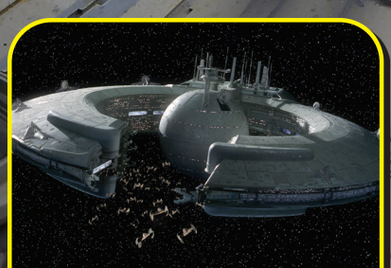
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STAR WARS MILLENNIUM FALCON

BUILD THE MODEL – EXPLORE THE GALAXY



TRADE FEDERATION BATTLESHIPS 1

FANHOME

DeAgostini COLLECTIBLES

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STAR WARS MILLENNIUM FALCON

USA Published by De Agostini
Publishing USA, Inc.
299 Park Avenue, New York,
New York 10171

UK Published by De Agostini UK Ltd
c/o Royds Withy King, 69 Carter Lane,
London EC4V 5EQ

DE, AT, NL, PL, CZ, SK, LT, SE
Published by De Agostini
Publishing, S.p.A, Via G. da Verrazano 15,
28100 Novara,
Italy

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Printed in Italy

ISSN: 2976-6990 (Print)
ISBN EE Countries: 979-12-209-0809-2

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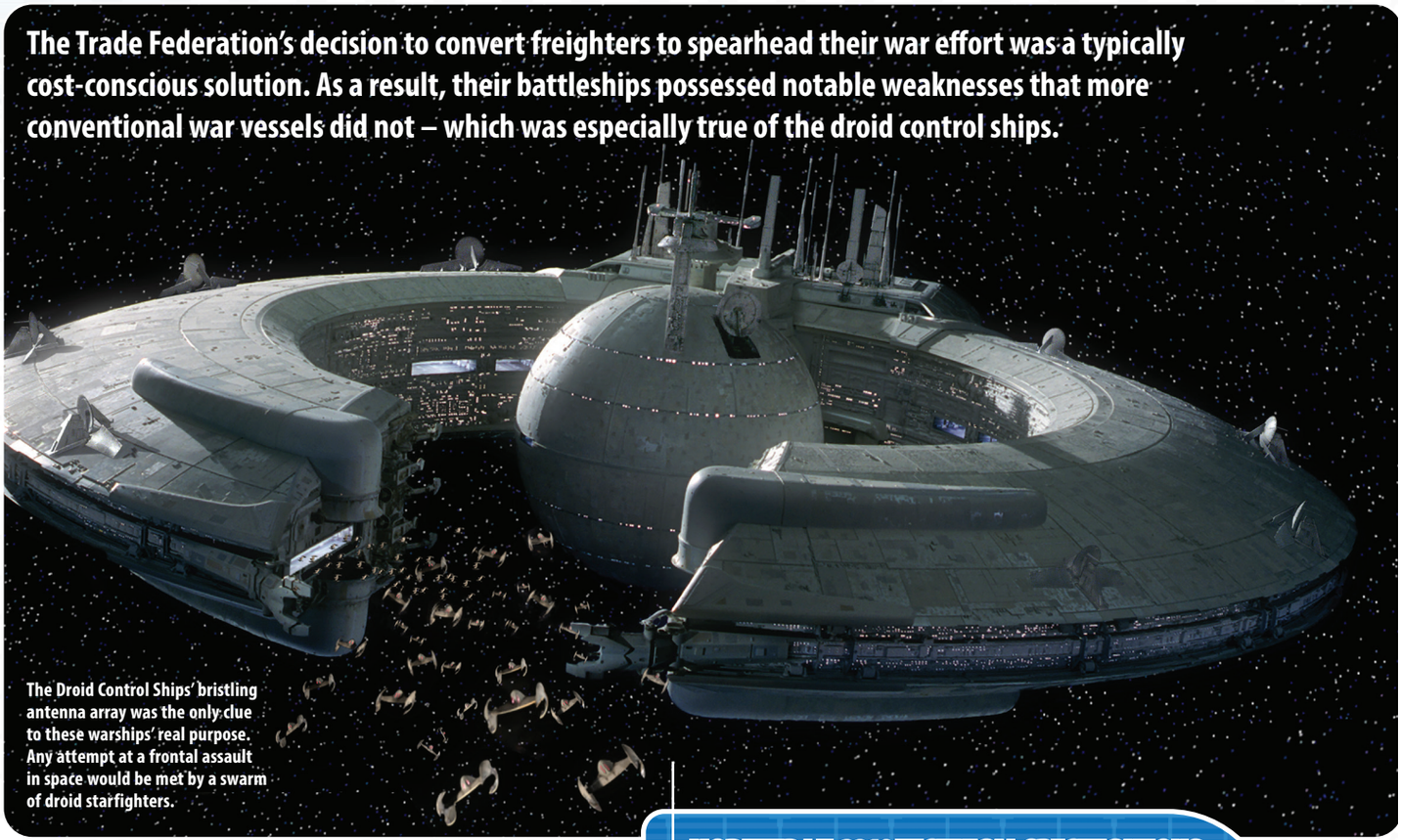
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DROID CONTROL SHIPS

TRADE FEDERATION BATTLESHIPS 1

The Trade Federation's decision to convert freighters to spearhead their war effort was a typically cost-conscious solution. As a result, their battleships possessed notable weaknesses that more conventional war vessels did not – which was especially true of the droid control ships.



The Droid Control Ships' bristling antenna array was the only clue to these warships' real purpose. Any attempt at a frontal assault in space would be met by a swarm of droid starfighters.

The Trade Federation's *Lucrehulk*-class LH-3210 cargo haulers only needed light modification to turn them into warships. This was done in some secrecy, and even after conversion only those that were designated as Droid Control Ships (considered the most important ships in the Separatists' fleet) displayed any very obvious external difference from the stock freighter.

DROID CONTROL SHIPS

The *Lucrehulk*s were enormous, powerful craft, 3,170m (1.96 miles) in diameter. Their shape resembled a flattened doughnut, with a break at the front of the outer ring providing two huge docking bays, and a central sphere that contained the ship's bridge and reactor assemblies.

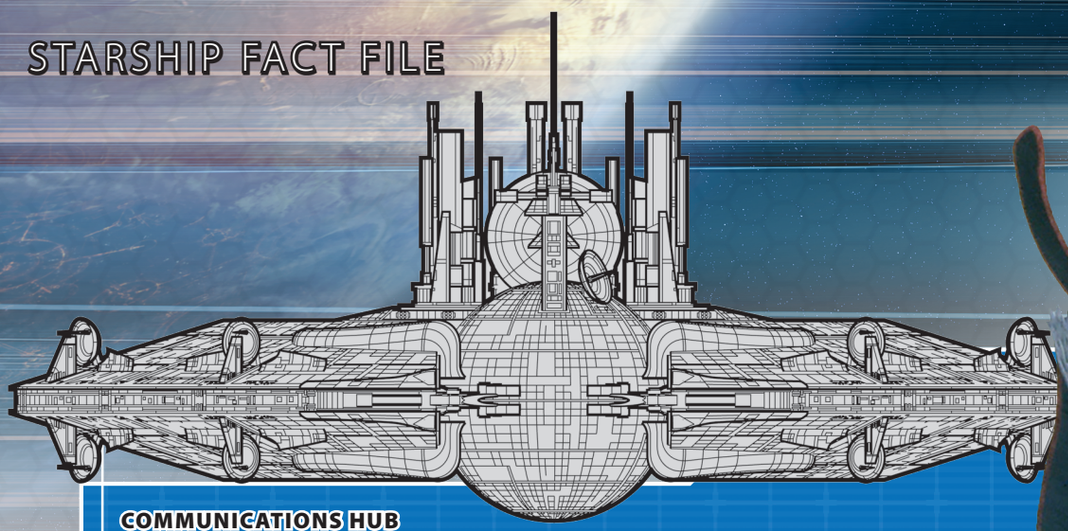
What marked out the Droid Control Ships was the addition of a substantial communications array to the rear of the dorsal hull. The Trade Federation relied on robot armies to do their fighting for them, so each Control Ship was configured for directing the operations of a vast and varied force of droids.

MODIFIED LH-3210 TECHNICAL SPECIFICATIONS

DESIGN:	Hoersh Kessel Drive Inc.
TYPE:	*Lucrehulk*-class LH-3210 cargo ship (modified)
DIAMETER:	3,170 m (1.96 miles)
WIDTH:	3,009 m (1.86 miles)
HEIGHT/DEPTH:	1,029 m (0.63 miles)
AFFILIATION:	Trade Federation/ Confederacy of Independent Systems
WEAPONS:	42 x quad laser batteries and turbo lasers
SUBLIGHT ENGINES:	Rendili StarDrive Proton 2 (primary) 12 x proton sublight drives (secondary)
DROID CONTROL SIGNAL:	16,500 km (10, 252 miles) maximum safe broadcast range
CARGO:	1,500 x Vulture droids 50 x C-9979 landing craft 550 x MTTs 6,250 x AATs 1,500 x PACs

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STARSHIP FACT FILE



COMMUNICATIONS HUB

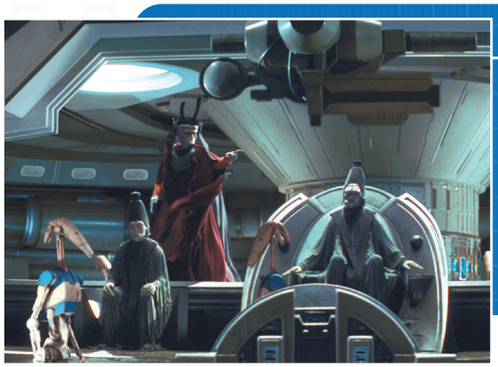
Although only lightly armed, Droid Control Ships had heavy deflector shielding and a dense fighter screen to ensure that their communications would not be disrupted by an attack. Each ship carried a cluster of receiver stations, transmitters and sensors that could control the Trade Federation droid army up to a maximum broadcast range of 16,500 km (10,252 miles) Because of the massive signal strength, the antenna arrays were was made of exotic alloy composites able to draw energy directly from the ship's reactor, which required boosting to provide additional power.

Every Droid Control Ship was capable of deploying and controlling tens of thousands of battle droids, as well as other droids, landing craft and smaller vessels. The cowardly and reclusive Neimoidians who commanded each battleship were happy to seal themselves in its spacious bridge while their robotic forces handled the operation of the vessel and its mission.

CONVERSION AND COMPROMISES

The cargo ships' hangars required very little modification to carry the droids to war. A notable exception was the installation of electrified ceiling racks designed to hold and recharge the Vulture droids (automated starfighters) housed in the outer hangar zones. The battleships were able to carry up to 1,500 of these self-directed starfighters, which could be released immediately the ship came under attack – being droids they were ready for action at a moment's notice. The battleships were also able to carry 50 C-9979 landing craft, 550 Multi-Troop Transports (MTTs), 6,250 Armored Assault Tanks (AATs) and 1,500 Platoon Attack Craft (PACs).

The extensive Trade Federation cargo fleet was ideal for hiding the existence of the secret army and carrying it unobtrusively to deployment points around the galaxy. But while the commercial origin of the ships provided good cover, it left them with numerous shortcomings in their new role as warships. For example, the quad laser batteries fitted around the hull provided considerable firepower but had limited coverage. The gaps in the field of fire left large areas of the ship undefended, which could be exploited by starfighters or starships that were brave enough to fly in close enough. As such, these undefended areas were



NEIMOIDIAN PILOTS

The Neimoidians, who were in effective control of the Trade Federation, appointed the captains who directed their battleships. Neimoidian pilots were cyborgs, who wore a vocabulator and data goggles to allow direct communication with the ship.

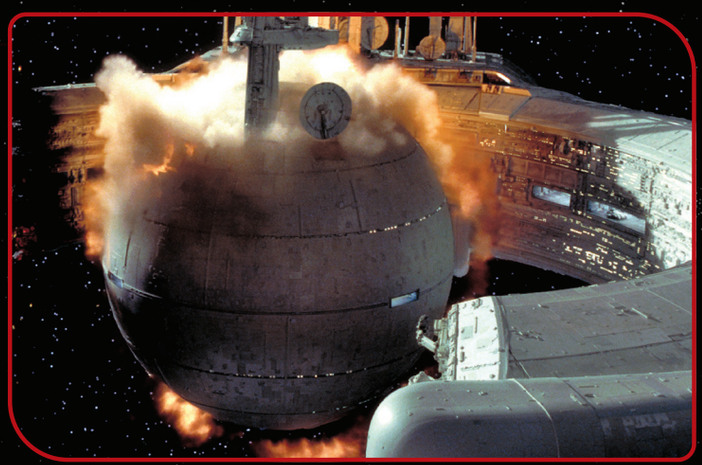
Viceroy Nute Gunray used his warships to blockade Naboo, cutting off its commerce. He justified this by saying that taxing the trade routes in the Outer Rim was unfair to the Trade Federation.

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BATTLE OF NABOO

FATAL FLAWS

The limited field of fire provided by the quad laser batteries around the perimeter of the Droid Control Ships proved to be a lucky design weakness for Anakin Skywalker during the Battle of Naboo – helping him to reach the ship unscathed when he spun out of control and landed his N-1 starfighter in a hangar bay of the *Lucrehulk*-class *Vuutun Palaa*. Skywalker then accidentally launched two proton torpedoes directly into the ship's unprotected main reactor, causing a series of explosions that destroyed the ship and also crippled the entire droid army on the ground, ensuring victory for the besieged Naboo and Gungan forces.



When Anakin Skywalker launched two proton torpedoes inside the Droid Control Ship, he started a chain reaction that resulted in a massive explosion.

protected by swarms of Vulture droids, which proved essential for defense.

Without constant signals from the Droid Control Ship, B1 battle droids were just useless dumb terminals, incapable of independent action, self-control or movement. But the vast array of transmitters and broadcasting equipment installed during conversion enabled the battleship to control large droid armies across a planetary surface.

DROID CONTROL EQUIPMENT

Each Droid Control Ship featured two large main antennae and six backups, plus sensor equipment including one main rectenna, two auxiliaries, and two more sensors on the bridge. Around the perimeter of the ship went 16 receiver dishes that were configured to pick up transmissions from the droid units. Each one of these receiver dishes had a pair of booster panels to cut out noise or interference.

At the core of the ship was an extremely powerful Central Control Computer, whose job was to sort through and process incoming information, formulate commands, and broadcast them to the surface to command the droid armies. Each Control Ship was capable of generating the control signals that directed each and every battle droid's actions, making up for the very limited on-board logic systems of the minimalist droids.

However, all the extra equipment caused a massive power drain on the ship's core reactor, so to compensate for this, the Trade Federation equipped its *Lucrehulk*s with additional reactor units to provide more energy. Unfortunately, these extra units also increased the ships' vulnerability to an internal explosion – which led to Anakin Skywalker playing a decisive role in the Battle of Naboo.



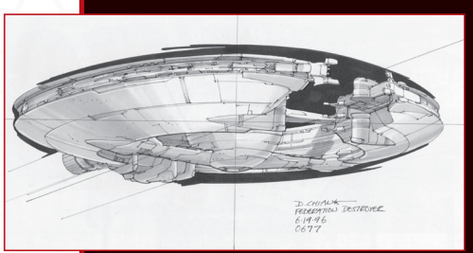
Vulture droids provided an effective fighter screen. They could make high-speed maneuvers that would kill a living pilot, although they lacked resourcefulness and cunning.

BEHIND THE SCENES

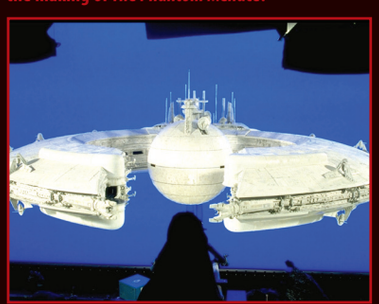
DESIGN INFLUENCE

The original designs of the Trade Federation battleships were sketched out by Doug Chiang, working to director George Lucas' desire for a ship whose look harked back to the flying saucers of 1950s' Hollywood B-movies. The split, crescent outline of the outer ring evolved through the design process, out of a need for it to have a distinct front and back. The final touch, added by Lucas himself in a nod to a certain Imperial super weapon, was the ball-like bridge and command structure.

One of Doug Chiang's sketches from mid-1996, showing the overall configuration of the Trade Federation battleships.



Industrial Light and Magic's model of the Droid Control Ship, set up for blue-screen filming during the making of *The Phantom Menace*.



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ARTIFICIAL GRAVITY GENERATORS



Artificial gravity is as much the key to practical interstellar spaceflight as the hyperdrive engines that propel starships into hyperspace.

All bodies in space (including planets, moons, stars, and even larger asteroids) have a gravity well that attracts other objects to them. This is what gives everything from spaceships to living beings the appearance of weight. But the effect of gravity diminishes with distance, and when a ship heads off into open space, it and everything inside – including the crew – will soon start to feel lighter.

When the ship is far enough out in space for the gravitational pull to be too weak to be felt, the ship and its contents naturally enter a state of weightlessness. This causes great problems for those inside. Not only does weightlessness mean that loose objects are able to drift around freely, but it is also very uncomfortable to experience for any length of time. Almost all sentient beings evolve in environments subject to gravity, and their bodies do not adapt well to low g. Weightlessness inhibits movement, and soon causes muscles to waste, while its disorienting effect can make beings of many species feel sick.

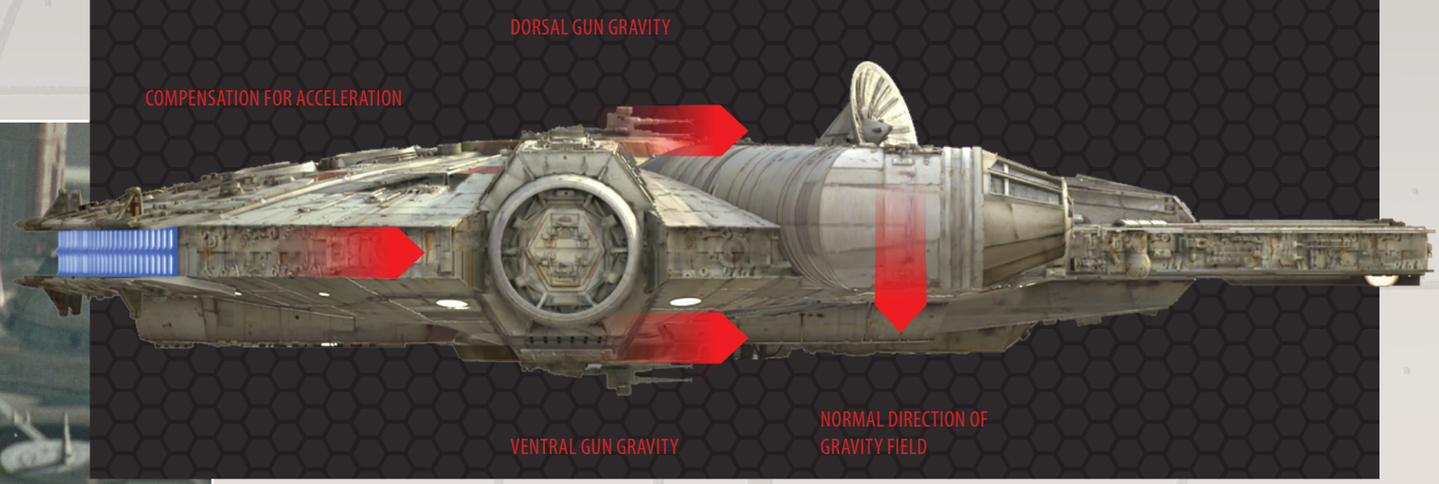
COUNTERING WEIGHTLESSNESS

Fortunately, starships are fitted with artificial gravity generators that create a stable environment inside the ship, and their invention was one of the great unsung aids to life in space. The equipment does not just need to counter the effects of weightlessness. The generators are tied in to the ship's computer and sensors so that they can make minute adjustments to the on-board gravitational force as the vessel comes under the influence of external gravity fields.

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GRAVITY FIELDS IN THE *FALCON*

Hooked into the ship's main computer, the *Millennium Falcon*'s artificial gravity generators keep the internal environment stable, reinforcing the crew's sense that the floor is 'down', regardless of the ship's orientation. Together with the acceleration compensator, they also compensate for extreme acceleration that can pull as much as 12 g. Localized secondary gravity generators act on the two gun wells, allowing both gunners to feel that they are the right way up.





The *Millennium Falcon*'s high speed and rapid acceleration mean that its artificial gravity generators are sometimes needed to stabilize its internal environment, even when the ship is under the influence of a planetary gravitational field.

The ship's artificial gravity also needs to work in concert with the acceleration compensators/dampers to ensure that the passengers and crew remain comfortably in their seats and are not thrown around by the massive forces generated by space travel. Artificial gravity generators come in various sizes to suit the size and class of starship: the bigger the equipment, the stronger the gravity field it creates.

ACCLIMATISATION AID

Gravity generators can also be used to help the crew to acclimatise to their destination before they arrive. Most of the galaxy's inhabited planets and moons have a similar ('standard') gravity. For beings from such worlds, travelling to planets with a lower or higher gravity can be a disturbing experience. On a low-gravity planet, for example, a human can jump very high effortlessly. On a high-gravity world, however, the same human would feel weighted to the ground.

While a starship's artificial gravity generator cannot protect the crew once they leave its controlled environment, it can be used to help them adjust. A ship's internal gravity can be adjusted (manually or by computer) to a fraction of standard, or ramped up many times to simulate the local conditions of whatever world it is about to land on.

YT-1300 GRAVITY GENERATORS

There is an old pirate's mantra that if you can take out a spaceborne starship's artificial gravity generators, you stand a good chance of capturing her with minimal damage. This is because if the generators are disabled, the zero-gravity environment of space will take over. With pilot and crew disorientated and probably even floating off their stations, the pirates are then free to help themselves to the ship's cargo before either commandeering the vessel or setting her free to raid again another day.

Fear of sabotage and piracy led the Corellian Engineering Corporation to resist publicising the details of the YT-1300 freighters' artificial gravity generators. CEC even kept the make and model of the generators out of the ship's owners' handbooks (and the technical manuals that followed) for fear that the information could be used against its spacefaring customers. Only authorised CEC agents know exactly what artificial gravity generators are installed in the YT-1300.

It's still less clear if the *Millennium Falcon*'s gravity generators bear any relation to the original equipment. Starship pundits, however, guess there is at least one large generator and two smaller ones aboard. The larger will be



Rapid maneuvers, collisions, and explosions can jolt a ship and its crew, but in normal operation, gravity generators maintain an artificial equilibrium inside the vessel.

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Rebels Sabine Wren and the astromech droid Chopper tried to sabotage an Imperial *Gozanti*-class cruiser carrying Wookiee slaves. When the pair realized they had been lured into a trap, they disabled the ship's artificial gravity to allow everyone time to escape.

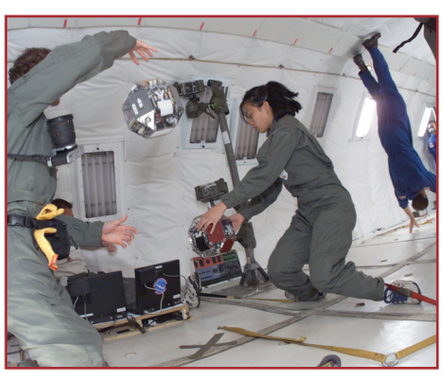
BEHIND THE SCENES

FILMING ZERO GRAVITY

Back in 1979, *The Star Wars Question and Answer Book About Space* acknowledged the science of gravity, telling young readers: 'Inside spacecraft circling Earth objects seem weightless. They are said to be in "zero g". When you drop something, it floats. Astronauts float too if they're not attached to the craft. Humans are used to Earth's gravity. Zero g affects our minds and bodies. Some astronauts feel sick at first when they circle inside spacecraft. They cannot work as quickly or as well as usual. They must do special exercises to keep in good physical condition.' But artificial gravity has been the stuff of science fiction for as long as the genre has existed – and its existence is a convenient option for producers who know that filming a zero g environment is very costly, and in most cases would get in the way of the storytelling. One of the first movies that attempted to show low gravity realistically was 1968's *2001: A Space Odyssey*. Coping with weightlessness was part of the story, although critical scientists were keen to point out inaccuracies caused by limitations in movie technology. In 1995, *Apollo 13* tried to go one better by filming some of its effects inside an aircraft that NASA uses for astronaut training, which can send actors into free fall for short periods. For the longer takes in the movie *Gravity* (2013), actor Sandra Bullock was suspended from 12 practically invisible wires that allowed her entire body to be manipulated by puppeteers, with the scenery added in digital post-production.



Courtesy NASA



NASA's KC-135 aircraft, used to study the effects of zero g, is nicknamed the 'weightless wonder', but is also popularly known by astronauts as the 'vomit comet'. It flies a special course, alternating steep parabolic climbs and dives to produce several seconds of weightlessness inside.



The *Falcon*'s gunners are either on their back or stomach relative to the rest of the ship, but localized gravity makes them feel they are in a normal seating position.

needed to cover the bulk of the ship, including the cockpit and hold, giving a sense that the floor is 'down', while there must be at least one smaller generator to cover the topside quad laser cannons and another for the belly gun turret.

SWITCHING DIRECTION

Each turret has its own gravity well, so that the gunner can stay correctly oriented in a seat that either faces upward or downward from the main part of the ship. The two turrets are joined by a ladder, up which the topside gunner must climb, while the dorsal gunner climbs down. At the point where the gravity fields intersect, the gunners' climb up or down changes to a hand-and-knees crawl while they reorient themselves and climb into their seats.

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YOUR NEXT PARTS

Extend the hull framework with another complete segment, and add an extra section to the assembly jig to support the growing hull.

In addition to the parts you need for this stage, you have received another section of plating for the underside of the hull and one more part of the framework (BF-36). Keep these until later on.

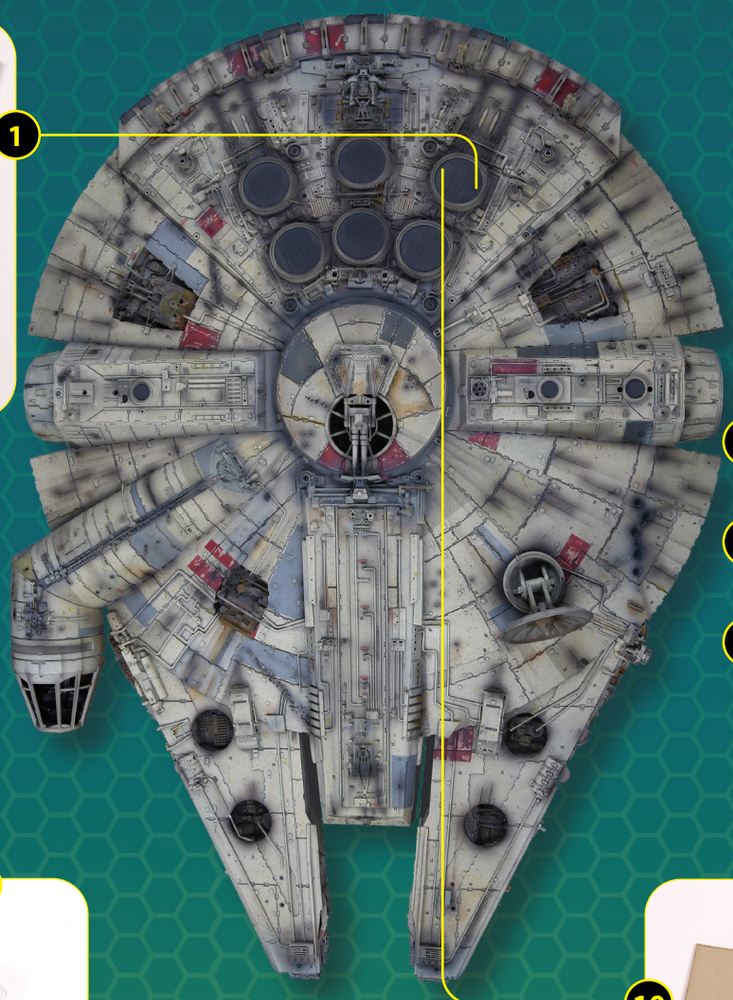
COMPONENTS CHECKLIST

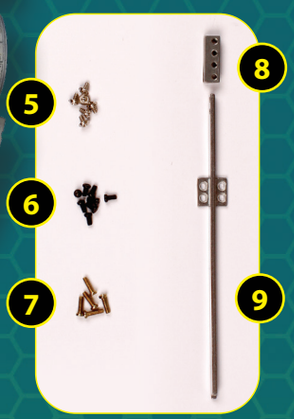
1. Hull frame BF-36
2. Hull frame BF-35
3. Assembly jig (1 section)
4. Non-slip pads (x 2)
5. Fixing screws (x 5, plus spare)
6. Fixing screws (x 7, plus spare)
7. Fixing screws (x 4, plus spare)
8. Radial stiffening rib
9. Rib connector
10. Hull plating BP-19

WHERE THE PARTS FIT

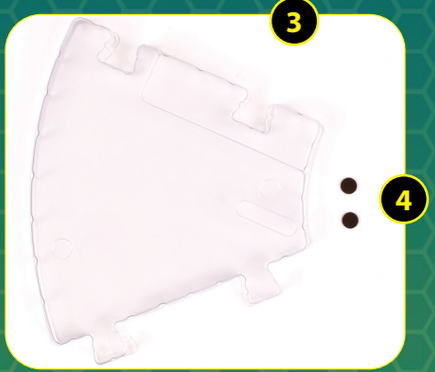
HULL FRAME







ASSEMBLY JIG



HULL PLATING



Parts 1, 2 and 10 are for the **underside** of the hull.

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ASSEMBLING THE BOTTOM FRAMES

Adding the next three frame parts and radial rib (shown below) to the existing framework you assembled in Stage 27 will complete two-thirds of the bottom of the hull.

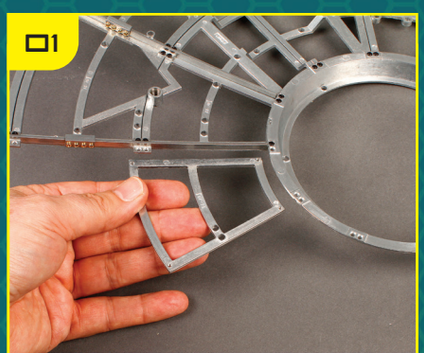


The frames shown have BF numbers (shown in red) cast into them for identification. The photo above indicates how they fit together, and the small diagram (right) identifies this area on the blueprint that came with Issue 1.

Take BF-35, the smaller bottom frame section provided with this issue (Part 2), and the two frames from Issues 28 and 29, and lay them out as shown, following the frame numbering.
To complete the section of the frame shown, you also need the radial rib and connector from this issue and Issue 29, plus 12 short black button-head screws to fix the frame sections, and four long brass screws to join the radial rib.

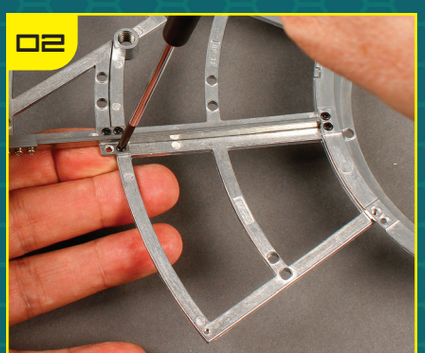


01



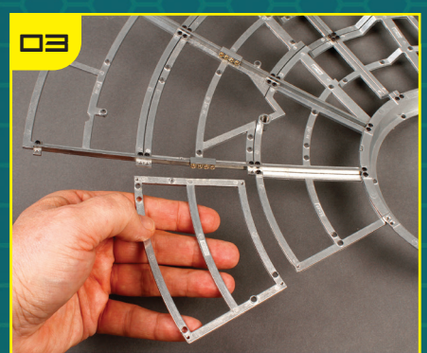
Fit frame BF-35 against the assembly as shown.

02



Secure BF-35 with one screw in the turret ring and one in the flange of the rib.

03



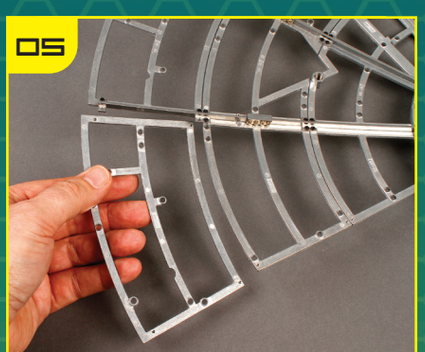
Fit frame BF-34 against the assembly as shown.

04



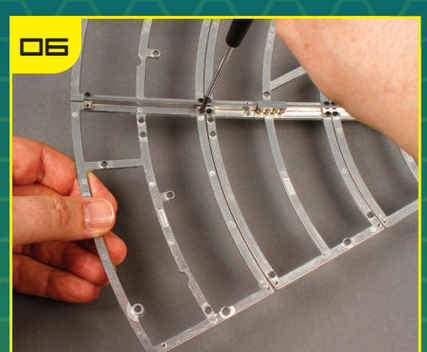
Fix BF-34 in place using two screws in the flanges of the rib.

05



Now fit frame BF-33 against the assembly as shown.

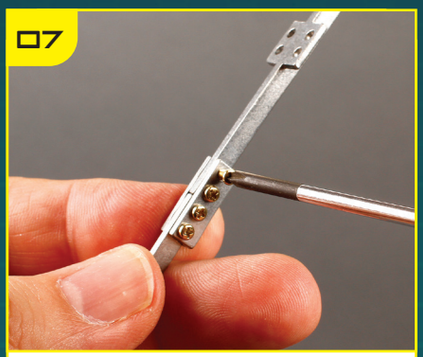
06



Secure BF-33 with two screws in the flanges of the rib.

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07



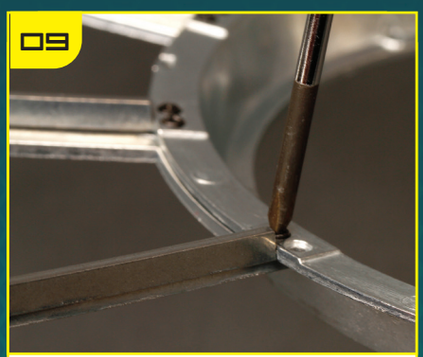
Assemble the two halves of the radial rib using the connector as before.

08



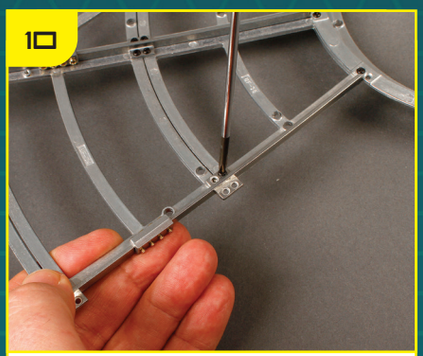
Hook the tip of the radial rib under the notch in the turret ring, in line with the edge of frame BF-35.

09



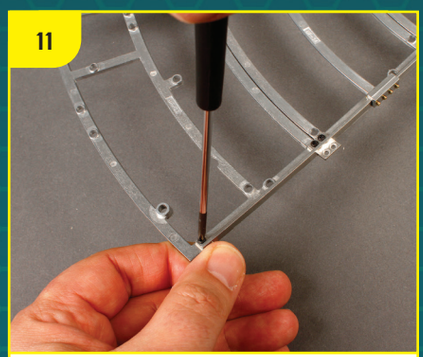
Screw BF-35 to the turret ring with one screw, trapping the tip of the rib.

10



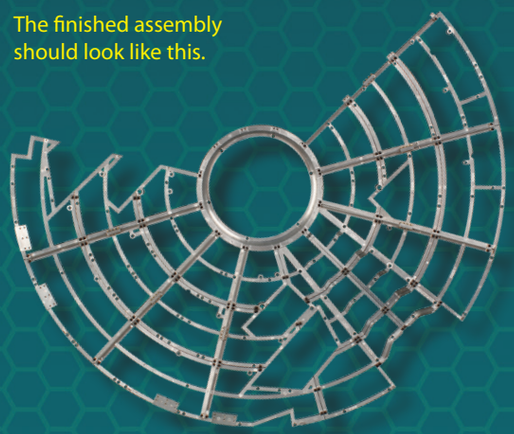
Screw the outer corner of BF-35 to the flange on the radial rib.

11



Work along the radial rib, screwing all three frames to the flanges.

The finished assembly should look like this.



EXTENDING THE ASSEMBLY JIG

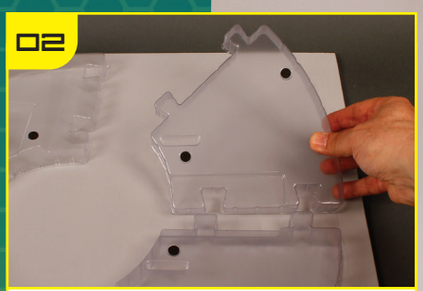
The new section you have received this time will complete seven-eighths of the jig. The final piece is provided with Issue 31.

01



Stick the non-slip pads into the two recesses in the new section of the jig.

02



Fit the dovetail sockets over the existing jig assembly on your baseboard.

This completes the assembly, which you can use to support the framework that you have put together during this stage.

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