollers were manufactured by F & R Belbin of Tynemouth.

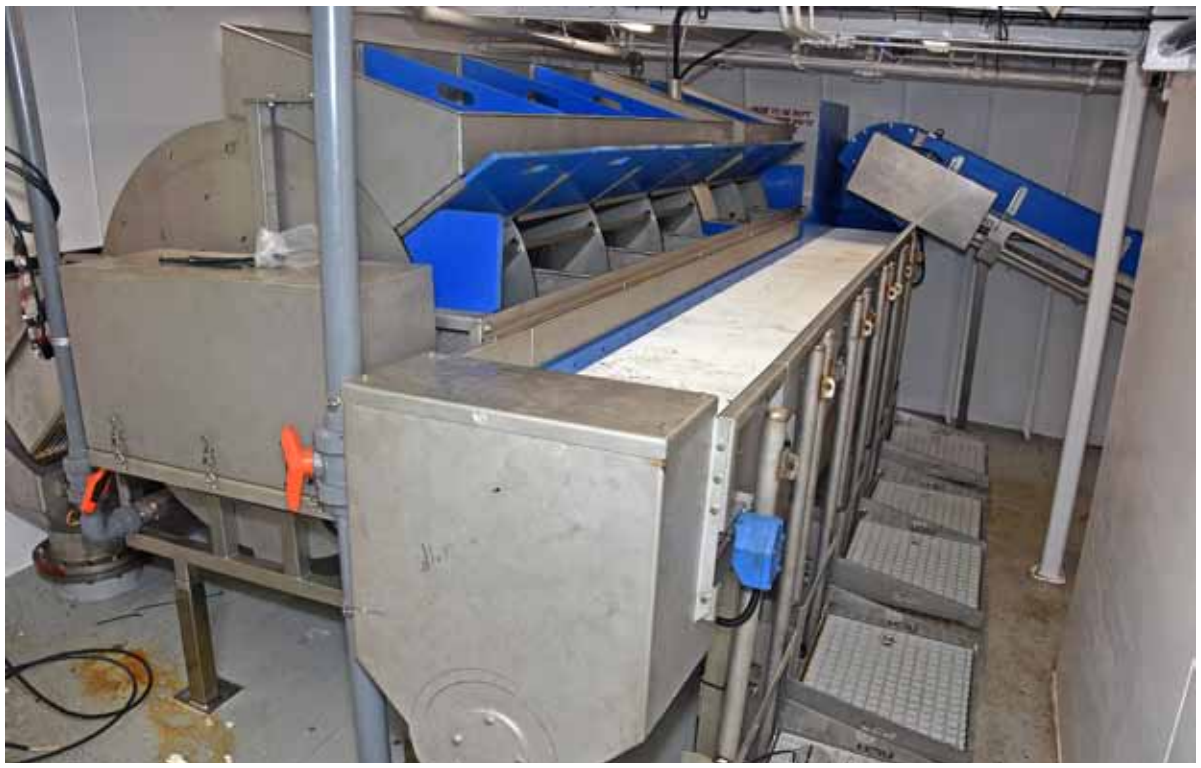
Two sets of 2 x 8t split net drums are positioned across the end of the shelterdeck and slightly set down towards the open quarter. A larger 2 x 14t split net drum, for use when Resilient is single boat trawling, is positioned on the starboard side of the quarter, close to the deck casing. All three split nets drums are fitted with equalising values. These can be engaged at any point when hauling or shooting, to ensure that the sweeps and net are worked evenly.

A Rapp Marine short post kinked boom power block crane, fitted with a 2t auxiliary winch, is mounted on the centreline of the trawl gantry to assist with general gear handling.



^ ... before leading up to hanging blocks under the trawl gantry...

^ ... which can be moved across the full beam by a hydraulically-driven motor operated from the fishing console.



^ Portside view of the automated fish-handling system manufactured by VCU of Urk.

^ A stainless steel ice locker is arranged across the fore end of the fishroom directly under 2 x 2.5t Buus ice machines.

Catch-handling

After being moved forward by conveyor from the large-capacity

> **Crewmen select and gut the catch from a waist-height transverse conveyor positioned forward of the deck casing**

^ Pivoting chutes connect the fish washer and gutting machine to selection hoppers in the fishroom via deck coamings.

^ Fish are moved forward from the catch hopper along the starboard side of the main deck by conveyor, for delivery onto a transverse conveyor for gutting and selection.

Fourth boat for Whalsay skipper

Resilient is Arthur Polson's fourth command of his career as a whitefish skipper, that began in 1995 with the purchase of the 24.6m trawler Langdale LK 435. Built at Bideford in 1974, Langdale was previously owned by Arthur Polson's father, Arthur Polson Sr.

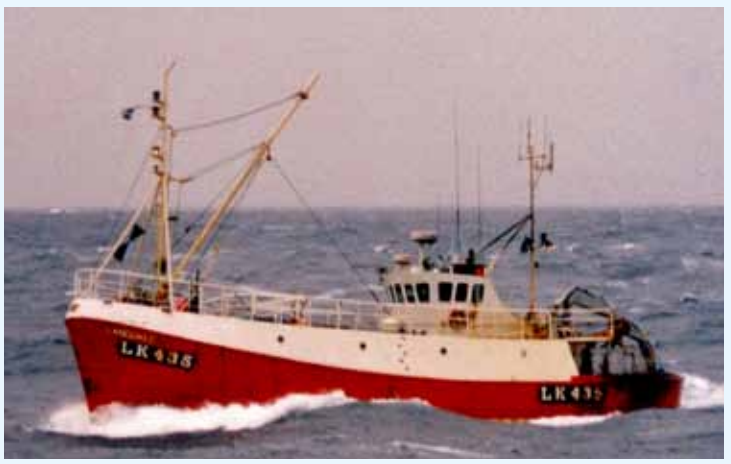
Three years later, skipper Arthur Polson and partners replaced Langdale with the more modern Heatherbelle LK 272, which they bought from Yell skipper Michael Henderson. The 23.6m Heatherbelle was built by James N Miller & Sons of St Monans in 1989 as Conquest BCK 265 for Buckie skipper Dennis Reid. This vessel was subsequently renamed Heatherbelle IV LH 272 by Eyemouth skipper Billy Aitchison, before being sold to Yell in 1993.

Re-registered LK 971, Heatherbelle fished from Whalsay for five years until being one of 10 Shetland boats and 165 Scottish whitefish vessels to be decommissioned in 2002-2003.

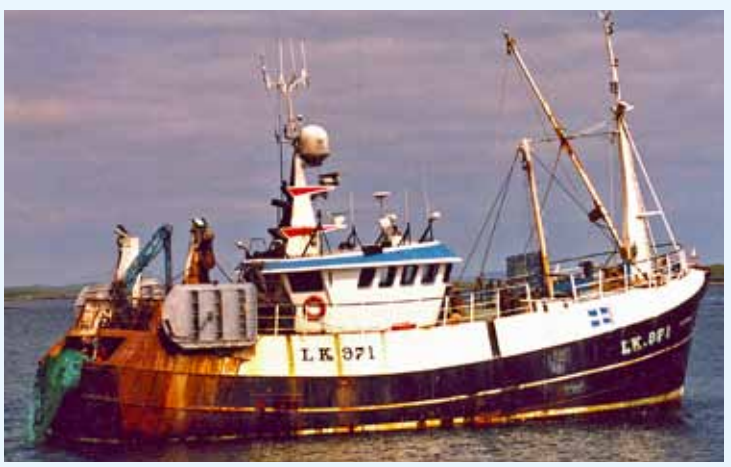
At a time of extreme uncertainty in the Shetland whitefish fleet, skipper Arthur Polson and his partners had the courage to remain in the industry by buying the 24m twin-rig trawler Solan BCK 195 from north-east Scotland. Macduff Shipyards delivered the Caterpillar 3512TA-engined Solan to Portessie skipper Leslie Findlay and partners in 1997, after fabrication of the steel hull was sub-contracted to Aveco (Teeside) Ltd.

On arrival in Shetland in November 2003, this boat was appropriately renamed Resilient LK 195.

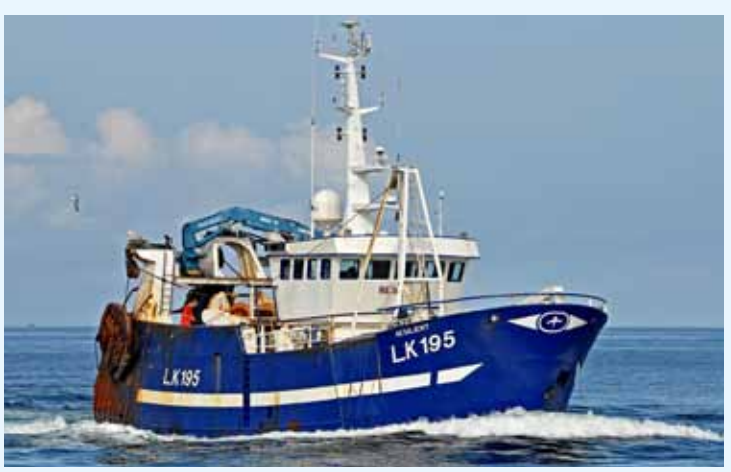
When the new Resilient was nearing completion at Whitby earlier this year, her predecessor was bought by Tomas Whelahan, in March, before being refurbished for a new role as a prawn freezer trawler based at Clogherhead after being re-registered Resilient DA 125.



Langdale was skipper Arthur Polson's first whitefish boat...



... followed by Heatherbelle...



... and Resilient (ex Solan BCK 195).

BUSY TIMES FOR WHITBY BOATBUILDERS

On the day that Resilient left Whitby, the next two new builds by Parkol Marine Engineering were at differing stages of construction on the quay.

The first of these, a 23.95m twin-rig trawler for Fraserburgh skipper Stephen West, of MB Good Design LLP, is progressing well, with the hull fully-plated and internal fit-out and installation work in the engineroom continuing.

Scheduled for completion early next year, skipper Stephen West's new boat, which features a round bilge hull, has a registered length of 23m, 7.8m of beam and a moulded depth of 4.25m.

A Mitsubishi S6R2-T2 main engine (476kW @ 1350rpm) will drive a 2500mm-diameter propeller through a Reintjes WAF 474L 7.476:1 reduction gearbox. Two Mitsubishi 6D16T auxiliary engines (105kW @ 1500rpm) driving a 100kVA generator, together with a Cummins QSL engine (213kW @ 1800rpm) powering the hydraulic pumps via a splitter box, are also being fitted.

EK Marine of Killybegs has supplied the trawler's full deck machinery and hydraulic package.

Fabrication of the first hull modules of a versatile 26m whitefish vessel for Lockers Trawlers Ltd of Whitby commenced earlier this month. This new build will feature a triple Mitsubishi engine package. This will include a S6R2-T2MPTK-3 propulsion unit, S6B3 electrical/hydraulic auxiliary engine, and a 6D16 genset.

French hydraulic specialist Bopp has manufactured the vessel's deck machinery package, including 1 x 21t pair seine winch, 2 x 16t split trawl winches, two 2 x 12t split net drums, 2 x 10t bagging drums and 1 x 7.5t Gilson winch.

The new build for Lockers Trawlers is scheduled for completion in the summer of 2017, when the vessel is expected to start pair-seining with Our Lass III.

Construction of a 19m twin-rig trawler for Kinlochbervie skipper James Corbett, in partnership with Don Fishing, is scheduled to start at the end of this year.

Of double chine hull form, the new boat will have a registered length of 16.49m, a beam of 7m, depth moulded 4.06m and a draft of 4.85m. Fuel and freshwater capacities will be 20,000 and 14,000 litres respectively, while the fishroom will hold 650 boxes.

To be supplied by EK Marine of Killybegs, the deck machinery package will include a 3-drum 20t trawl winch, two 2 x 10t split net drums, 7.5t Gilson winch and an EKM knuckle boom crane, and 24in W-sheave power block head.

A Mitsubishi S6R2 MPTK-F main engine (476kw @1350rpm) will drive a 2100mm-diameter propeller through a Reintjes 7.091:1 reduction gearbox. Doosan auxiliary engines will drive the trawler's main electrical and hydraulic systems.

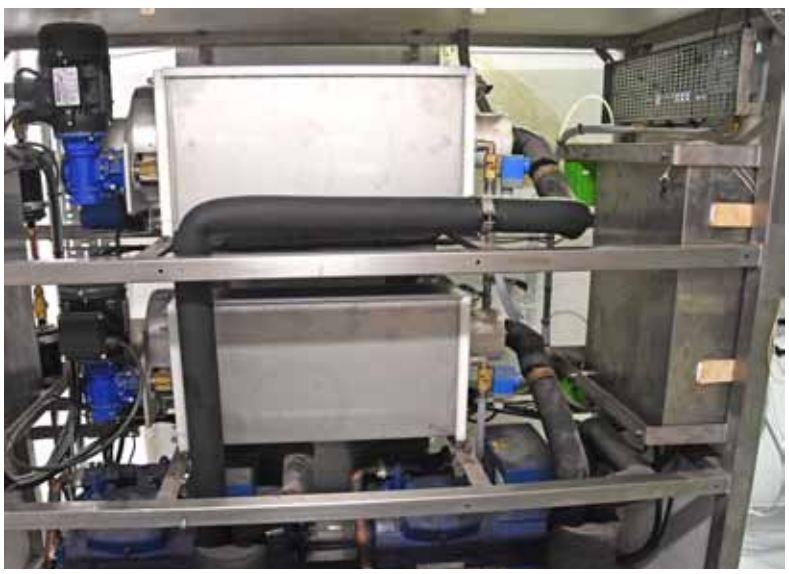
The above three new builds are scheduled to be followed by further similar new boats in 2017-2018. ■

reception hopper, whitefish catches on Resilient enter a highly-automated whitefish handling and catch management system, designed and fabricated by VCU of Urk, Holland to deliver optimum levels of catch quality in years to come, while minimising the amount of manual effort required by the crew.

Crewmen select and gut the catch from a waist-height transverse conveyor, positioned forward of the deck casing, while standing on individual height-adjustable stainless steel platforms.

After gutting, larger fish are placed into one of two large revolving stainless steel drums, with horizontal axes, housed in watertight troughs arranged parallel to, and forward of, the main fish conveyor. The longer of the two drums is divided into 12 sections, four transversely and three radially, while the shorter unit has six sections. After an adjustable period of time, independently controlled across the two drums (longer for larger fish), during which fish in the receiving section are sprayed with water, the drum is automatically rotated through 120°. As a result, the fish are then fully immersed in water at the bottom of the trough and washed thoroughly, for the selected timescale, after which the drum rotates through a further 120°. This second movement lifts fish clear of the washer, when they slide across short drainage shelves before being automatically transferred by one of six stainless steel chutes down to the fishroom via dedicated coamings in the main deck, tight to the deckhead of the power reel compartment.

Selections of generally smaller fish are made into elevated bins, from where they are released into the main system directly below.



Two 2.5t Buus ice machines are situated on the main deck forward.

In order to keep the initial automated selections made into the revolving bins, eight vertical freestanding hoppers are arranged from the starboard side towards the fore end of the fishroom. On being released from the selected hopper, fish are electronically weighed before a label displaying all relevant information, including species, grade size, time and date is printed off and put on the corresponding box. This information is also transferred automatically to a PC in the wheelhouse, where it is accumulated to provide a running total of Resilient's trip.

Served by a dedicated access hatch and easy-access companionway, located aft on the starboard side aft, Resilient's fishroom can accommodate some 1,100 stacker boxes.

^ General view of the quarter where torn nets can be flaked out for repair.

The justifiably proud shareholders on launch day – left to right: John Irvine, Arthur Polson, Edward Jamieson and John Montgomery.

Before Resilient left Whitby for Shetland, Craemer UK Ltd manufactured and delivered a special order of 750 new, distinctive, LHD yellow fish boxes, which were lowered into the vessel's fishroom for the delivery trip north, ready for use on the first trip.

In addition, 10t of flake ice, made by two 2.5t Buus ice machines positioned forward of the power reels, can be stored in a full-height stainless-steel-lined locker arranged across the fore end of the fishroom.

Nordkøl ApS of Hanstholm supplied the ice machines, in addition to fitting the stainless steel refrigeration pipes mounted on the deckhead.

When landing, a hydraulic winch is used to pull stacks of boxes aft towards the portside, from where they are lifted ashore through a large hatch by a Rapp Marine 8mt stiff boom crane served by a 2t landing winch. ■

Resilient LK 195

DETAILS
Owner: Resilient Fishing Company Ltd, Whalsay, Shetland
Designer: SC McAllister & Co Ltd, York
Boatyard: Parkol Marine Engineering, Whitby, Yorkshire
Agent: LHD Ltd

DIMENSIONS and CAPACITIES
Length overall: 27m; **Length reg:** 23.95m; **Beam:** 7.8m; **Depth moulded:** 4.3 m; **Draft:** 5m; **Tonnage:** 271 tonnes gross; **Fuel:** 32,500 litres; **Fresh water:** 25,700 litres; **Lube oil:** 750 litres; **Hydraulic oil:** 750 litres; **Fishroom:** 1100 boxes; 10t ice

ENGINEROOM
Main engine: Mitsubishi S12R-MPTAW of 588kW @ 1400rpm driving through a Finnøy G50 FKV 10.75:1 reduction gearbox to a Finnoy 2700mm-diameter four-bladed CP propeller in high-efficiency nozzle
Speed: 11.4 knots
Auxiliary engines: 2 x Mitsubishi 6D16T rated 106kW @ 1500rpm driving 100ekW 125kVA Stamford Newage 415/3/50 generators; Beta 26 Super-Silenced harbour genset
Bow thruster: Thrustmaster hydraulically-driven 186kW
Fuel and oil filters: CC Jensen
Bilge & deck pumps: 3 x Azcue electrically-driven and two Azcue deck suction pumps

DECK MACHINERY
Suppliers: Thyborøn Skibs and Motor A/S (Three J's) Thyborøn, Denmark; Rapp Marine Ltd. Peterhead
2 x 20t power reels capacity 3900m of 42mm-diameter seine net rope; two 2 x 8t split net drums; 1 x 14t split net drum; codend winch 6t; Rapp Marine RPBC8 short post kinked boom power block crane SWL 1100kg 5.5m c/w 2t winch; Rapp Marine RLC8 stiff boom landing crane 8mt c/w 2t landing winch

FISH HANDLING/FISHROOM
Fish handling system: VCU Urk, Holland; **Fishroom chilling:** Nordkøl, Hanstholm; **Ice Machines:** 2 x 2.5t kg Buus icemakers

ELECTRONICS
Supplier: H Williamson & Sons Ltd, Scalloway, Shetland

Fish detection
Simrad ES80 70kHz chirped sounder c/w real time hardness interfaced to Olex; Furuno FCV-295 single frequency (50khz) colour sounder c/w 10-inch display; Simrad PX trawl monitoring system with 2 x PI trawl hydrophones and receiver, PX catch/temperature sensor and two PX multi-sensors

Navigation
Furuno FAR-2127 25kW radar c/w DVI output on dual display and Furuno FAR-151312kW radars; 2 x Furuno GP-32 receivers; Olex 3D seabed mapping system (c/w hardness module, AIS & charts) and 2 x Sodena Turbowin plotters c/w AIS, ARPA, Tide T8 and charts; FishSafe unit; Navitron NT921G autopilot c/w 3 x NT920 non-follow-up controls, 3 x NT921RAI rudder indicators and Navitron NT9920WA watch alarm; Furuno SC-50 satellite compass, Furuno FA150 AIS; AIS Dhan buoy system; Furuno RO wind speed and direction indicator (interfaced to Olex system)

Communications
Sailor 6310 MF/HF 150W radio telephone; Icom M323 VHF DSC; 2 x Sailor 6248 VHFs; Entel HT649 GMDSS handheld VHF; Furuno Turbosailor VSAT system; Furuno NX-300 Navtex; Tron 60S GPS EPIRB; Peitel GSM phone; Phonetec 3101 – 10-station talkback system; 6 x 9001 interior cabin unit; Seatel 80 satellite TV system; HWS 8-camera CCTV system c/w Vista VQCM 4-channel quad switcher

FISHING GEAR
Net Suppliers: LHD Ltd Lerwick – 250ft grass rope seine net with 687 x 6in meshes in fishing circle; 4-section box hopper seine net rigged on 105ft of 8in and 10in discs and 240ft of rubber legs with 560 x 8in meshes in fishing circle; Thyborøn Trawl Binderi: Single-rig groundfish scraper trawl rigged on 220ft of 8in and 10in discs; **Doors:** Thyborøn Type 14 3.75m2 1100kg; **Seine net rope** – 30 coils of Selstrad 42mm 4-strand seine net rope

ACCOMMODATION
4 x single-berth and 2 x twin-berth cabins

GENERAL
Engine controls: Finnøy; **Finance:** Royal Bank of Scotland, Lerwick; **Insurance:** British Marine Mutual; **Lifesaving appliances:** LHD Ltd, Lerwick and Blue Anchor Fire & Safety Ltd, Fraserburgh; **Paint:** International; **Steering:** Wills Ridley; **Wheelhouse seats:** 2 x NorSap