STAR WARS MILLENNIUM FALCON

BUILD THE MODEL – EXPLORE THE GALAXY



MAINTENANCE BAYS

F219FSC021

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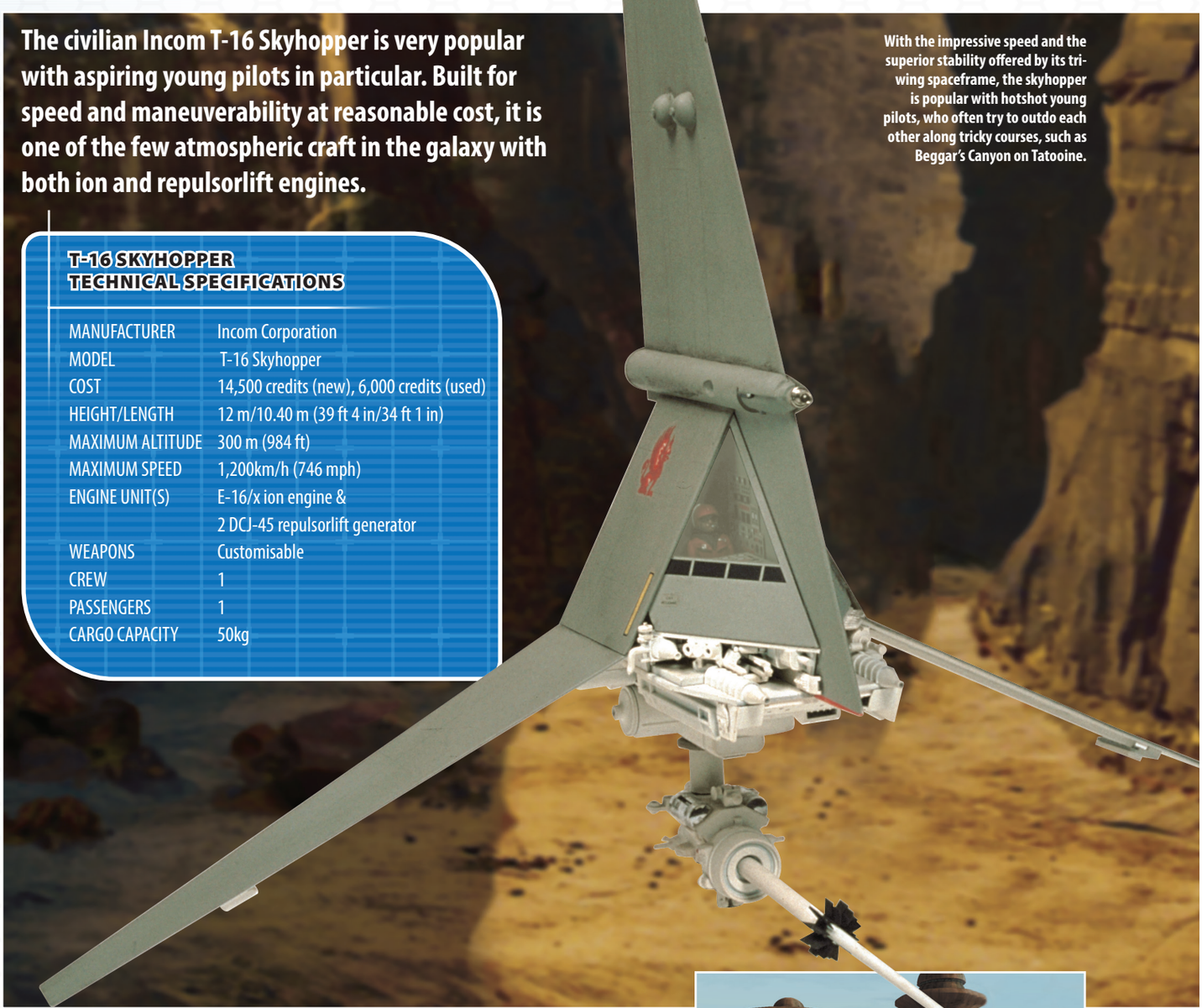
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ENTRY-LEVEL HOTROD

INCOM T-16 SKYHOPPER

The civilian Incom T-16 Skyhopper is very popular with aspiring young pilots in particular. Built for speed and maneuverability at reasonable cost, it is one of the few atmospheric craft in the galaxy with both ion and repulsorlift engines.



With the impressive speed and the superior stability offered by its tri-wing spaceframe, the skyhopper is popular with hotshot young pilots, who often try to outdo each other along tricky courses, such as Beggar's Canyon on Tatooine.

T-16 SKYHOPPER TECHNICAL SPECIFICATIONS

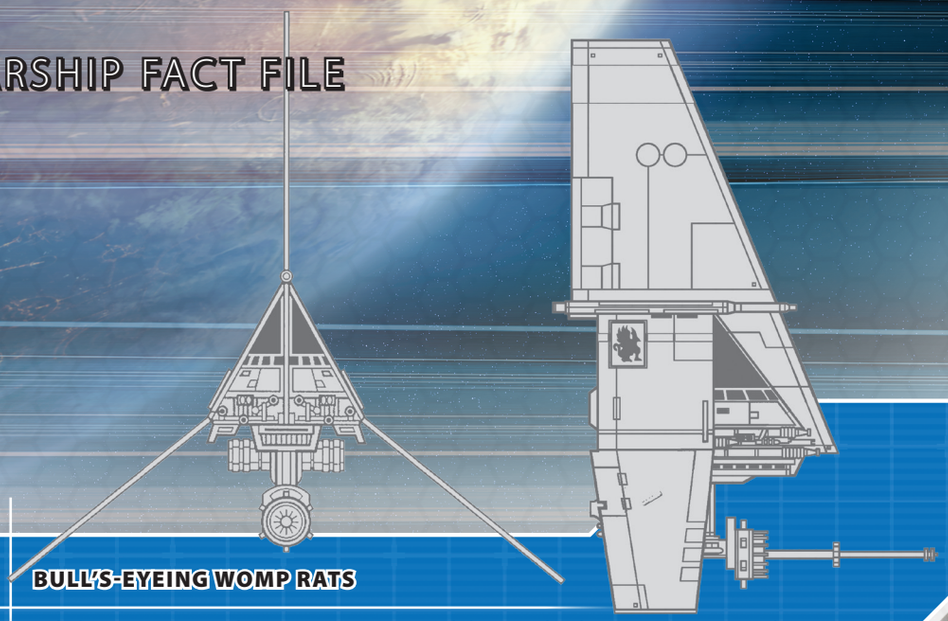
MANUFACTURER	Incom Corporation
MODEL	T-16 Skyhopper
COST	14,500 credits (new), 6,000 credits (used)
HEIGHT/LENGTH	12 m/10.40 m (39 ft 4 in/34 ft 1 in)
MAXIMUM ALTITUDE	300 m (984 ft)
MAXIMUM SPEED	1,200km/h (746 mph)
ENGINE UNIT(S)	E-16/x ion engine & 2 DCJ-45 repulsorlift generator
WEAPONS	Customisable
CREW	1
PASSENGERS	1
CARGO CAPACITY	50kg

Although there are many models of skyhopper, the T-16 is probably the most ubiquitous and successful of them all. The T-16 can easily be identified by its triangular cockpit and its three wings, which are so familiar to a generation of pilots that Cygnus Spaceworks adopted the T-16's tri-wing design in several of its popular models such as the *Eta*-class and *Lambda*-class shuttles. While the central wing does block the pilot's view, a head-up display and a holographic mapping device do a lot to compensate. The cockpit has room for one passenger and is pressurized for low orbital flights.



Tatooine offered a few opportunities for exciting flying – such as buzzing Jabba the Hutt's palace (a large sandrock and durasteel complex on the fringe of the Northern Dune Sea).

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BULL'S-EYEING WOMP RATS

Luke's experience at shooting womp rats with his T-16 back on Tatooine proved very useful when he was about to attack the Death Star. The vulnerable thermal exhaust port was only two meters wide and Luke knew he could hit a target that small – even though other pilots, such as Wedge Antilles, doubted the outcome of General Dodonna's tactics. Right before entering the Death Star's equatorial trench during the Battle of Yavin, Luke reminded Biggs Darklighter that it was just like Beggar's Canyon back home.

SPEED AND VERSATILITY

The skyhopper gets its name from being able to 'hop' from one place to another. Because the T-16 possesses both repulsorlift and ion engines, the craft is able to cover great distances, and can even reach low orbit. Right after take-off, the skyhopper can quickly reach a height of 300 kilometers, flying through the troposphere. The E-16/x ion engine of the T-16 allows it to fly at a top speed of nearly 1,200km/h, which rivals or even outflies many starfighters and other vessels. The tri-wing design balances the vehicle with the help of advanced gyro-stabilizers, even during complex maneuvers. As quickly as it takes off, the skyhopper is able to drop from altitude toward its next destination.

Skyhoppers are very popular among young pilots who dream of adventurous exploits among the stars. The craft's maneuverability and speed certainly are two assets that persuade younger pilots to adopt a skyhopper instead of a more traditional airspeeder. The gyro-stabilizer system works together with two DCJ-45 repulsorlift generators to allow the T-16 to perform tight turns, incredibly steep climbs, and other madcap stunts. The T-16 is the hotrod that every aspiring pilot hopes to park in his or her garage. Skyhopper racing leagues have taken the vacant position on several Outer Rim worlds where the once-popular podracing has been outlawed.

Since the T-16 is readily available on the civilian market, the craft doesn't come with any weaponry. However, many skyhoppers are outfitted with a removable stun cannon to protect the pilot from local fauna or other



As a young farm boy, Luke would not be expected to master the skills needed to fly a snub fighter in battle. Luckily, the T-16 his uncle had given him was the ideal training ground for the rebels' T-65.



LUKE SKYWALKER

Because the controls of a T-16 are nearly identical to those of Incom's T-65 X-wing, Luke was able to adapt to the rebel fighter immediately. Luke, whose T-16 featured a red insignia of a 'Flaming Ragerunner' (most likely a stylized bonegnawer), wasn't the only bush pilot who benefited from this experience. Biggs Darklighter and Jek Porkins had also been adept T-16 hotrod fliers.

Biggs Darklighter and Luke (far left) were friendly rivals in the skies of Tatooine, who were reunited ahead of the Battle of Yavin.

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RACING ON TATOOINE

THREADING THE NEEDLE

'Threading the Needle' is a legendary, but very dangerous stunt among young pilots on Tatooine. It means flying your craft straight through the Stone Needle, a rocky outcropping in Beggar's Canyon with a top shaped like a ring. Not long before Biggs returned to Tatooine for the last time, Luke Skywalker had managed to 'thread' the Needle after Laze Loneozner, the 'Fixer', had challenged him to another skyhopper race. Owen Lars was furious when he heard of Luke's actions and grounded him for the rest of the season. Beside being grounded, Luke had damaged the central airfoil of his craft, so he truly had no other option but to use his X-34 landspeeder. Luke's thirst for adventure couldn't be stilled and whenever he had the chance, he imagined flying the T-16 scale model he kept in the garage. Little did Luke realize that he was about to leave Tatooine, and that he wouldn't get a chance to repair his T-16.



With his T-16 sidelined in the garage, Luke had to dream of practicing maneuvers with a scale model.



The T-16 was the ideal craft for those who wanted to make quick journeys between Tatooine's distant settlements.

unexpected obstacles. Owners can customize their T-16 due to the magnetic clamps and computer interfaces situated underneath the craft. These can be used to add attachments, such as extra fuel slugs or a pneumatic projectile cannon with targeting lasers.

Not all skyhoppers are used simply as civilian pleasure craft, however. Some are used by local militias or police units and are armed with a heavy laser cannon. Unfortunately, pirate gangs and smugglers also use skyhoppers, since they're able to outrun most adversaries and cargo vessels.

As a young farm boy on Tatooine, Luke Skywalker owned a modified second-hand T-16 Skyhopper which had been a gift from his uncle Owen and aunt Beru. Luke used his T-16 to bull's-eye womp rat burrows or to race in the dangerous Beggar's Canyon with other local youngsters, such as Biggs, Tank, the Fixer, Windy, and Deak.



Prior to the T-16, the Lars homestead owned an earlier skyhopper, which was in the garage when Luke's father and mother visited.

BEHIND THE SCENES

SMALL SCALE

Concept modeler Colin Cantwell built the miniature model of the 'star hopper' (as it was first called) based on a design by Joe Johnston. This prop is actually used by Luke in the movie. Budgetary constraints resulted in only a partial set being built for the Lars homestead garage sequences. Norman Reynolds, art director for *A New Hope*, recalled that the appearance of the skyhopper in the movie was similar to having your car in the garage. Johnston later used the design of the skyhopper to develop the Imperial Shuttle for *Return of the Jedi*. No operational T-16 was seen on screen until one was added to the celebration scene on Tatooine in the Special Edition of *Return of the Jedi*. In *Attack of the Clones* a different model of skyhopper can be seen at the Lars homestead.

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MAINTENANCE BAYS



Like his co-pilot, Han Solo soon became very familiar with his ship's internal systems, and frequently had to take out his tool roll and set to work in one of the *Falcon*'s maintenance bays.

Starship captains who neglect their ship's maintenance do not stay captains for very long. Sooner or later, those who work for a regular operator will most likely be sacked, while freelancers face the risk of mutiny – unless a catastrophic disaster befalls the ship before that has time to happen.

It takes a lot of blood, sweat, and tears to keep any ship spaceworthy – even in the case of a vessel with such an enviable service record as CEC's YT-1300 freighter. Fortunately, the ship's most complex system – the hyperdrive – is also the most trouble-free, as it only requires maintenance every 50,000 parsecs (more frequently if the ship makes more than two galactic transits in a year).

The YT-1300's sublight engine needs more maintenance, with servicing at 10,000, 20,000, and 100,000 parsecs (although CEC has never explained the gap between the second and third services). It is also important to keep the six central heat vents on top of the ship free from debris, since the ship's engines and computer could both fail if the vents are not regularly cleaned.

The ancillary systems have varying service intervals. Shield generators need an initial 10,000 parsec service, but should then protect the ship until 100,000 parsecs. Sensors also require initial maintenance at 10,000 parsecs, but this has to be followed by an intermediate 50,000 parsec service. Laser cannons do not need attention until the 50,000 parsec service, and are then expected to defend the ship for another 50,000. Landing gear is safe until the 100,000 parsec mark, unless the ship frequently lands off-pad.

LONG-TERM OPERATION

CEC's fairly leisurely service schedule is easy to follow in the case of a relatively new, unaltered ship – but even without breakdowns, the old, heavily modified YT-1300 that Han Solo and Chewbacca called home needed more than double the manufacturer's recommended level of attention. They sometimes had to

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devote nearly every spare minute spent on a safe planet nursing their ship.

Luckily, the YT-1300's systems are designed for easy access, with several maintenance hatches that allow work to be carried out from outside the freighter when she is safely in port, and internal maintenance bays that allow urgent servicing and repairs to be done from within, either in port or while travelling through space.

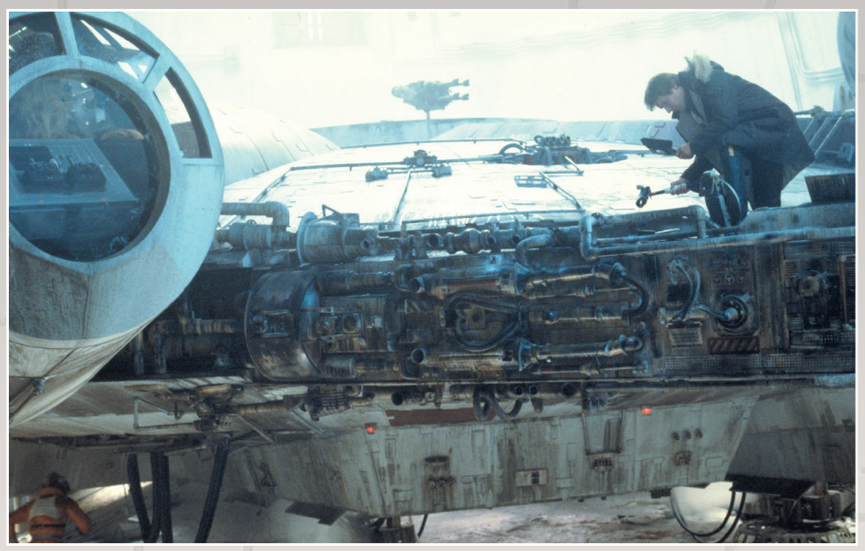
EXTERNAL ACCESS

Both the YT-1300's fore mandibles have four maintenance bays. These give easy access to ancillary equipment such as the deflector shield generator and shield projector on the starboard side, or the passive sensor antenna and sensor jammer on the port mandible. Maintenance crawlways inside both mandibles are accessible from exterior hatches, and also run through to the main hold and forward hold.

Another hatch is fitted behind the main sensor antenna, and gives access to the exterior of the hull. On some starships, this type of hatch can be used by astromech droids to carry out repairs in space, but there is no record of this in the *Falcon*'s log – although Han Solo did use a Treadwell droid to help with maintenance on top of the hull while landed on Hoth. Luke Skywalker had reason to be glad of this hatch after Lando Calrissian used it to rescue him from the weather vane on the underside of Bespin's Cloud City.



There was a whole layer of engineering below the passenger and cargo accommodation, which was accessible under the maintenance panels.



Although most of the ship's vital systems were protected by her armor plating, there were some jobs that could only be done from outside, and Han had to take every opportunity to tackle these when the *Falcon* was safely berthed.

INTERIOR MAINTENANCE

Maintenance of the internal systems is much simpler, although it sometimes means climbing into awkward, confined spaces – including the forward crawlways and various voids in the ceiling. Fortunately, the YT-1300's most vital systems are accessible from the main hold, under large grilles in the heavily reinforced floor, just aft of the port mandible. These cover two large maintenance bays, designed to give the

REAL-LIFE REPAIRS

When director Irvin Kershner called action on *The Empire Strikes Back,* he was helping create a larger world of the imagination, and the film would show off much more of Han Solo's battered freighter than had been seen in *A New Hope*.

When the *Millennium Falcon* first appears on screen in the Hoth rebel base, Han and Chewbacca are working to fix problems on the outside of the hull, and among the sets constructed for the inside of the freighter-turned-smuggling ship were several maintenance bays inside which the crew desperately wrestle her failing systems back to life. The *Falcon* was the first studio set Kershner turned to on 13 March 1979, when filming began at Elstree Studios, London. However, the Empire nearly didn't have to strike back in order to destroy Solo's ship, as a progress report on 10 May records that a small fire occurred on the starship set as the 'result of a lamp falling over and remaining unnoticed'. Fortunately there was no serious damage, and after some real-life maintenance work, the *Falcon* soared again.



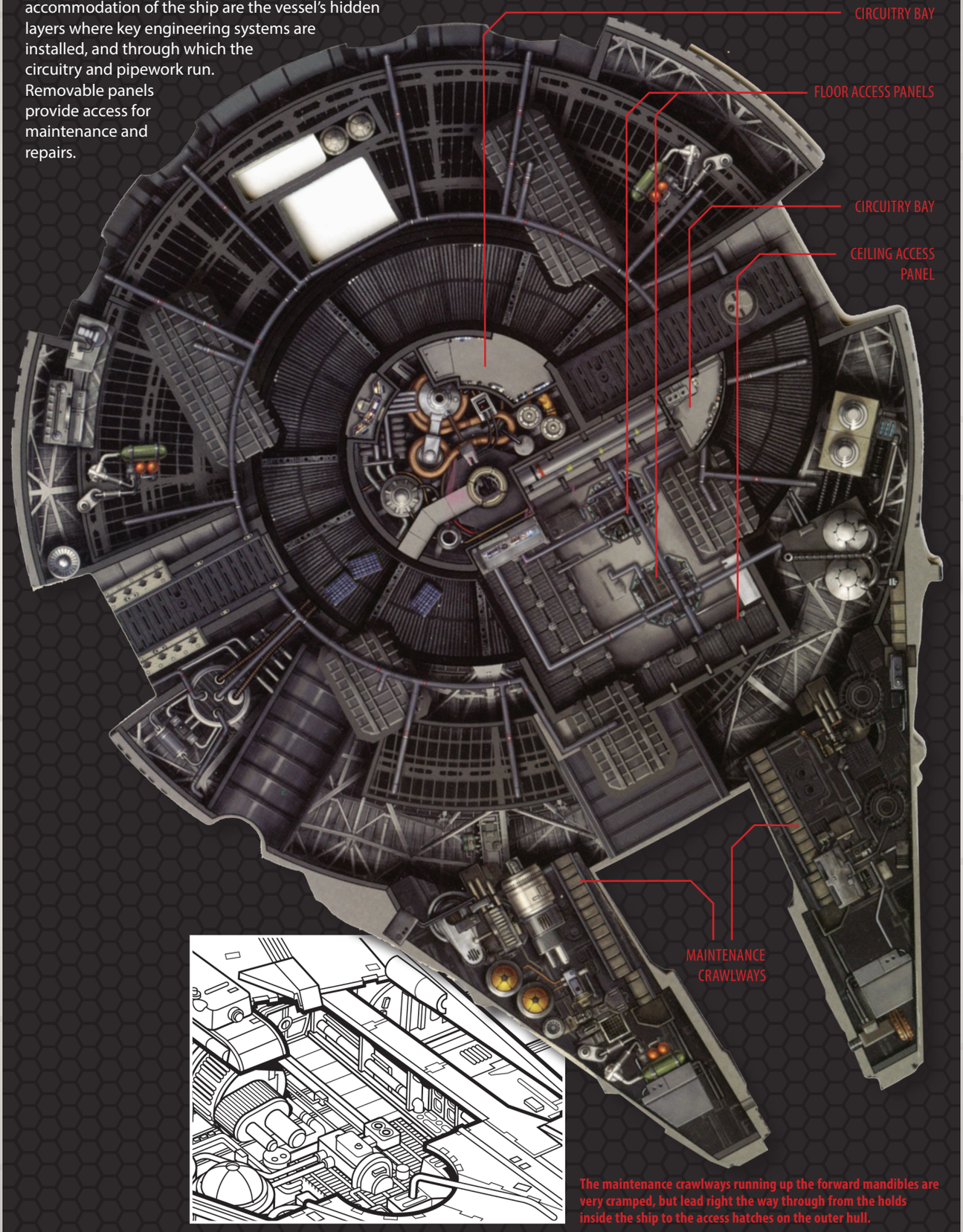
Director Irvin Kershner (right) discusses a miniature maquette for *The Empire Strikes Back* with associate producer Robert Watts (left) and production designer Norman Reynolds (center).

BEHIND THE SCENES

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ENGINEERING LEVEL

Set between the outer pressure hull and the internal accommodation of the ship are the vessel's hidden layers where key engineering systems are installed, and through which the circuitry and pipework run. Removable panels provide access for maintenance and repairs.



The maintenance crawlways running up the forward mandibles are very cramped, but lead right the way through from the holds inside the ship to the access hatches on the outer hull.

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HAND TOOLS

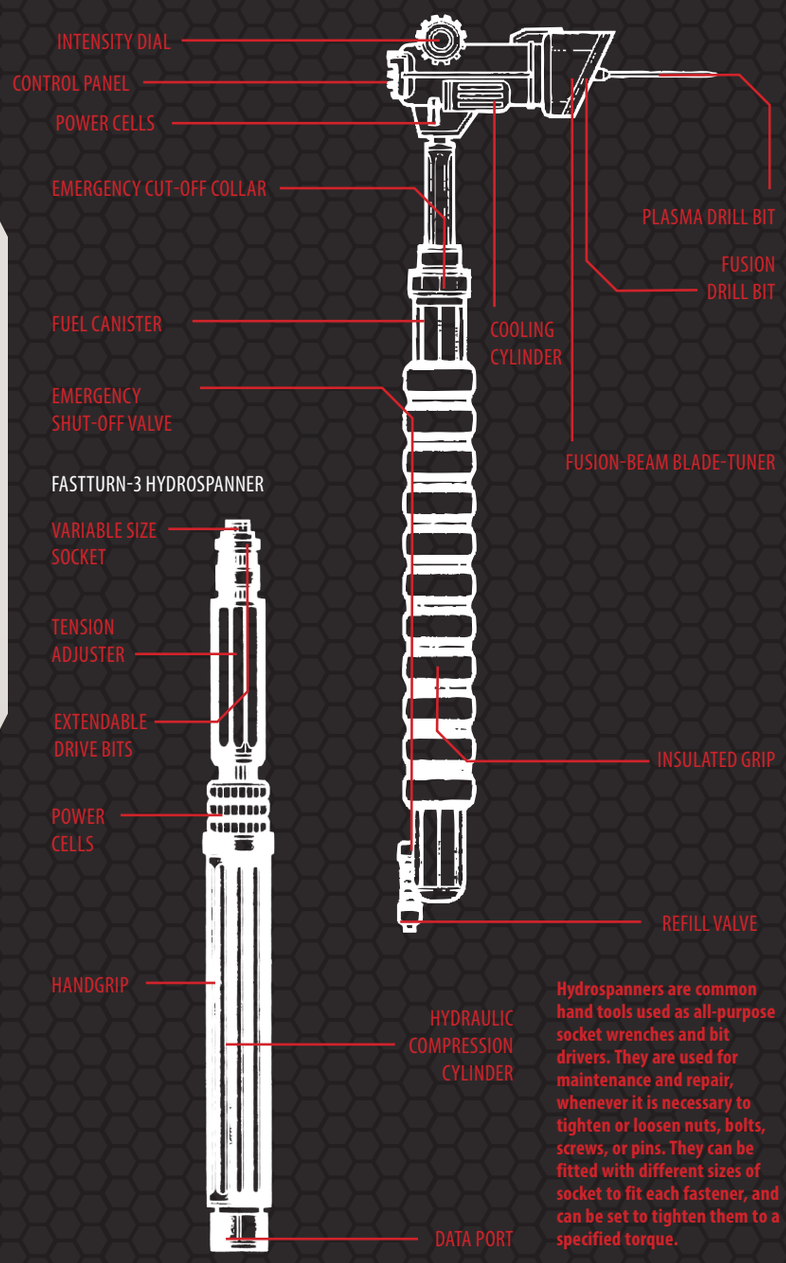
The *Millennium Falcon* never lifted off without a set of essential tools for starship maintenance. Han Solo made sure of that. He was an expert with a hydrospanner, while Chewbacca mastered laser cutters and welders. Such tools were essential for on-the-fly repairs.



Han Solo was all too familiar with having to get out his tools and use hydrospanners to make repairs and adjustments – although he preferred the ship not to cause trouble when he was in a tight corner.

F-187 FUSION CUTTER

At a moderate price, this entry-level F-187 fusion cutter is designed to make quick work of everything short of a starship's armor plating. The device features variable emitter settings, and while it lacks the additional drill bit found on more elaborate models, it can be tripod-mounted for longer jobs and has a remote operating handset attached by a full three metres of cable.



Hydrospanners are common hand tools used as all-purpose socket wrenches and bit drivers. They are used for maintenance and repair, whenever it is necessary to tighten or loosen nuts, bolts, screws, or pins. They can be fitted with different sizes of socket to fit each fastener, and can be set to tighten them to a specified torque.

crew easy access for repair or maintenance without the need to strip parts of the ship down. A third bay is situated in number three hold, just aft of the ship's boarding ramp.

EMERGENCY REPAIRS

The value of the maintenance bays was demonstrated during the *Falcon*'s flight from the Imperial blockade of Hoth. Han Solo climbed down into the forward bay in the hold, wrapping himself around a maze of pipes to investigate the ship's power failure. Another space behind a panel in the ceiling gave Chewbacca access to the negative power coupling that needed replacing. However, the hazards of leaving a bay open was also apparent when R2-D2 toppled onto Chewbacca after fixing the hyperdrive as the *Falcon* fled Cloud City.



Despite the ship not being designed to suit beings as large as Wookiees, Chewbacca was adept at getting into the tight spaces behind the *Falcon*'s access panels.

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YOUR NEXT PARTS

COMPONENTS CHECKLIST

1. Hull frame BF-24
2. Cushion pads (set of 8, on sprue)
3. Fixing screws (x 4, plus spare)
4. 2-hole connector
5. 4-hole connector
6. Hull plating BP-1

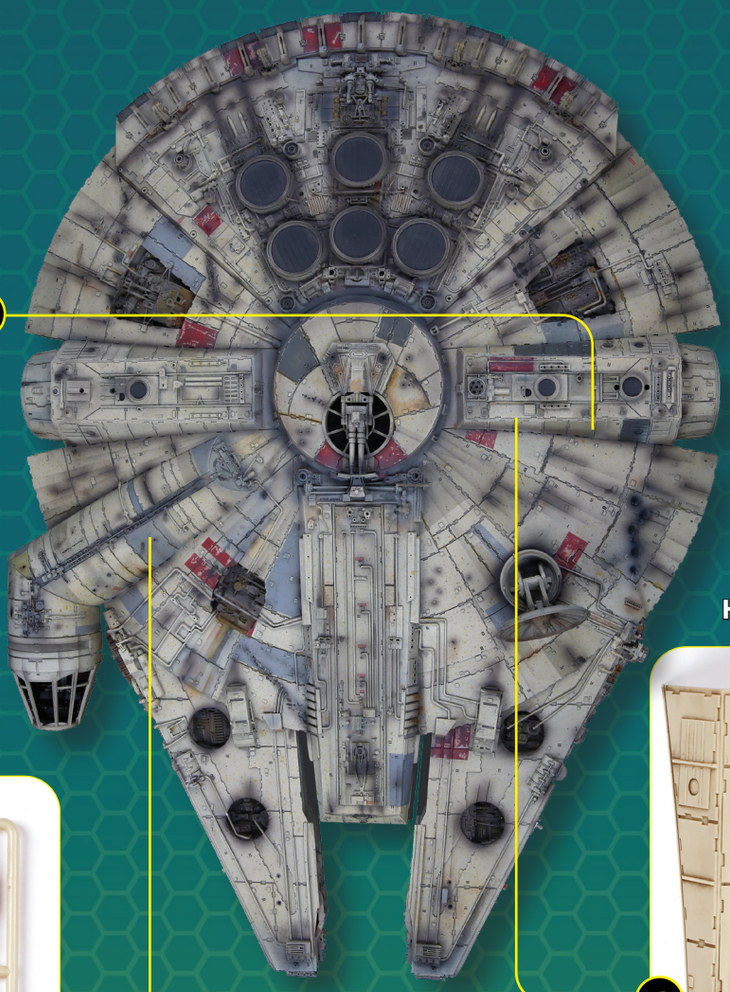
Continue assembling the passage tube by lining the base with padded cushions, which are provided on a sprue as before.

In addition to the parts you need for the corridor, you have another hull frame and the section of plating that forms the underside of the port docking tube. Keep these until later on.

WHERE THE PARTS FIT

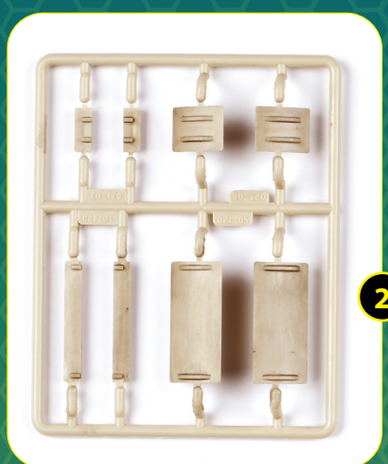
HULL FRAME



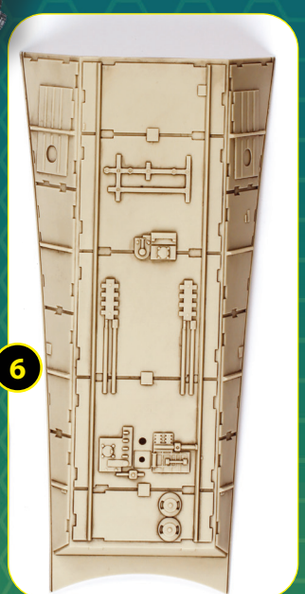




INTERNAL DETAILS



HULL PLATING

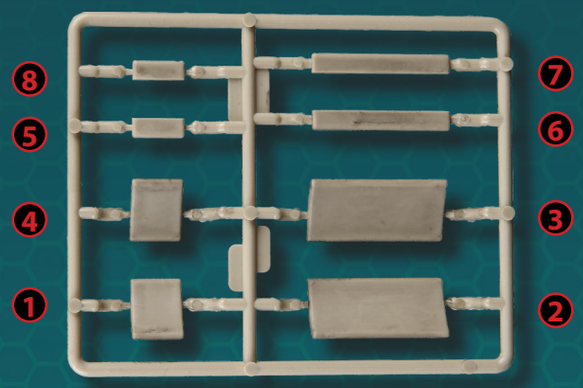


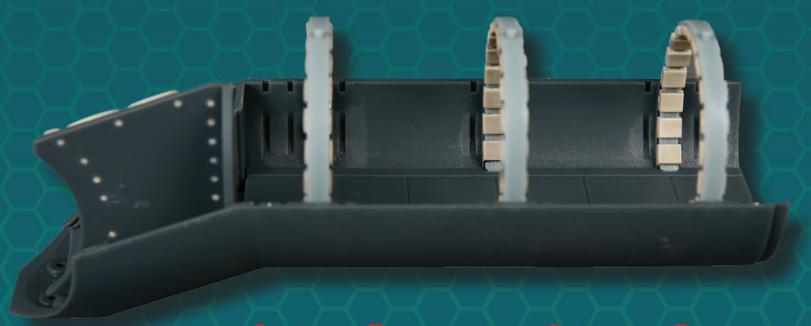
Parts 1 and 6 are for the **underside** of the hull.

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FITTING THE CUSHION PADS

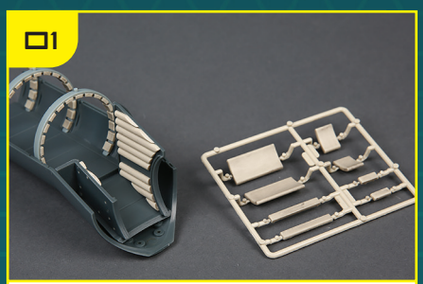
The forward side of the passage tube has eight strips of padding (supplied on a single sprue). Use the photographs on the right to see which strips go where, noting that they fit one way up. To avoid problems, test-fit the whole assembly before gluing any strips.





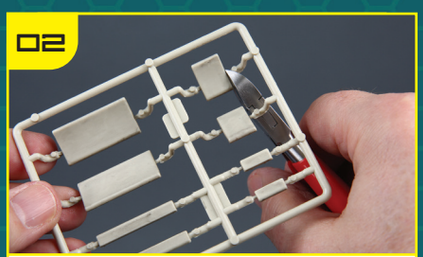


01



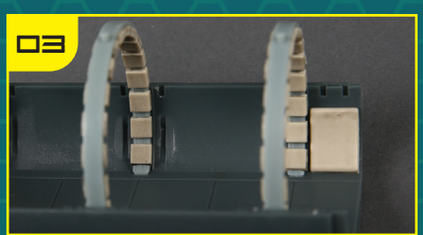
Take the corridor assembly from Stage 20, and Part 2, the cushion pad sprue.

02



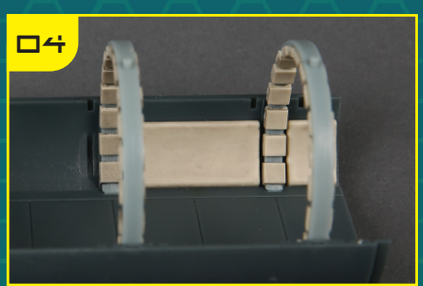
Clip the strips off the sprue as you need them and trim off any molding flash. Be careful not to lose any small pieces.

03



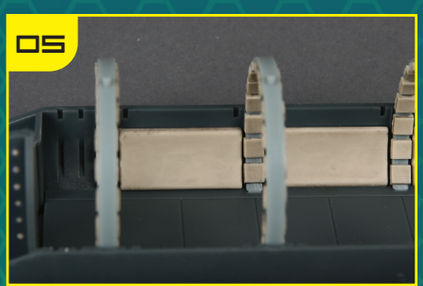
The first piece (1) has two tabs on the back that fit matching slots at the end of the passage tube. Glue it in place with a couple of spots of superglue.

04



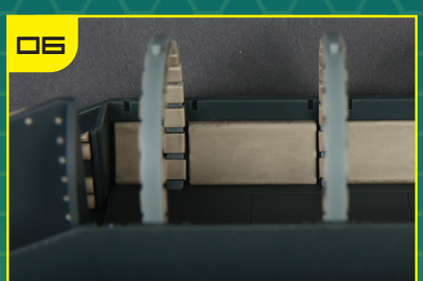
Add the second strip (2), which is fixed in the same way.

05



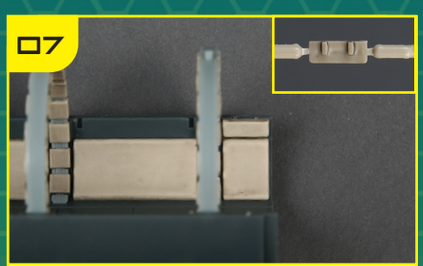
The third strip (3) is fitted between the corridor arches in the same way.

06



The fourth strip (4) fits between the corridor liner and the first arch.

07



The tabs on the fifth strip (5) only extend halfway across the molding. This piece fits with the tabs uppermost.

08



Add the sixth strip (6), which aligns with the edge of the tube in the same way.

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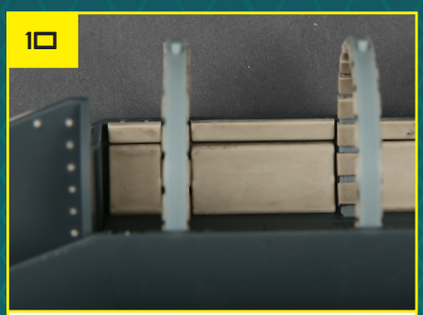
STAGE 21 ASSEMBLY

09

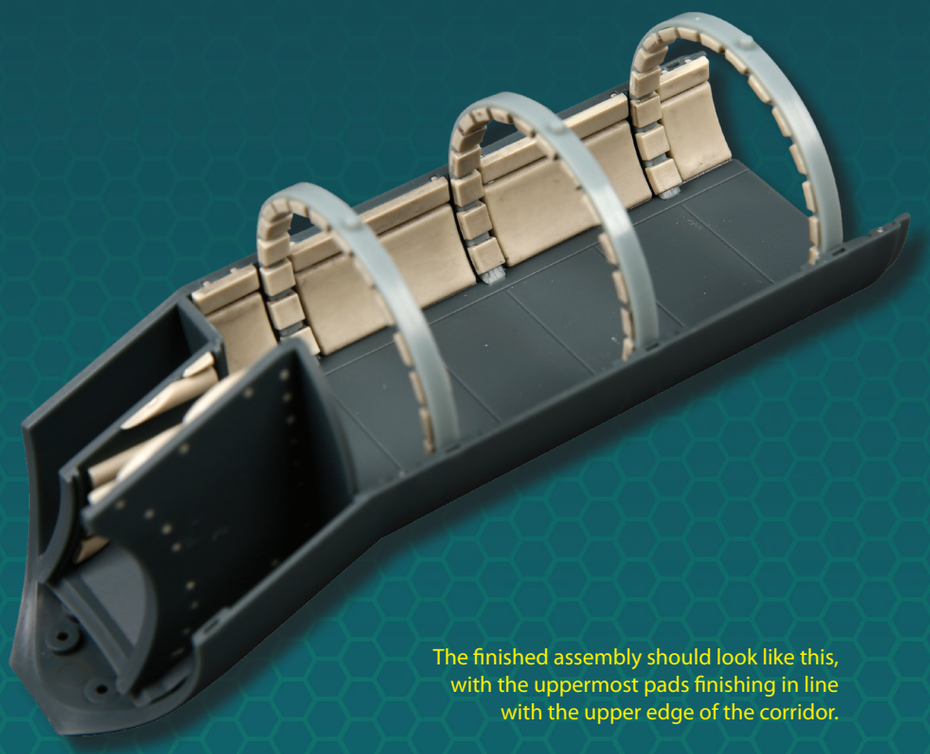


The seventh strip (7), also has tabs only on the upper edge.

10



Complete the run of upper strips by fitting strip (8) against the liner.

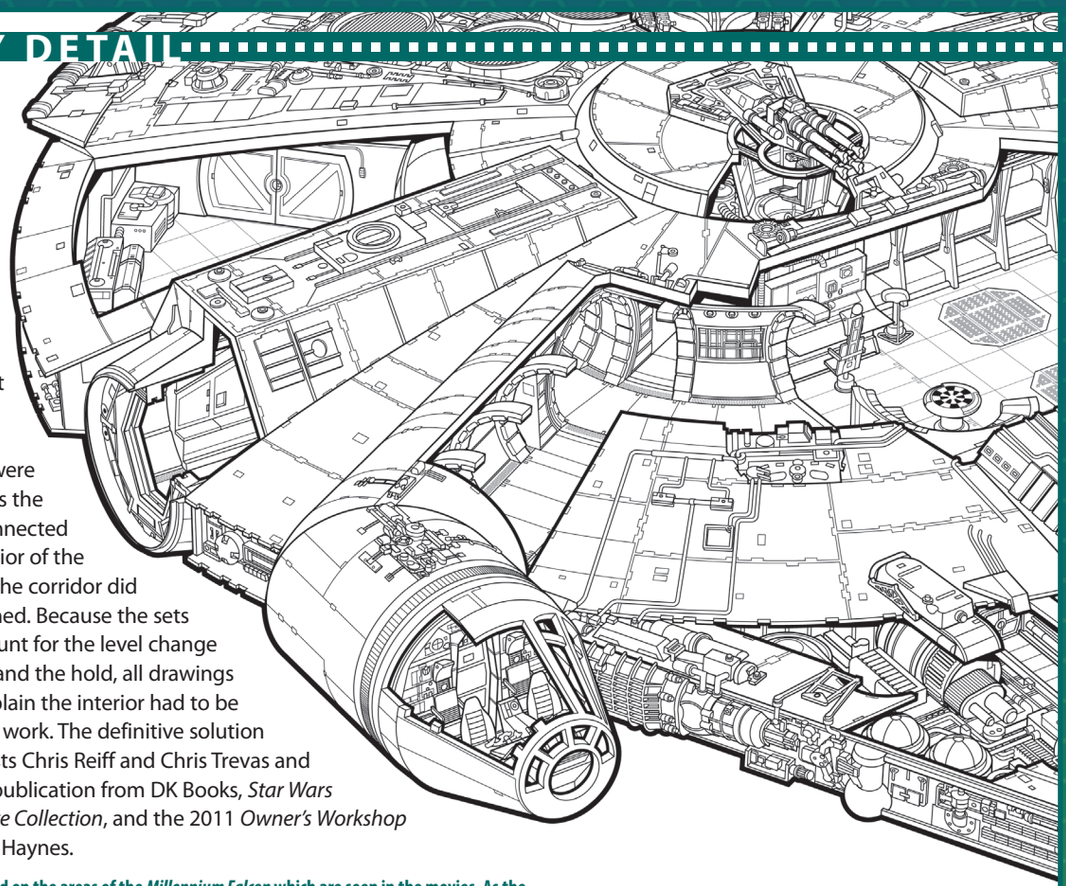


The finished assembly should look like this, with the uppermost pads finishing in line with the upper edge of the corridor.

BEHIND THE SCENES

CUTAWAY DETAIL

The interior of the passage tube in your model only goes part of the way towards the cockpit, and the removable top section of the hull plating (which will be added later on in the build) only shows the interior of the part that you have been constructing. This reflects the sets that were built for the movies, as the cockpit was never connected to the rest of the interior of the ship, and this part of the corridor did not need to be designed. Because the sets did not properly account for the level change between the cockpit and the hold, all drawings that attempted to explain the interior had to be adjusted to make this work. The definitive solution was proposed by artists Chris Reiff and Chris Trevas and featured in the 2008 publication from DK Books, *Star Wars Blueprints: The Ultimate Collection*, and the 2011 *Owner's Workshop Manual,* published by Haynes.



This cutaway drawing is based on the areas of the *Millennium Falcon* which are seen in the movies. As the cockpit and the corridor/hold were two separate sets, there is no actual connection between them.

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