STAR WARS MILLENNIUM FALCON

BUILD THE MODEL – EXPLORE THE GALAXY



HOW TO LAND A STARSHIP

F219FSC015

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HEAVY FAST ATTACK FIGHTER

A/SF-01 B-WING STARFIGHTER

The Rebel Alliance's heavy fast attack starfighter was an unusual design that helped to secure the death of the Emperor and victory for the beleaguered rebels.



During the Galactic Rebellion, the Rebel Alliance was well aware of its need for more effective starfighters to combat the might of the Empire, with its huge fleet of capital ships. Shortly after the Battle of Yavin, Commander (later Admiral) Gial Ackbar and the Slayn & Korpil starship manufacturing company set up a venture known as the Shantipole Project to fill this gap. The result was the B-wing, one of the largest and most heavily armed fighter/bombers to join the rebel attack fleet at the Battle of Endor.

The massive firepower of the B-wing was designed to allow these ships to punch way above their weight. They were even able to take on the Empire's capital ships.

MODULAR DESIGN

The B-wing took its name from its roughly B-shaped side profile, although the ship is also known as a 'cross', due to



A rear view of the B-wing, showing the four thrusters of the Quadex Kryomaster engine. The Quadex core is the same version fitted to CEC's YT-1300 light freighters.

B-WING SPECIFICATIONS

LENGTH	16.9 m (55 ft 5 in)
MGLT	91 MGLT
MAXIMUM SPEED	950km/h in atmosphere
ENGINE UNIT(S)	Quadex Kryomaster engine or Slayn & Korpil JZ-5 Fusial Thrust Engine
HYPERDRIVE RATING	Class 2.0
HYPERDRIVE	Slayn & Korpil HYd-997 hyperdrive motivator
POWER PLANT	Vinop O2K cryogenic power cells and ionization reactor
ARMAMENT	Standard configuration: 3 x ArMek SW-7a light ion cannons 1 x Gyrhil R-9X heavy laser cannon 1 x Gyrhil 72 twin autoblaster 2 x Krupx MG9 proton torpedo launchers with 8 proton torpedoes each (standard load)



VARIABLE GEOMETRY

The B-wing's main body is essentially a single long wing with the cockpit at one end, a weapons pod at the other, and a pair of folding S-foils in the middle – which are extended when in attack mode. The rotating cockpit/airfoil allows the B-wing to be housed vertically in launch racks. The ship is also able to land horizontally, but the disadvantage of this is that in the parked position, all three of its wings have to be locked together, restricting maintenance access to the whole of the central area and making it virtually impossible to work on the lower S-foil.

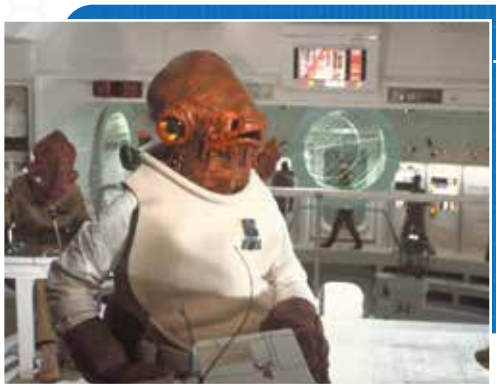
its shape when approaching in attack mode. The ship was designed to be reconfigurable, with a heavy primary airfoil running the length of the hull, and two folding S-foils amidships. The cylindrical cockpit is at one end of the primary airfoil, balanced by a weapons pod at the other.

Very unusually, the cockpit is fitted with a gyro-stabilization system that keeps the pilot horizontal while the rest of the ship is free to rotate around him. This unique configuration was designed to allow the pilot to conduct advanced attack maneuvers, although it proved tricky for many trainees to master, and there were also occasions when the system failed, leaving the cockpit stuck at a fixed angle.

Developed to replace the older Y-wing starfighter, the B-wing's primary role was envisaged as a fast attack fighter capable of targeting Imperial capital ships, although it is equally capable of assaulting ground-based installations as a fighter or bomber. Highly adaptable, it has modular components and hardpoints, two factors that allowed it to be configured with a wider range of weapons than most other Alliance fighters.

FLEXIBLE FIREPOWER

The B-wing also has extremely powerful sensor and control capabilities, and a targeting computer that is equivalent to those of many capital ships. Slayn & Korpil's original design included a unique fire-control system that fires a low-power blast at the target and tracks it to acquire range and vector data for its heavy weaponry.



ADMIRAL GIAL ACKBAR

Co-designer of the B-wing, Admiral Ackbar was a Mon Calamari commander and expert tactician who rose to lead the Alliance fleet at the decisive Battle of Endor. His flagship *Home One* was one of several Mon Calamari star cruisers that formed the backbone of the rebels' capital ships.

THE BATTLE OF ENDOR

'THE SHIELD IS DOWN. COMMENCE ATTACK...'

Although the Rebel Alliance could only deploy limited numbers of B-wings and there was a shortage of qualified pilots, these fighters were a key part of the attack plan at the Battle of Endor. The B-wings proved their worth, and the soundness of the heavy attack fighter concept, when they shot down two *Imperial*-class Star Destroyers, after which two of Blue Squadron's flights joined Lando Calrissian's attack before breaking off to counter the fire of the TIE fighters pursuing the *Millennium Falcon*. After the battle, the versatility of the B-wing's modular design was demonstrated when examples were fitted with firefighting equipment and sent to Endor, where they were used to extinguish numerous fires caused by the falling debris from the second Death Star.



While its great firepower makes the B-wing a formidable assault ship, and it possesses strong deflector shields, the Rebel Alliance normally assigned it a fighter escort on its attack run.

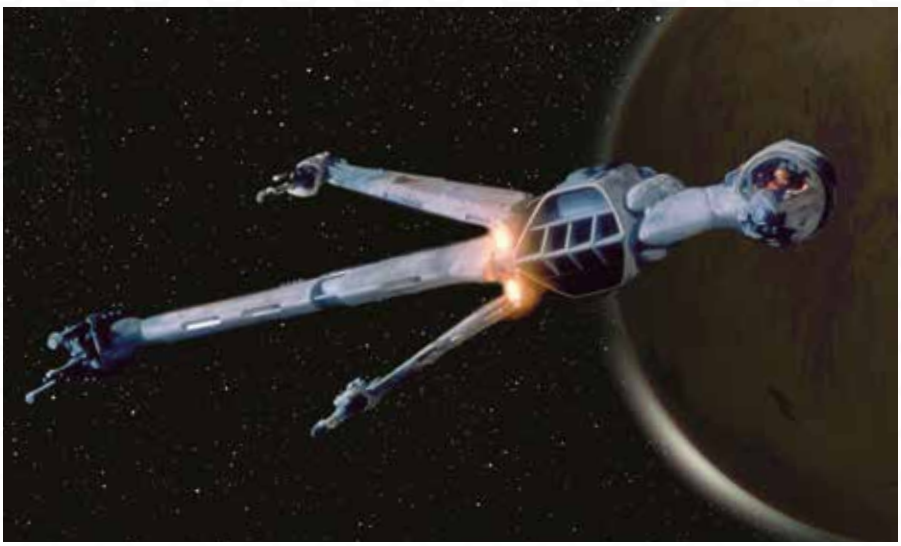


Gial Ackbar's ability saw to it that he rose swiftly through the ranks, achieving the rank of Admiral of the Fleet with the Rebel Alliance after his role in the Shantipole Project, the secret development of the B-wing starfighter.

The B-wing's armament is unusually heavy for a ship of its size, closer to that of a corvette than a small starfighter. The original specifications included a heavy laser cannon, three light ion cannons, two twin autoblasters and two proton torpedo launchers, each armed with eight torpedoes. However, B-wings are frequently fitted with extra ordnance of each type of weapon and can also be equipped with heavy ion cannons and advanced proton torpedoes.

LIMITED SUCCESS

In practice, the B-wing had not fully replaced the aging Y-wings before the Alliance defeated the Emperor's forces at the Battle of Endor. One of the problems was that the B-wing proved expensive to build, but it was also not quite as successful a design as had been hoped. The B-wing's greatest weakness is that it is challenging to fly, and is neither particularly fast nor very agile. Another problem is that its large hull makes the ship an easy target and it is not very heavily armored. Nevertheless, while its dogfighting capability is limited, its heavy firepower and strong defensive shields do a great deal to compensate for this.

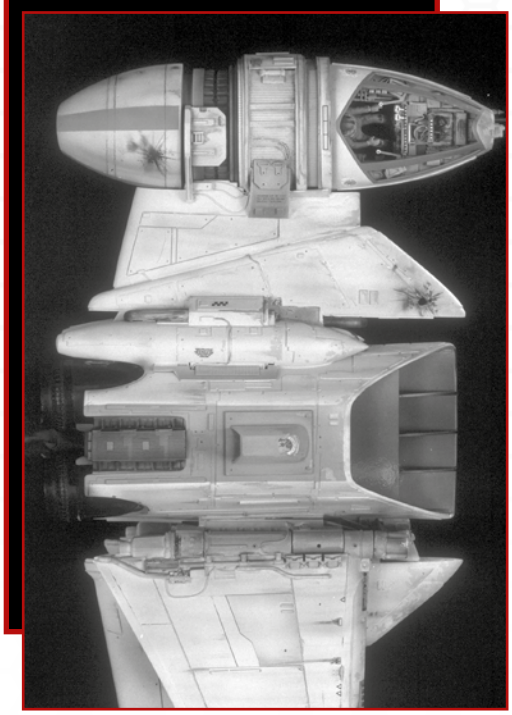


The entire cockpit module of the B-wing is designed to rotate so that whatever the orientation of the ship, the pilot remains horizontal. While this is a very useful targeting aid, many pilots – especially those familiar with flying more conventional craft – found this feature hard to adjust to.

BEHIND THE SCENES

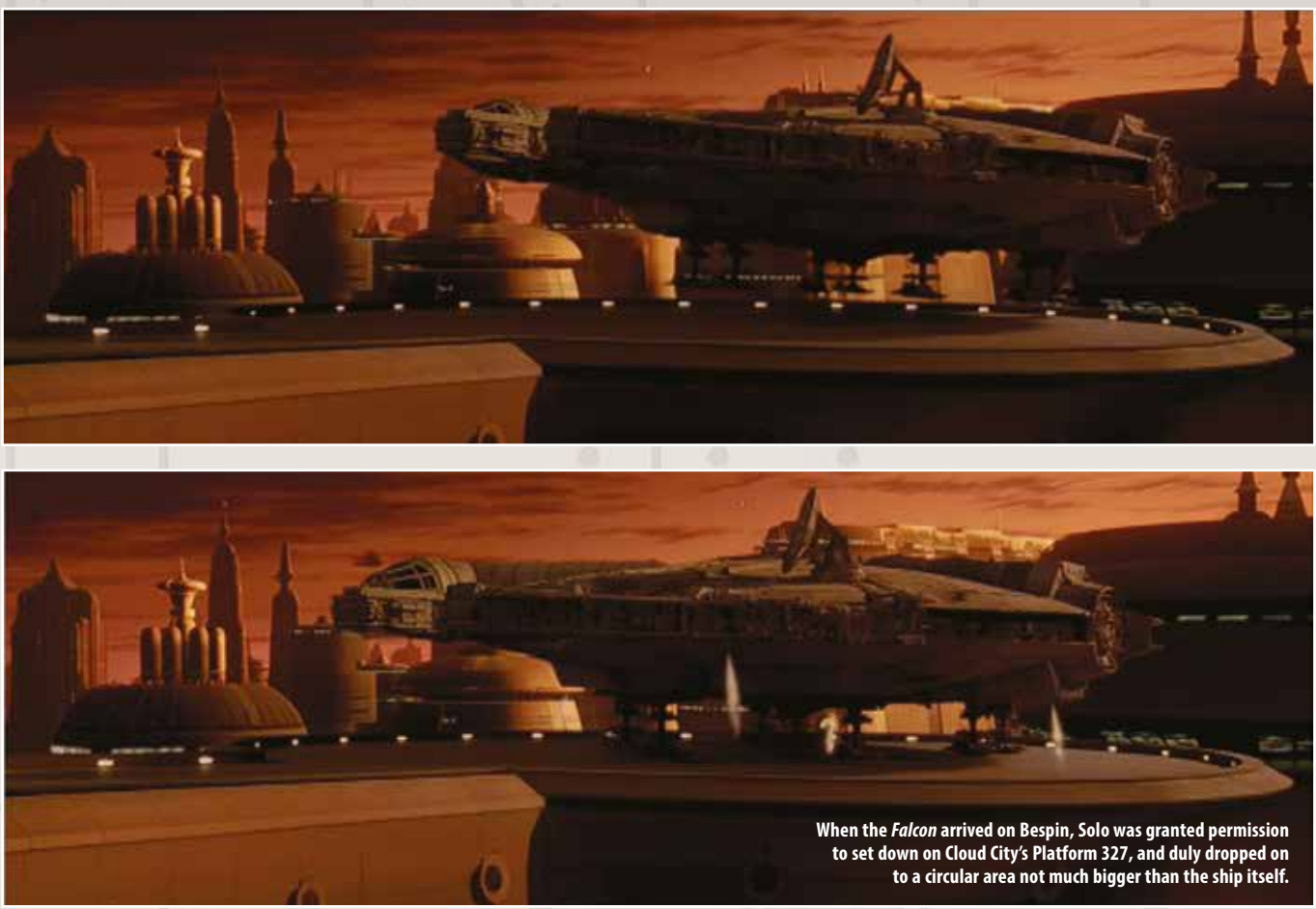
REVISING HISTORY

The B-wing actually derives its name from when the ILM crew developed two rebel ships for *Return of the Jedi*, which they referred to as the 'A' and 'B' fighters. While the shape of the A-wing does look quite like a capital A, the B-wing's resemblance to a lower-case b is rather more fanciful. The ship's shape and slim profile caused problems for blue-screen filming, as parts tended to disappear, which meant that these ships were relegated to more of a supporting 'B' role than originally intended. The rotating cockpit concept was originally proposed for the *Millennium Falcon*, although the idea was dropped. On the model B-wing, the movement was driven by a stepper motor, as were the S-foil wings.



HOW TO LAND A STARSHIP

Even though starships have automated systems designed to make landings as easy as possible, setting a vessel down smoothly is one of the hardest operations for inexperienced pilots to master.



When the *Falcon* arrived on Bespin, Solo was granted permission to set down on Cloud City's Platform 327, and duly dropped on to a circular area not much bigger than the ship itself.

Coming in to land often proves harder than it looks. Pilots who undertake anything more complicated than a regular shuttle run from one familiar hangar to another commonly have to contend with a wide range of hazards that include variable gravity, adverse atmospheric conditions, and uneven terrain. An old saying, which has consoled many an unfortunate pilot who has crunched his ship into a docking bay, is that 'a good landing is any one you can walk away from' – to which the disgruntled traffic controller in charge of the bay is likely to reply, 'but a great landing is one that allows you to take off again…'

Purpose-built landing platforms and docking bays are designed to make landing as easy as possible, but even they are not without their hazards. Many are exposed to vicious crosswinds or lashing storms, or the approach may be complicated by other factors. The Aquaris launching platform is submersible and only rises out of the sea just in time to allow a ship to land, while Han Solo's first flight in the *Millennium Falcon* took him to Kashyyyk, where what passed for a landing platform was hidden inside a huge, camouflaged 'cave' created under a broken branch of the massive wroshyr tree that supported part of the city of Rwookrrorro.

Landing platforms are only built for smaller ships (so the largest capital ships normally use landing craft or shuttles to transfer personnel and equipment from orbit to the surface). It is important for pilots to select a platform that is designated for their class of vessel, as some are a tight fit.

LANDING JETS

The textbook landing procedure is to use the ship's braking thrusters to kill its forward momentum at the right rate to bring it to a halt just over the point where the pilot wants to land. Ideally, the ship should shed speed gradually as it approaches, but in practice, emergency landings can



When Jabba the Hutt and his henchmen went looking for the *Millennium Falcon* and her captain, they found that Han Solo had landed in Mos Eisley's Docking Bay 94.

mean coming in 'hot' and slamming on reverse thrust at the last possible moment to avoid overshooting.

It's also important to come in at an appropriate height so that with the ship stationary over the landing spot, its repulsorlift can be used to lower the ship into position, balancing the thrust to keep it level. To make this as easy as possible, the YT-1300 has a set of landing jets around the lower hull. These nozzles are ducted outlets from the repulsorlift engines that produce downward thrust. While the jets are also useful for vertical take-offs, their primary function is to slow the ship's descent in the final stages of coming in to land.

The landing jets' function is semi-automatic. Each nozzle swivels to direct controlled bursts of high-pressure gas downwards while the landing gear extends. The stock ship has temperature feedback sensors fitted, which are designed to keep the exhaust gas cool enough to prevent damage to the platform or patch of land below the ship. However, to deter unwanted attention, Han Solo disconnected the landing jets' automatic heat control systems so that it is possible for them to fire powerful bursts of high-temperature gas downwards and around the hull.

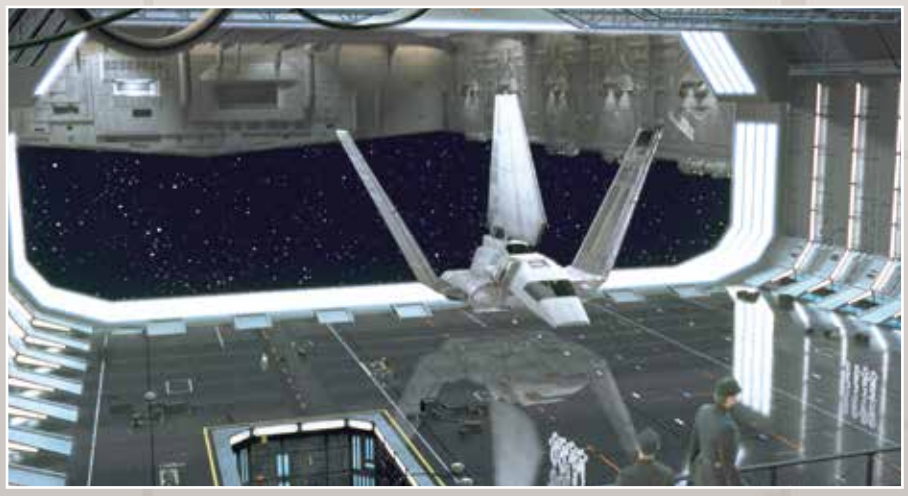
The landing gear controls and instruments are on the right of the dashboard console, in front of the co-pilot. Landing is coordinated by the ship's terrain-following sensor (TFS) array, which uses sonar, optical, and radiation sensors to monitor the area under the ship. The TFS can 'see' through anything from a dense fog to vegetation to detect the solid ground below.

LANDING GEAR

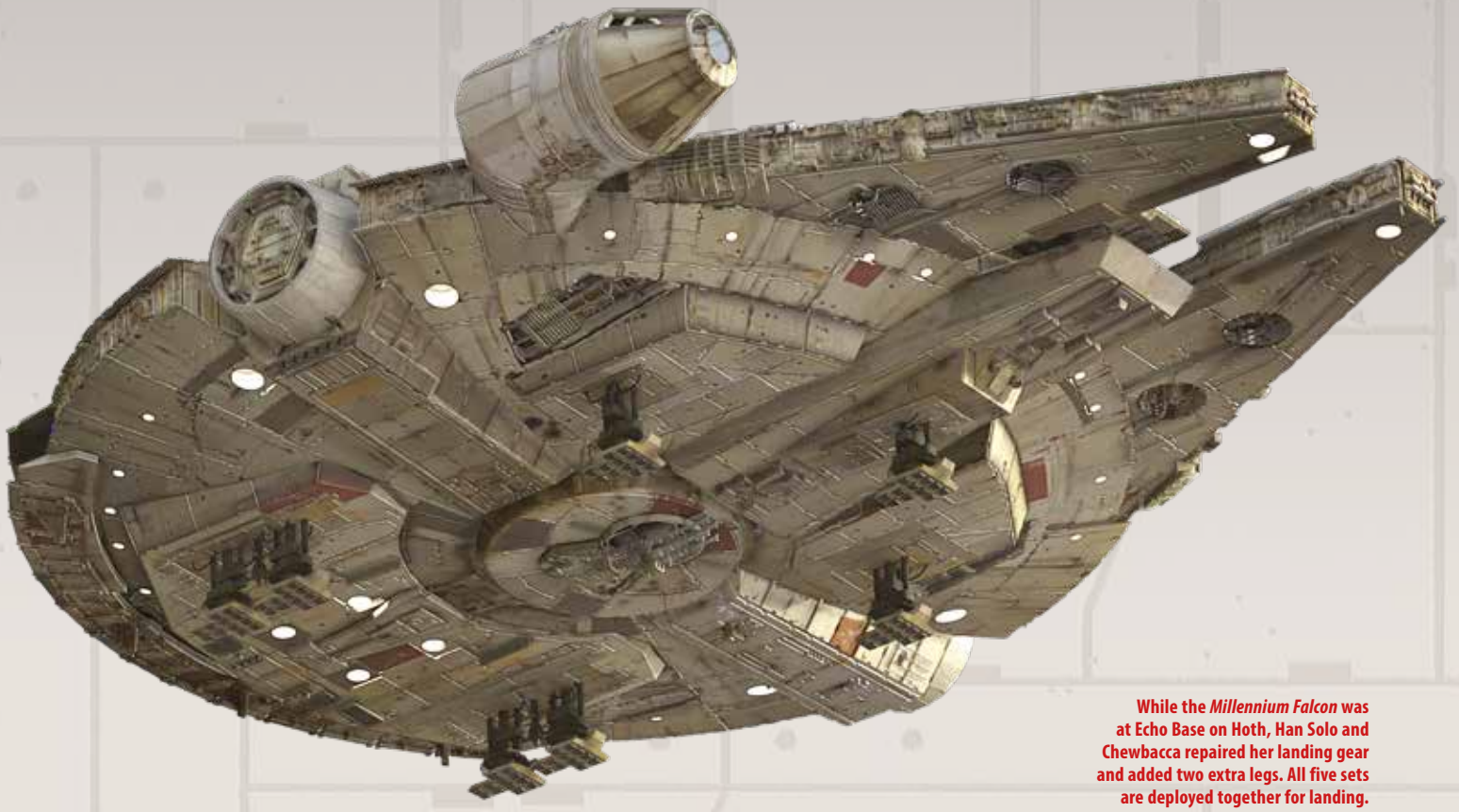
Most classes of ship have retractable landing gear that is only deployed during the final approach. This reduces drag as a starship negotiates a planetary atmosphere, and protects the landing gear itself from damage. Some vessels have to change configuration in order to land. For example, the *Lambda*-class shuttle has two lower wings that fold upwards during the final approach.

While the best pilots are able to place a ship with incredible precision, it is virtually impossible to put a vessel down without a bump, especially where the landing site is anything short of perfectly smooth, so the landing legs of craft like the YT-1300 have telescopic shock absorbers, and feet designed to accommodate uneven terrain.

In a departure from stock, the *Millennium Falcon* has five landing leg arrays, with the rear two paired. Han Solo and Chewbacca extensively modified the *Falcon*'s landing gear before the evacuation of Hoth. As well as reinforcing and repairing the existing legs, they added another two leg assemblies. This was a major undertaking, as it involved installing the complete housings into which the legs retract, as well as reinforcing the hull to withstand the extra stresses that the legs would impose.



The *Lambda*-class shuttle's lower wings have to be folded up before deploying the landing gear.

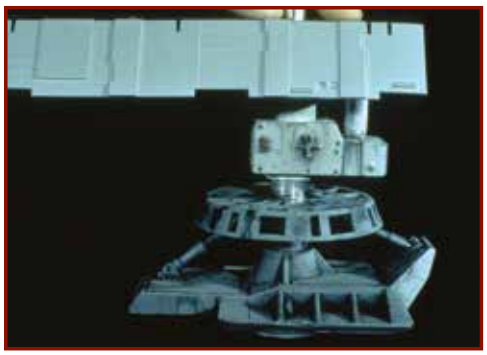


While the *Millennium Falcon* was at Echo Base on Hoth, Han Solo and Chewbacca repaired her landing gear and added two extra legs. All five sets are deployed together for landing.

BEHIND THE SCENES

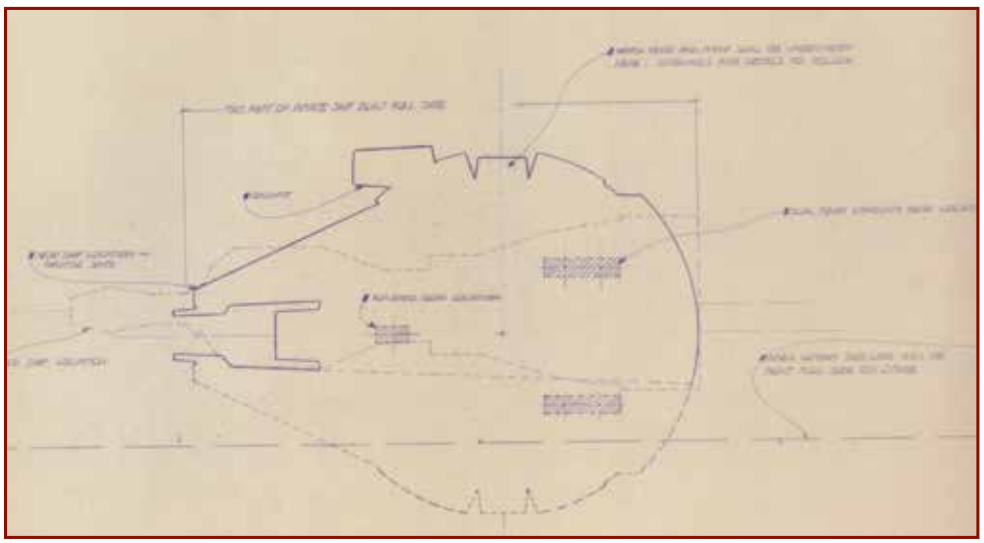
FIVE LEGS BETTER

In January 1976, Ralph McQuarrie created the first production painting showing the new-look *Falcon* in Docking Bay 94 in Mos Eisley. It showed the ship standing on three landing leg arrays, as did Steve Gawley's drawing of the set (below). Gawley labeled his drawing to indicate the 'forward gear location, 'dual rear landing gear location' and also noted 'new ship location – George says' against the front of the mandibles. The partial set for the exterior of the *Falcon* built for *Star Wars* Episode IV was made of wood and plaster, and was supported by the three sets of functional landing legs shown on the drawings. An additional support pillar had to be rigged up close to the position that would later be occupied by one of the forward landing pads, but this was disguised as a fuel line. For *The Empire Strikes Back*, when a complete ship was fabricated over a metal frame, the result weighed 25 tons and had to be fitted with compressed-air lifting pads to make it easier to move around the set. This version was given two additional landing legs where the concealed pillar had been installed for *A New Hope*, making a total of five support arrays. The *Falcon* now had a total of seven feet, counting the two dual ones at the rear.



One of the landing legs that was modelled by ILM to fit the larger filming miniature.

Dated 11 December 1975, Steve Gawley's drawing shows the *Millennium Falcon* in the studio, with three shaded areas to indicate the positions of the landing gear.



YOUR NEXT PARTS

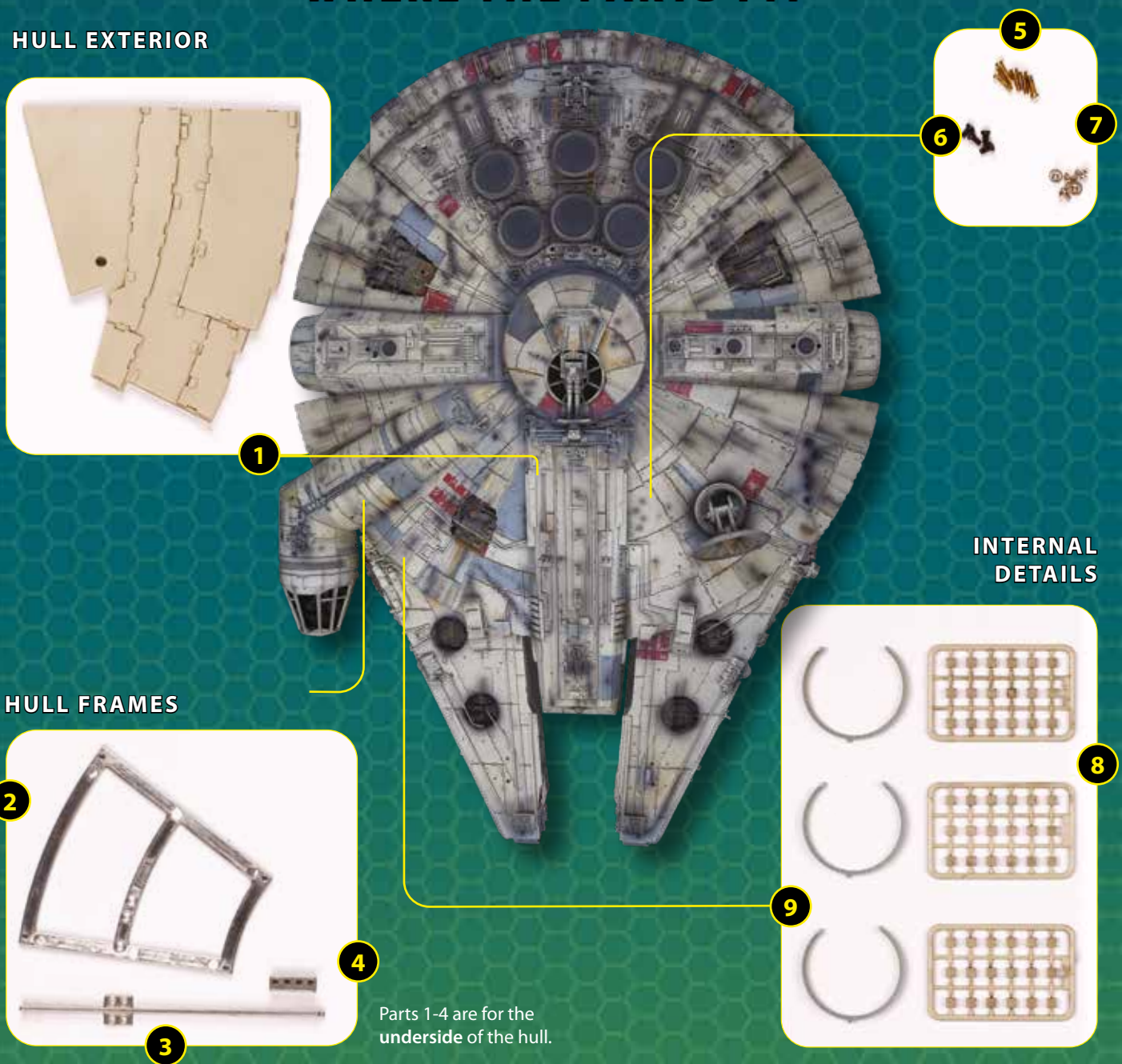
This issue includes three padded arches, which you will assemble when you start making the corridors. You also have another frame for the bottom of the hull, so you can complete a quarter of the main disc, as shown opposite.

Now that you have collected a new set of supporting parts (including another radial stiffening rib), Stage 15 of the assembly sees you putting together the frames for a full 90 degrees (one-quarter) 'slice' of the circular hull. Start by collecting the necessary components from the last two issues, as shown on the right.

COMPONENTS CHECKLIST

1. Hull plating BP-4
2. Hull frame BF-18
3. Radial stiffening rib
4. Rib connector
5. Fixing screws (x 4, plus spare)
6. Fixing screws (x 3, plus spare)
7. Fixing screws (x 4, plus spare)
8. Cushion pads (x 3) – sets of 18 on sprue
9. Corridor arches (x 3)

WHERE THE PARTS FIT

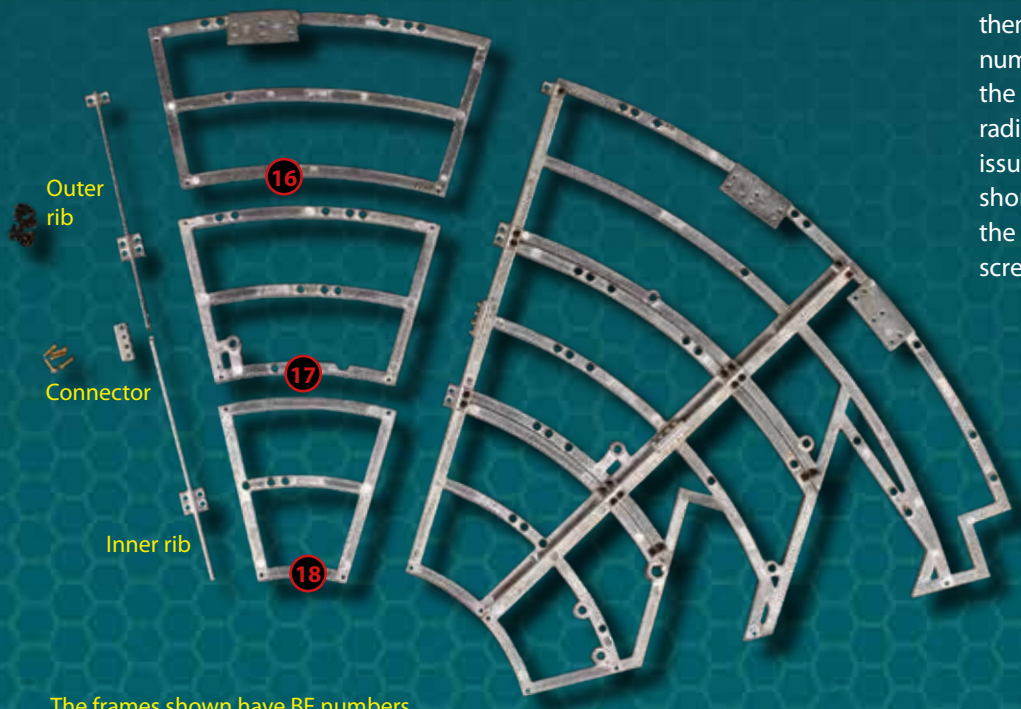


Parts 1-4 are for the **underside** of the hull.

ASSEMBLING THE BOTTOM FRAMES

Adding the next three frame parts and radial rib (shown below) to the existing framework you assembled in Stage 12 will complete a quarter of the bottom of the hull.

Take the bottom frame section provided with this issue (Part 2) and the two from Issues 13 and 14, and lay them out as shown, following the frame numbering. To complete the section of the frame indicated, you also need the radial rib and connectors from this issue and Issue 14. Finally, you need 10 short black button-head screws to fix the frame sections and four long brass screws to join the radial rib.





The frames shown have BF numbers (shown in red) cast into them for identification. The photo above indicates how they fit together, and the small diagram (right) identifies this area on the blueprint.

BEHIND THE SCENES

EXTRA LANDING LEGS

The filming miniatures of the *Falcon* used for *A New Hope* and *The Empire Strikes Back* were both designed with multiple mounting points, allowing them to be supported at different points for blue-screen filming. In most cases, these take the form of holes into which rods can be inserted (some of them locked in place by small screws that are visible on the surface of the model).

The filming miniatures were mainly built to be used in blue-screen motion-control filming, where the supports would not be seen. However, for a few scenes where it was necessary to film the model standing on land, accurately modeled sets of legs were fitted to holes on the underside. The full-size *Falcon* set built for *The Empire Strikes Back* had an extra pair of landing legs compared to the one seen in *A New Hope*, so the filming miniature built for the second movie reflected this change. When the original, larger prop was reused, it had to be modified to reflect the change to five sets of legs.

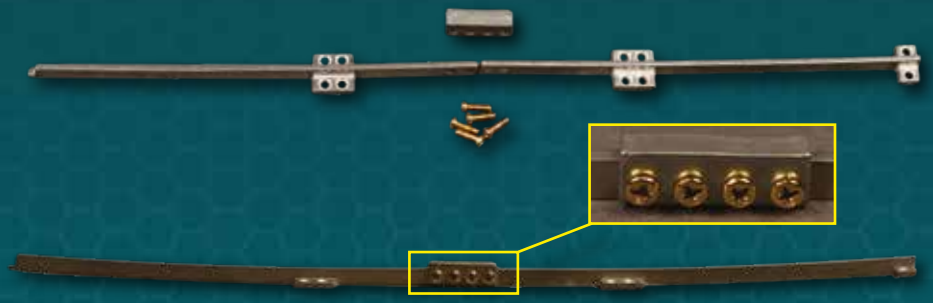




The filming miniature fitted with a set of plug-in landing legs for filming a cave scene.

ASSEMBLING THE RADIAL RIB

You first fitted radial stiffening ribs as part of Stage 12. As you did then, you need to join the two halves with a connector, as shown on the right. (You can refer to the steps in Stage 12 for more details.) Remember that the four holes in the connector are plain on one side, and threaded in the other. Insert the screws from the plain side, passing through the rib, and tighten them into the threaded holes.



ASSEMBLING THE FRAMES

As in Stage 12, you are adding three frame sections that form a full segment of the circle. This time, they are all screwed to the radial ribs (including the new one you have just assembled) and not joined to each other.

01



Take frame 16 and align it with the radial rib on the existing assembly, as shown.

02



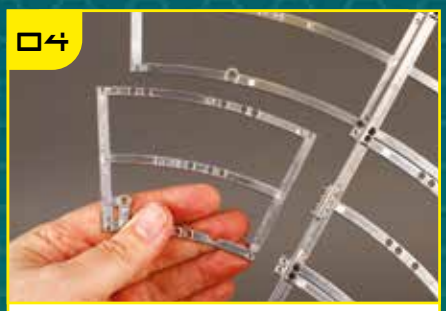
Attach the outer edge by driving a screw into the 2-hole flange.

03



Insert a second screw through the 4-hole flange in the rib.

04



Take frame 17 and align it with the radial rib, as shown.

05



Use two screws to attach frame 17 to the radial rib.

06



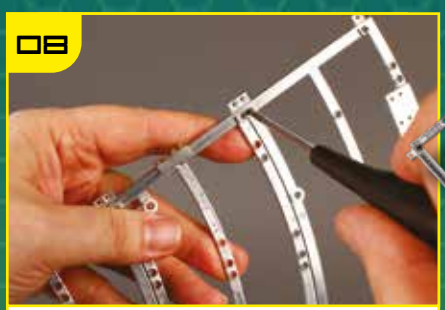
Screw frame 18 to both remaining holes in the radial rib.

07

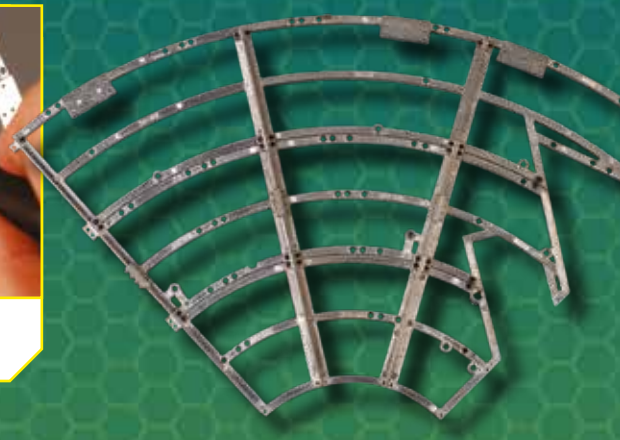


Align the rib you just assembled with the edge of the assembly.

08

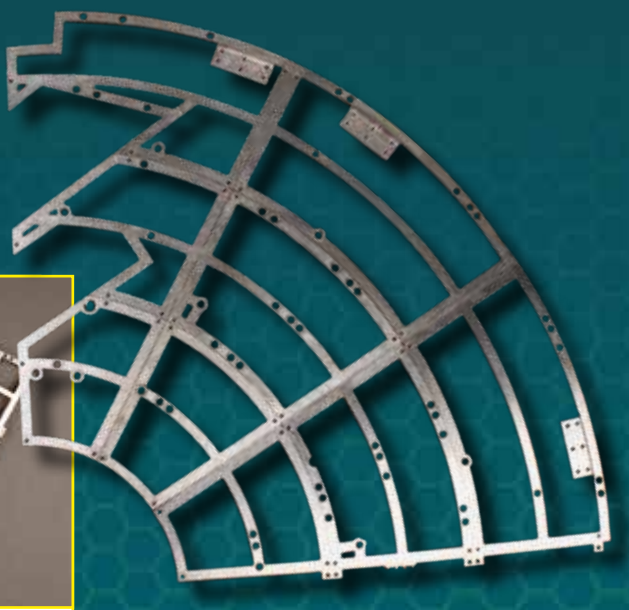


Attach it to frames 13, 14 and 15 by driving screws into all five holes.

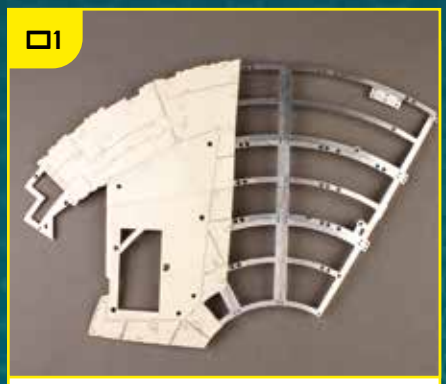


HOW THE HULL PLATING FITS

As in Stage 12, you can turn the completed hull frame over and test-fit all the pieces of lower hull plating you have collected so far. You will not fit the panels permanently until a later stage, so for now, just press the lugs into the holes.



01



Refit the panels that you previously fitted in Issue 12.

02



Hull panel 7 (from Issue 13) fits next to the existing panels, with its edge slightly overlapping hull panel 11.

03



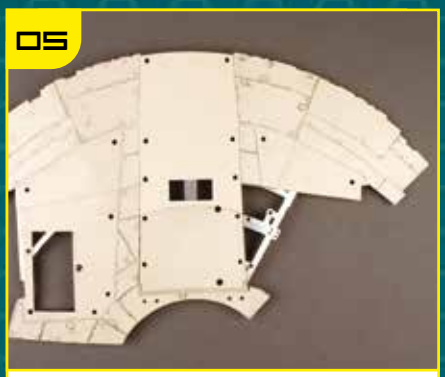
Fit hull panel 8 (from Issue 12). The curved edge slots under hull panel 7 and the long edge fits over the panels on the left.

04



Fit hull panel 6 (from Issue 14), slotting the long edge under hull panel 8.

05



Add hull panel 4 (part 1 from this issue), which slots under hull panel 6.

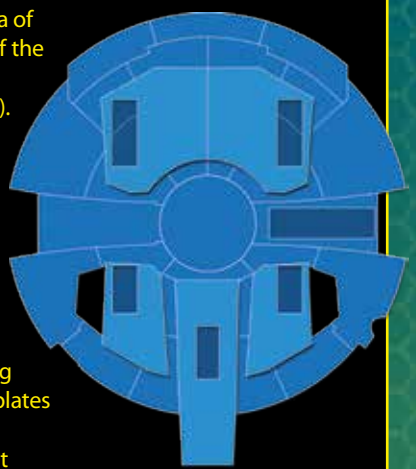


EXTRA LAYERS OF PANELING

To understand the construction of the hull, compare the area of plating you have just been working on with the underside of the completed *Millennium Falcon* model (left) and the blueprint provided with Issue 1 (a detail of which appears on the right).

- Note that some of the panels you have put in place have flat areas with no modeling. This is because they will have another layer of paneling on top, indicated by the light-blue sections of the blueprint. (The extra pieces BP-27, BP-28, and BP-29 go in the area you are working on.)
- There are also darker blue rectangles on the blueprint. These indicate mounting points for the landing legs, and you will see that two of them match up with openings in panels 8 and 11. If you choose not to fit the optional landing legs, these areas will be covered with removable blanking plates (as can be seen fitted to the finished model on the left).

Note that the model on the left has an optional custom paint finish to enhance the colors of the molded paneling. We will be showing you how to apply this at the appropriate stage.



Compare the panels you are fitting with the blueprint from Issue 1.