



Under-Raps Case Studies and Company Profile

An Exhibit for:



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Case Study 1 – Royal Australian Navy – Fleet of Sea Sprite Helicopters

The Brief

Purchased for over \$1 billion, the Royal Australian Navy's fleet of Sea Sprite Helicopters never met the expectations of the Defence Department, and eventually the fleet was returned as a single shipment to the supplier. It was vital that the aircraft arrived in pristine condition - the journey involved road to the port and sea transport across the Pacific Ocean, with associated transshipment at the docksides.

Under-Raps was briefed to provide an anti-corrosion packaging that could protect the helicopters from the corrosive ship exhausts while at sea and yet allow the necessary handling and inspections during the journey.

The Solution

MATERIAL SELECTION: Material selection was driven by the need to protect the airframe and the avionics from the corrosive environment created by ship exhausts combining with salty moisture laden air.

Material chosen: Intercept Technology™ anti-corrosion UV-resistant heat shrink film.

APPLICATION PROCESS: The choice was between cut off-the-roll onsite or pre-sewn covers. Pre-sewn covers were selected to guarantee consistent results across the fleet and to ensure good seal and good access to transport handling points. Under-Raps provided a solution that packaged the main body and the rotor head while leaving the aircraft wheels exposed to allow movement and securing of the aircraft on the ground.

Additionally, the rotor head assembly packaging included an access zipper to allow lifting via the rotor head.

Pattern Making

Under-Raps pattern specialist visited the RAN base in Nowra to make up patterns for the aircraft. These patterns are then registered in Under-Raps pattern library.



Making the Pattern – Under-Raps specialist measures up the Sea Sprite

Cut and Sew

Under-Raps' manufacturing facility in the Perth suburb of Malaga built the eleven sets of covers.

Fitting

Pre-sewn covers allowed all eleven units to be packaged quickly and with minimal onsite waste.



The Sea Sprite Fleet – Under-Rapped.

Transport

Transport was intermodal, a combination of road transport on low loaders and ocean transport. Under-Raps packaging allowed transport and intermodal transshipping without compromising the packaging.



Under Way – Under-Rapped Sea Sprite Departs Nowra

Results

Transport journey proceeded smoothly; all eleven helicopters arrived in pristine condition.

Case Study 2 – Quarantine Wrap – Chevron’s World Class Supply Chain

The Brief

In 2008, Chevron approached Under-Raps with a difficult problem to solve. In order to meet the environmental conditions for their proposed Gorgon Liquefied Natural Gas (LNG) plant on Barrow Island off Australia’s remote North West coast, Chevron had to create a quarantine barrier between the mainland and the island with the overall goal of “Zero Introductions”. Realising that building a massive shore-based quarantine facility to clean and fumigate all equipment would be unfeasible and would create a gigantic bottle neck in their supply chain, Chevron asked Under-Raps to propose a solution for all the bulk transport: the vast range of mobile plant and equipment plus the thousands of portable buildings.

The brief was to propose a packaging solution that would allow the quarantine processes to be pushed back to the supplier’s premises and that could maintain that barrier during transport from suppliers’ premises to the island.

The Solution

Under-Raps’ ten year experience of packaging heavy mining equipment for transport and storage, and especially the creation of the Intercept Technology™ anti-corrosion packages required a near air-tight seal and that same seal could be used as the quarantine barrier.

MATERIAL SELECTION: Under-Raps’ UV-resistant Powershrink white 200µm thick LDPE plastic films was chosen. For the arduous road journey, Under-Raps’ recommended a double-layer of film to increase mechanical strength against stone, stick and bird strikes.

Using Under-Raps’ zippered access panels, a barrier could be created that would allow the introduction of fumigation chemicals after the equipment had been wrapped.

APPLICATION PROCESS: The equipment being transported falls into two categories, the mobile plant and equipment where there is a huge variety in the shapes and sizes, and the portable buildings where there are huge numbers of units with the same shapes and sizes.

Mobile Plant and Equipment

Mobile plant and equipment were wrapped “off-the-roll”. Teams of applicators visit site with the raw materials (rolls of plastic film, tapes, tools, zipper panels, etc) and literally cut the packaging straight from the 6m wide by 50m long or the 12m wide by 50m long rolls of film. The images below illustrate the process.



First Step - Protect Sharp Edges



Attach Inner Base Sheet



Inner Layer Fitted



Place Inner Top Sheet



Outer Layer Fitted –Shrunk Tight



Tie-Downs Exposed for Convenient Handling



Illustration of Zipper Access to Concealed Lifting Point

Portable Buildings

Portable buildings were wrapped using “pre-sewn” covers, manufactured at Under-Raps’ Malaga facility. Pre-sewn covers significantly reduce the time to package a portable building compared to “off-the-roll” application, the suppliers have tight contractual delivery schedules.



Manufacturing Portable Building Covers



Preparing Portable Unit Before Fitting Covers

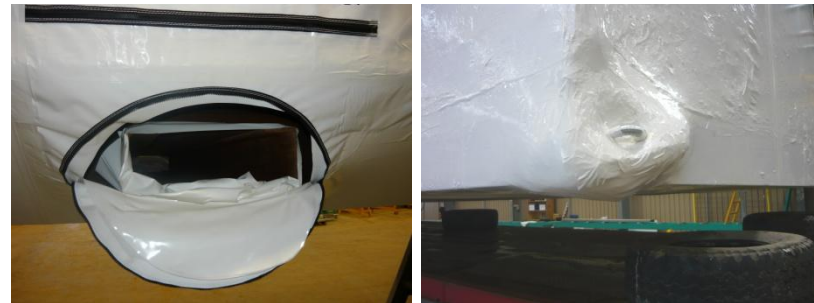


Inner Cover Fitted, Out Cover Next



Outer Cover, Door Access Panels and Fumigation Panels Fitted

The large zipper panels fitted over the doors allow quarantine inspection of the interior and removal of pesticide baits prior to the units leaving the Australian mainland. Small semi-circular zippers provide fumigation access.



Handling Points – Fork Lift Pocket, Exposed Chain Down Point

Results

Over 100 pieces of heavy plant and equipment have been wrapped so far at various Perth suburban locations for road transport to Dampier.

Over 250 units for the “Fly Camp” were wrapped at Australian Portable Camps in Monarto, South Australia and then transported by road over 4,000km to Dampier on Australia’s North West Coast before inspection, external wash and barge journey to the island.

Over 150 units have been wrapped so far for Ausco Modular in the Perth suburb of Bibra Lakes, some transported by road to Dampier, others making the journey by open-deck barge from Chevron’s marine supply base in the Perth suburb of Henderson.

Result? Zero quarantine breaches, equipment arrives on Barrow Island perfect condition.

Additional benefits of the quarantine packaging include:

- Ease of inspection prior to leaving mainland Australia, if the package has not been compromised, it can travel to the island immediately.
- Protection of valuable capital equipment and the environment during the long journey to the island, no dust, no moisture, no sun damage.

Case Study 3 – Riviera Marine – Protecting Luxury

The Brief

Riviera Marine, Australia’s premier manufacturer of luxury watercraft based in Queensland’s Gold Coast region, exports their products to the USA and Europe.

After experiencing the problems of top-deck shipping using old methods such as tarpaulins, Riviera wanted to remove the expense and delay at the receiving end as the boat would have to be completely cleaned and detailed, a process often taking a team of three or four specialists up to a week to complete.

Riviera also had a unique requirement, to avoid dock access problems the boats are steamed from Riviera’s Gold Coast facility to Port Brisbane and then lifted directly from the water to the ship’s deck.

The brief, provide a single-use shipping cover robust enough to withstand top-deck ocean transport and that allows the boat to be manned and driven with the cover on, at a price less than the cost of detailing at the receiving end.

The Solution

MATERIAL SELECTION: Under-Raps chose to use Amorshield, a specialty plastic film imported from the USA exclusive by Under-Raps. Armorshield combines a water-proof LDPE UV-resistant heat shrink plastic film with one side of Polyester flock lining. The flock lining is perfect for protecting high gloss surfaces such as the fiberglass gel coats on Riviera’s hull and superstructure.

APPLICATION PROCESS: Pre-sewn covers manufactured in Under-Raps sewing loft, shipped to Riviera and fitted by Riviera’s staff.

Pattern Making

Under-Raps measured Riviera’s range of craft and created patterns for storage in Under-Raps’ pattern library.



Making The Pattern

Cut and Sew

Riviera includes the Under-Raps shipping cover in their Bill of Materials for each model, and when their manufacturing system receives an order for export, it automatically generates an order for an Under-Raps cover.



Under-Raps' Malaga Facility Builds The Covers

Fitting

Riviera staff fit the cover at their docks in Coomera, Queensland.

The covers include sewn-in straps for fitting over the boat's topsides, man-access zipper panels, clear panels for navigation from the fly bridge, clear panels for navigation lights and various zipper panels as required for air flow during the journey from Gold Coast to Port Brisbane.



Cover hoisted above boat for unfurling.



Unfurling the cover



On The Water – Cover Fitted

Transport

With the cover fitted, the journey starts by motoring the boat from Coomera along the coast to the mouth of the Brisbane river and then upstream to come alongside the outbound ship in Port Brisbane



Secured For Ocean Journey



First Stage Complete – Lifting Direct To Ship's Deck



Under Way – Under-Rapped For The Journey

Results

As of 2010, Under-Raps has supplied over 450 shipping covers to Riviera and other boat manufacturers, ensuring that the export of well over \$500 million of luxury boats survive the challenging conditions of top deck shipping to arrive in show room condition.

Under-Raps Pty Ltd Company Profile

Formed in 1996, Under-Raps Pty Ltd provides specialist packaging services to a wide range of supply chains. Specialising in anti-corrosion packaging solutions, Under-Raps offers a unique service in the Australian marketplace.

With current staff of around 30, including the dedicated sewing loft, Under-Raps supplies packaging solutions to the resources industry, the manufacturing industry and third-party logistics companies.

Under-Raps maintains a chain of distributors in each state of Australia.