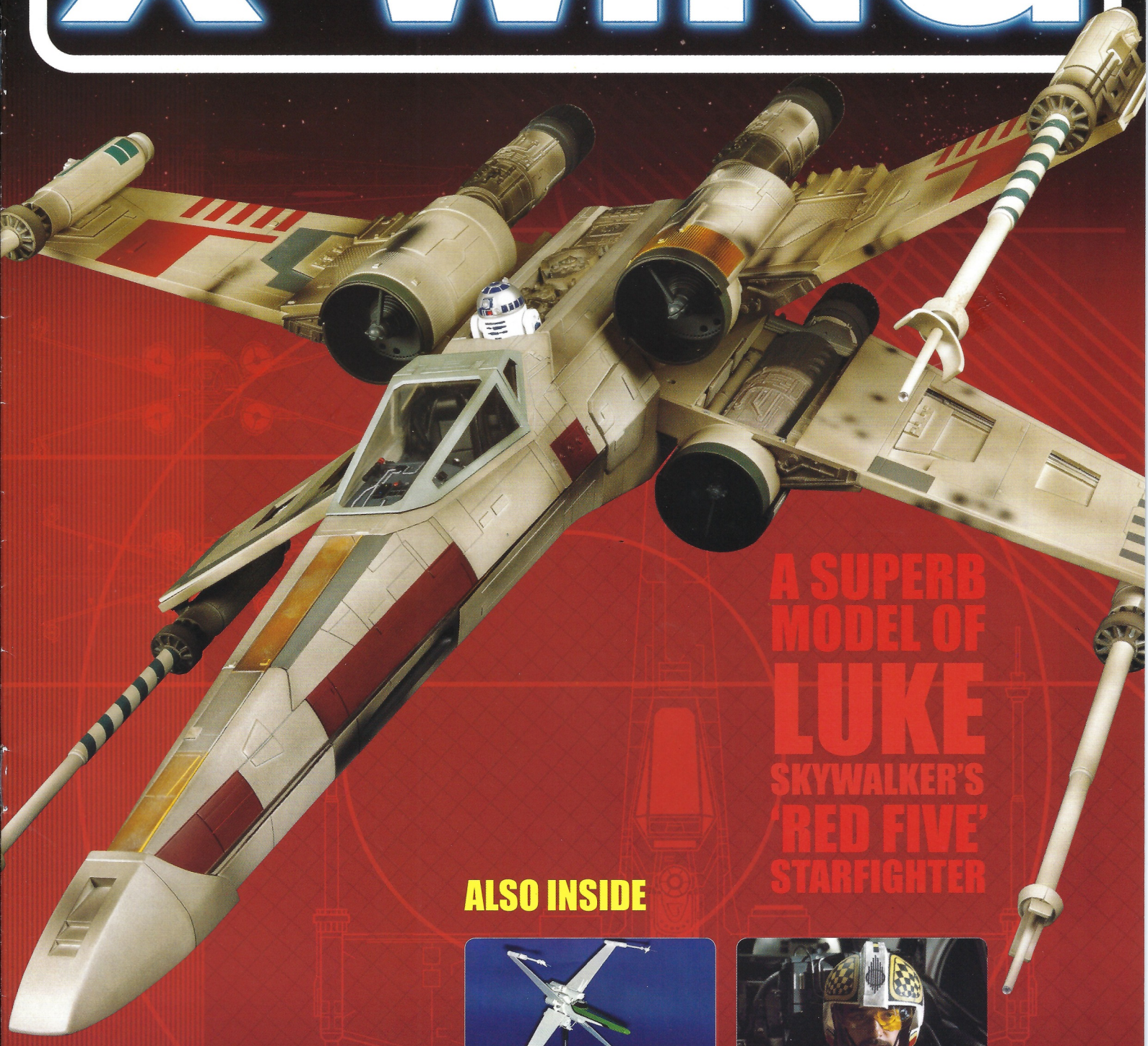
PUBLISHED WEEKLY

ISSUE 2

STAR WARS™

BUILD YOUR OWN X-WING



A SUPERB MODEL OF LUKE SKYWALKER'S 'RED FIVE' STARFIGHTER

ALSO INSIDE

CREATING A STARSHIP FLEET
COLIN CANTWELL

STARFIGHTER ACES
BIGGS DARKLIGHTER

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CONTENTS ISSUE 2

STAR WARS™
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X-WING

CREATING A STARSHIP FLEET 3
COLIN CANTWELL – MODELLING THE X-WING

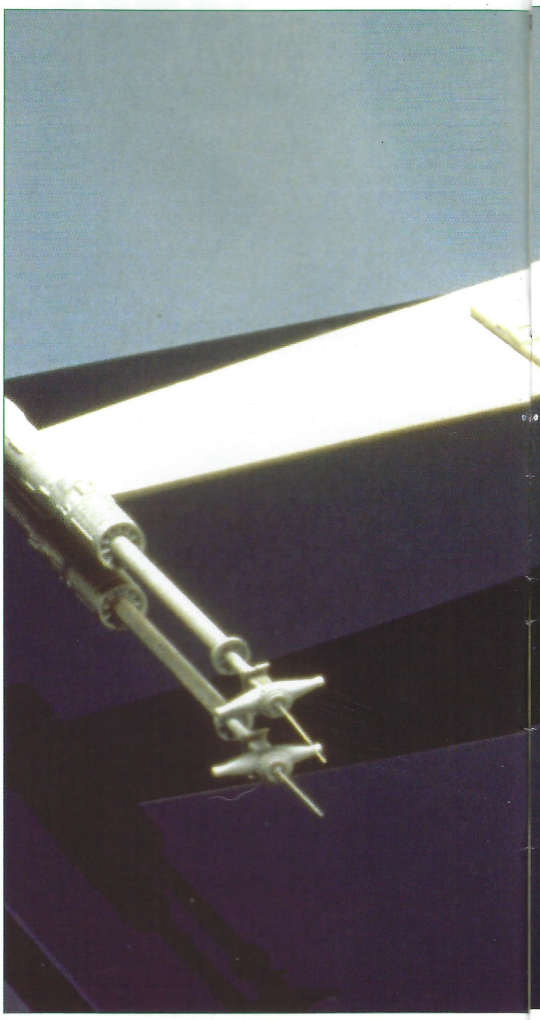
Model maker Colin Cantwell assembled the first 3D realisations of the X-wing and other key craft from the *Star Wars* universe.

STARFIGHTER ACES 6
BIGGS DARKLIGHTER - RENEGADE FROM THE ACADEMY

The boyhood friend of Luke Skywalker who trained as a pilot at the Imperial Academy, but then defected to the Rebel Alliance.

BUILD THE X-WING 10
CANNON AND ASTROMECH DROID (R2-D2)

This issue includes components to complete the generator for the laser cannon, as well as the parts for assembling R2-D2's left leg.



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PUBLISHING INFORMATION

ISBN 978-1-4439-4608-7 BYOXWN02 19 01 02 Printed in the UK
Editorial and design by Continuo Creative, 39-41 North Road, London N7 9DP

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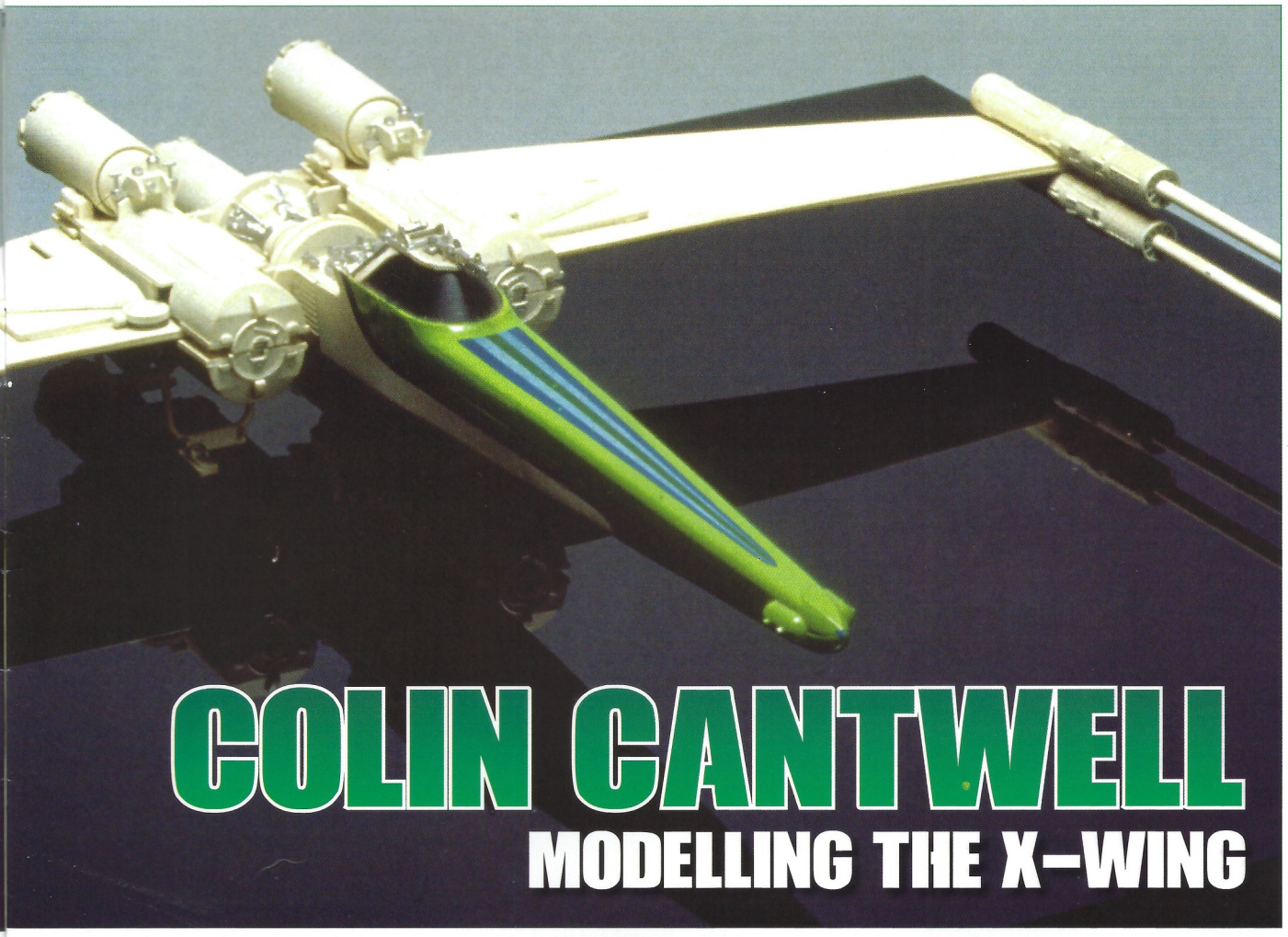
Published by De Agostini UK Ltd, Battersea Studios 2,
82 Silverthorne Road, London SW8 3HE, UK

PICTURE CREDITS
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As well as the X-wing, Colin Cantwell also created prototype models for other *Star Wars* vehicles, including Luke's landspeeder (above) and the *Millennium Falcon*.

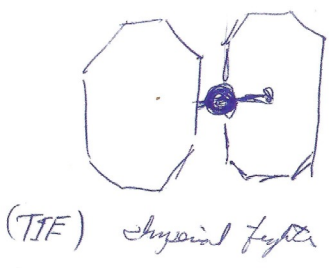


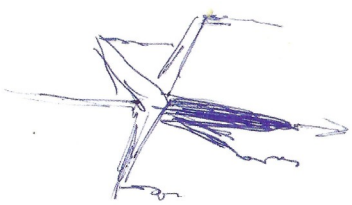
COLIN CANTWELL
MODELLING THE X-WING

Model-maker and sketch artist Colin Cantwell was one of the first people to be hired to work on *Star Wars*. George Lucas wanted his movie to include visual effects that had never been seen on film before, but the closest anyone had come to achieving the look Lucas wanted was Stanley Kubrick's 1968 science-fiction epic *2001: A Space Odyssey*, whose stunning visual effects had helped to make it one of the most influential movies of the era. Not only did Cantwell's previous experience include designing and building model spacecraft for *2001,* but he had also visualised spaceships for NASA's documentaries on the Apollo moon landing programme.

BRINGING CONCEPTS TO LIFE

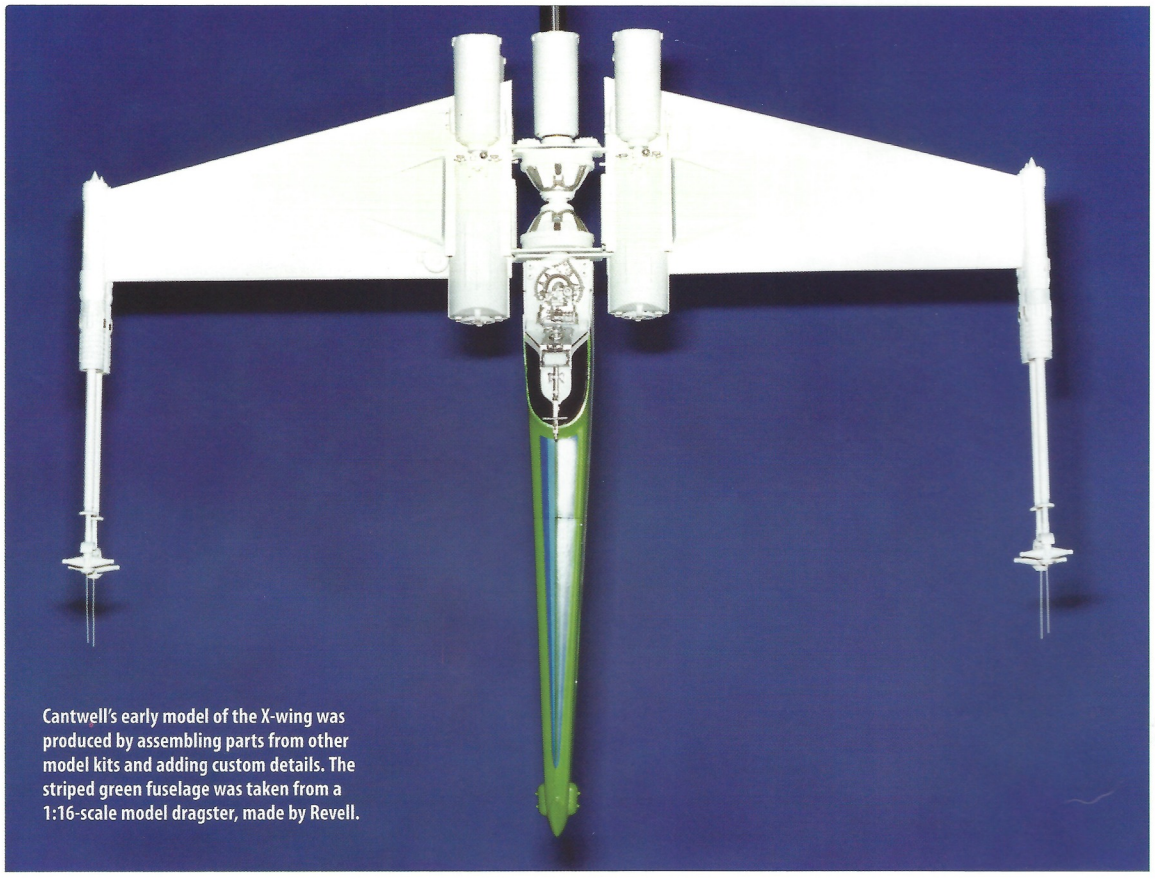
During the early development of *Star Wars*, a key part of Cantwell's job was to help Lucas develop his ideas and present them to the studio that would be bankrolling the movie. While production illustrator Ralph McQuarrie, effects artist Joe Johnston, and other members of the team directed the overall design of *Star Wars* by illustrating key scenes, characters and vehicles, Cantwell was the first person to make a physical prototype of many of the galaxy's most iconic spacecraft, including the Death Star, TIE fighter and X-wing. These would go on to inspire the final detailed models and props for the movie.







George Lucas's early rough sketches for the TIE fighter, X-wing and Death Star, which would evolve in detail. Colin Cantwell would go on to produce highly finished, accurate colour artwork, as well as making physical models of the craft.



Cantwell's early model of the X-wing was produced by assembling parts from other model kits and adding custom details. The striped green fuselage was taken from a 1:16-scale model dragster, made by Revell.

In the first prototype, the four wings of the S-foils were able to open up to a full 90-degree cross, but an example that was only able to open to a restricted angle was preferred.

KITBASHING SKILLS

While working with Kubrick, Cantwell had built a number of spaceships using the technique known as 'kitbashing' – taking parts from a variety of different scale models and repurposing them. Because the individual components represented pieces of real machines, they gave the resulting model the look of being something constructed for a purpose. Cantwell went on to refine this technique, saying that he preferred to scour model shops in poor neighbourhoods, where the boxes that held the kits had often been opened, so he could look inside and see what parts there were that could be adapted.

Some friends who had seen fantasy sci-fi models that Cantwell had been working on introduced him to George Lucas, who offered him the job making up spaceships for his new movie project. With no previous guidelines that defined the look of Lucas's galaxy far, far away, this turned into a collaborative effort between the director and his team. In particular, Cantwell and Ralph McQuarrie developed a way of working where the illustrator would call into the studio and photograph models that were being worked on, then put them into his paintings, before Colin had even finished the detailing. The models themselves might then be adapted to match the illustration.

The very first designs for the X-wing evolved through several stages. As Cantwell explained, the starfighter was designed to suit the story line. The rebel and Imperial craft had to be instantly recognisable, or as Colin put it, 'You had to instantly know the bad guys from the good guys', pointing out that in real life, military machines from opposing factions often tended to look different from each other.



An early model of the Death Star. It was Cantwell's idea to open up the sphere and produce the central trench.

MOVABLE S-FOILS

A practical requirement of the evolving story was that the X-wings needed to be able to take off from an airfield. Whether this involved using thrusters or some sort of anti-gravity device, that suggested the rebel ships needed to be relatively flat. But later on, the starfighters had to look ready for battle. As Colin explained, that led to a concept for a ship that was 'able to draw its guns like in a western'.

These two factors resulted in a ship with movable wings that could change configuration. Cantwell said his original version was inspired by a combination



"You had to instantly know the bad guys from the good guys"

Colin Cantwell

The X-wing's engines would change in detail. The early model (which is mounted on a valve from a car) had an extra central thruster.



of a pub dart and a dragster. In fact, the model's body was based on a 'rail' dragster from a Revell 1:16 model, with wings, rocket engines and a cockpit added. Joe Johnston felt the result was 'a little too sleek and slender', but after six or seven changes to the fuselage and detailing, the shape was near completion.

The original idea was that the ship could open its wings into a full cross, but when one of the models at the studio had a problem opening fully, everyone thought the restricted angle looked great, and that became the design of choice.

Cantwell's time on *Star Wars* was relatively brief. Rather than become a permanent employee of the new ILM, he preferred to move on to other projects, which included *Close Encounters of the Third Kind*, followed by *Buck Rogers in the 25th Century* and *WarGames*, two movies on which he would be involved in pioneering new computer graphics techniques. Meanwhile, the next job for the other members of the ILM model shop was to develop practical X-wing filming miniatures that would enable the spectacular battle sequences to be shot…



Using skills he had developed working for NASA and the production team on *2001: A Space Odyssey*, Colin Cantwell assembled models of the craft described in George Lucas's drafts of *Star Wars*.

BIGGS DARKLIGHTER

RENEGADE FROM THE ACADEMY

A boyhood friend of Luke Skywalker, Biggs Darklighter trained as a pilot at the Imperial Academy, but defected to the Rebel Alliance. He used his flying skills in the desperate attack on the Empire's terrifying new battle station, the Death Star.

Like Luke Skywalker, Biggs's natural flying skills were honed by daring chases through the narrow desert canyons near Mos Espa. For an ambitious pilot living in a backwater world such as Tatooine, there were only two ways off the planet. You could hope to be taken on as crew by one of the shady characters and smugglers who hung out in spaceports such as Mos Eisley, and maybe work your way up from the bottom, or you could transmit your application to the Imperial Academy and hope to meet the high standards required to be accepted for pilot training. The latter was the ultimate dream for Biggs and his friend, but only one of them made it to the Academy, because Luke's uncle Owen stood firm against letting his youthful ward leave the farm.



After his graduation from the Imperial Academy as a skilled pilot, Biggs returned to Tatooine to visit his friends. He and Luke were happily reunited, but the visit was all too short.

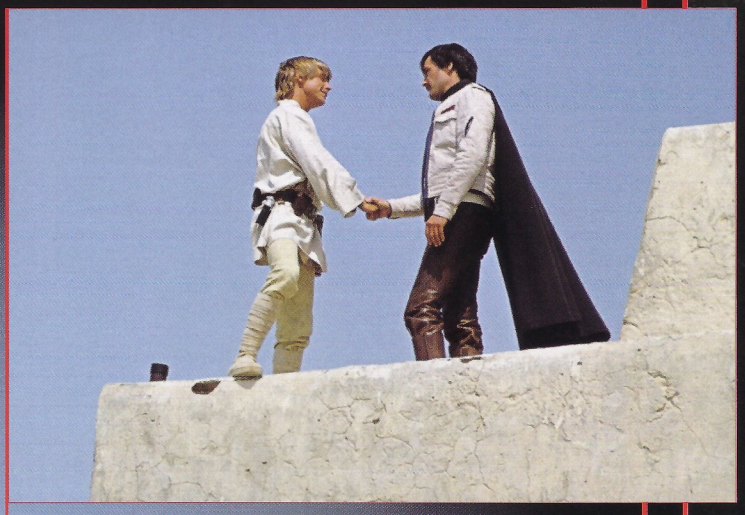
AT ODDS WITH THE EMPIRE

While Biggs thrived on the pilot's training, he soon discovered that not everything about the Academy was to his taste. Students were not only expected to hone their flying ability and remain in peak physical condition, but they were also forced to learn the finer points of Imperial doctrine, and many of the battle tactics in which they were instructed were aimed at suppressing any opposition to the Emperor's iron will. In Biggs's case, the attempted Imperial indoctrination had the opposite effect. A festering resentment about the Empire's ethos turned into a resolve that its rule over the galaxy must be brought to an end.

THE DESERTER

TURNING POINT

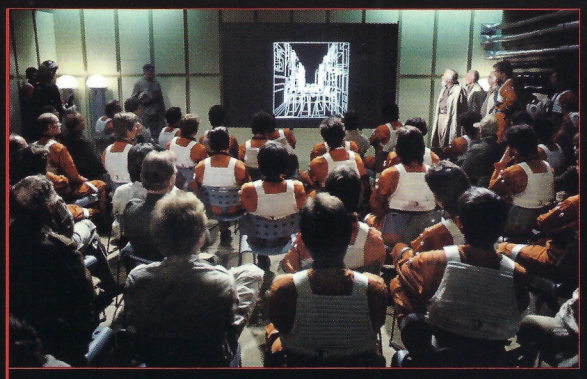
Like many in the galaxy – particularly in the Outer Rim where Imperial control most often showed its true and tyrannical face – Biggs Darklighter hated the Empire. Taken at face value, his decision to enter the Imperial Academy might seem hypocritical. However, for Biggs and so many others, pilot training represented the best and only chance for people like him to escape their homeworld, even if it did mean leaving his old friend Luke behind. As soon as he was able, Biggs and a few of his classmates, who had also been posted to the Imperial starship *Rand Ecliptic*, jumped ship and made their way to the Rebel Alliance, to take up a very different fight.



As a deserter from Imperial service, Biggs could not afford to linger on Tatooine. Besides, he had found a new cause to fight for.

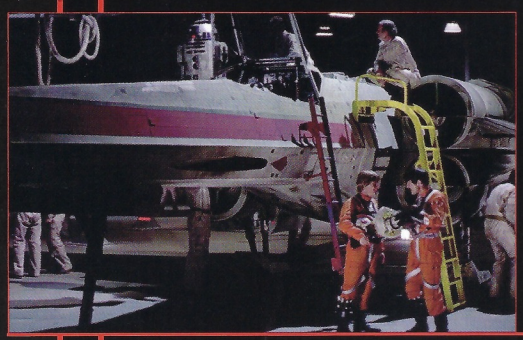
"It'll be like old times, Luke. They'll never stop us."

Biggs Darklighter



After leaving Tatooine, Biggs threw in his lot with the Rebel Alliance, which needed trained pilots at its base on Yavin 4, where General Dodonna briefed the rebel pilots before their attack on the Death Star.

Biggs defected to the Rebel Alliance, and volunteered to take part in the attack on the Empire's Death Star when the battle station threatened the rebel base on Yavin 4. Utilizing the Death Star plans delivered by Princess Leia Organa, rebel strategists devised an attack that depended on small, single-pilot starfighters being able to evade the station's defences, which were designed to resist an assault by much larger ships.



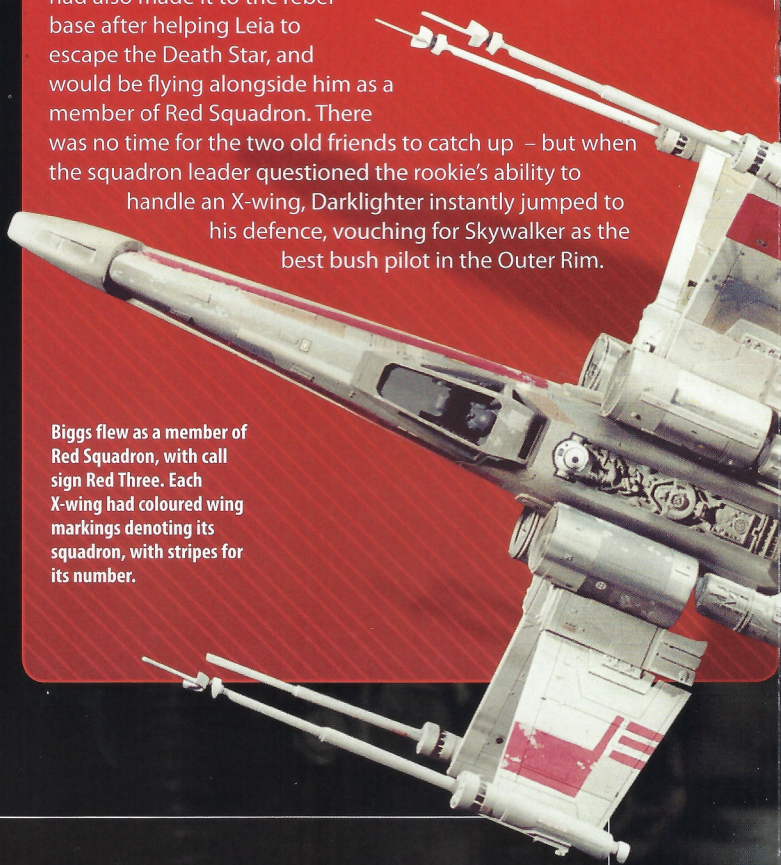
After the briefest of reunions, Luke and Biggs wished each other good luck in their daunting mission while their X-wings were made ready in the hangar on Yavin 4.

TECH / EQUIPMENT



RED THREE

Darklighter was assigned to pilot one of the rebels' T-65 X-wings, flying under the call sign Red Three, and was assisted by an astromech unit – R2-F2 – drawn from the droid pool for the Death Star attack. As the attack squadrons formed up in the rebel hangar, Darklighter was amazed to discover that Luke had also made it to the rebel base after helping Leia to escape the Death Star, and would be flying alongside him as a member of Red Squadron. There was no time for the two old friends to catch up – but when the squadron leader questioned the rookie's ability to handle an X-wing, Darklighter instantly jumped to his defence, vouching for Skywalker as the best bush pilot in the Outer Rim.

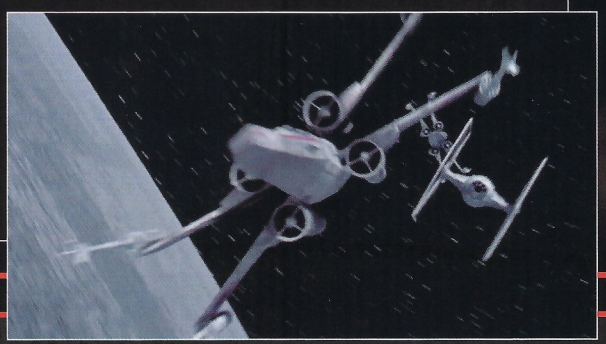


Biggs flew as a member of Red Squadron, with call sign Red Three. Each X-wing had coloured wing markings denoting its squadron, with stripes for its number.

NOBLE SACRIFICE

In their attempt to reach the Death Star's reactor shaft, the Rebel X-wings had to fly through flak from the battle station's turbolasers and fierce counterattack from Imperial TIE fighters. Many rebels were shot down long before they reached their objective, and as the battle neared its end, Biggs was one of the few pilots left, flying alongside Wedge Antilles and his old friend Luke. For Biggs it was almost like old times, with his cocky friend reminding him that the mission was just like Beggar's Canyon back on Tatooine. Fighting with his controls, he fell back to cover Luke. Just before they reached the reactor shaft, the trio of X-wings came under intense fire from Darth Vader. Wedge was hit and pulled out, but with seconds to go, Biggs held station until a blast from Vader shattered his starfighter into flaming wreckage. It was enough. His sacrifice allowed Skywalker to press home his attack, destroying the Death Star and saving the Rebel Alliance.



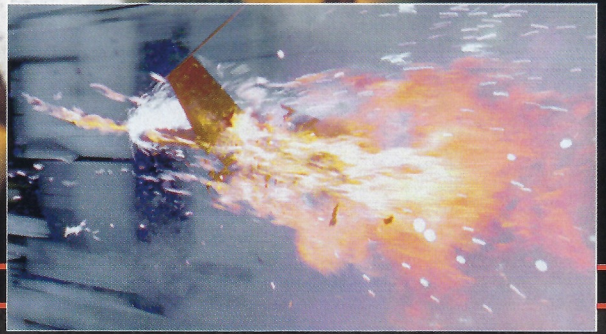




"Luke, at that speed will you be able to pull out in time?"

Biggs Darklighter

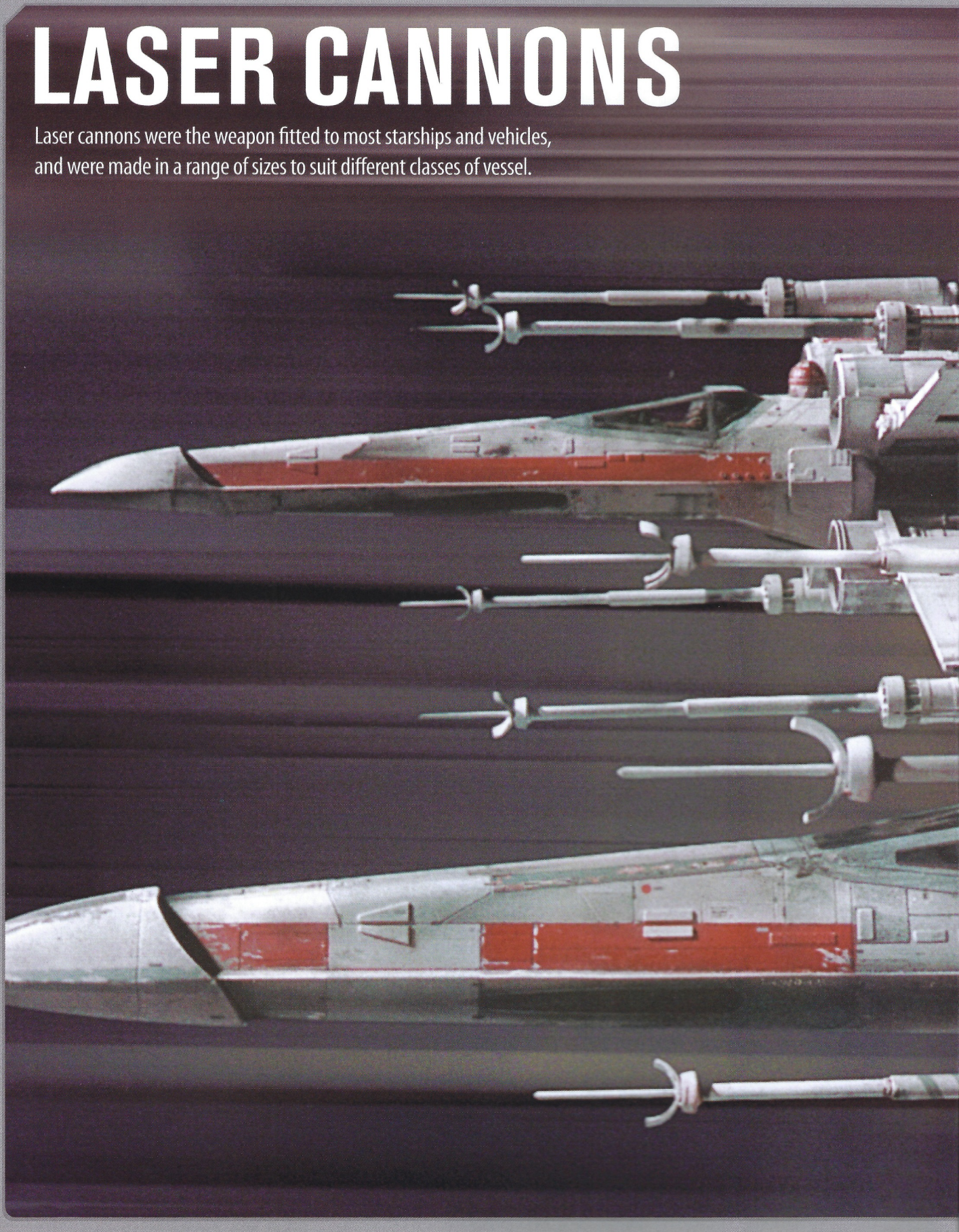


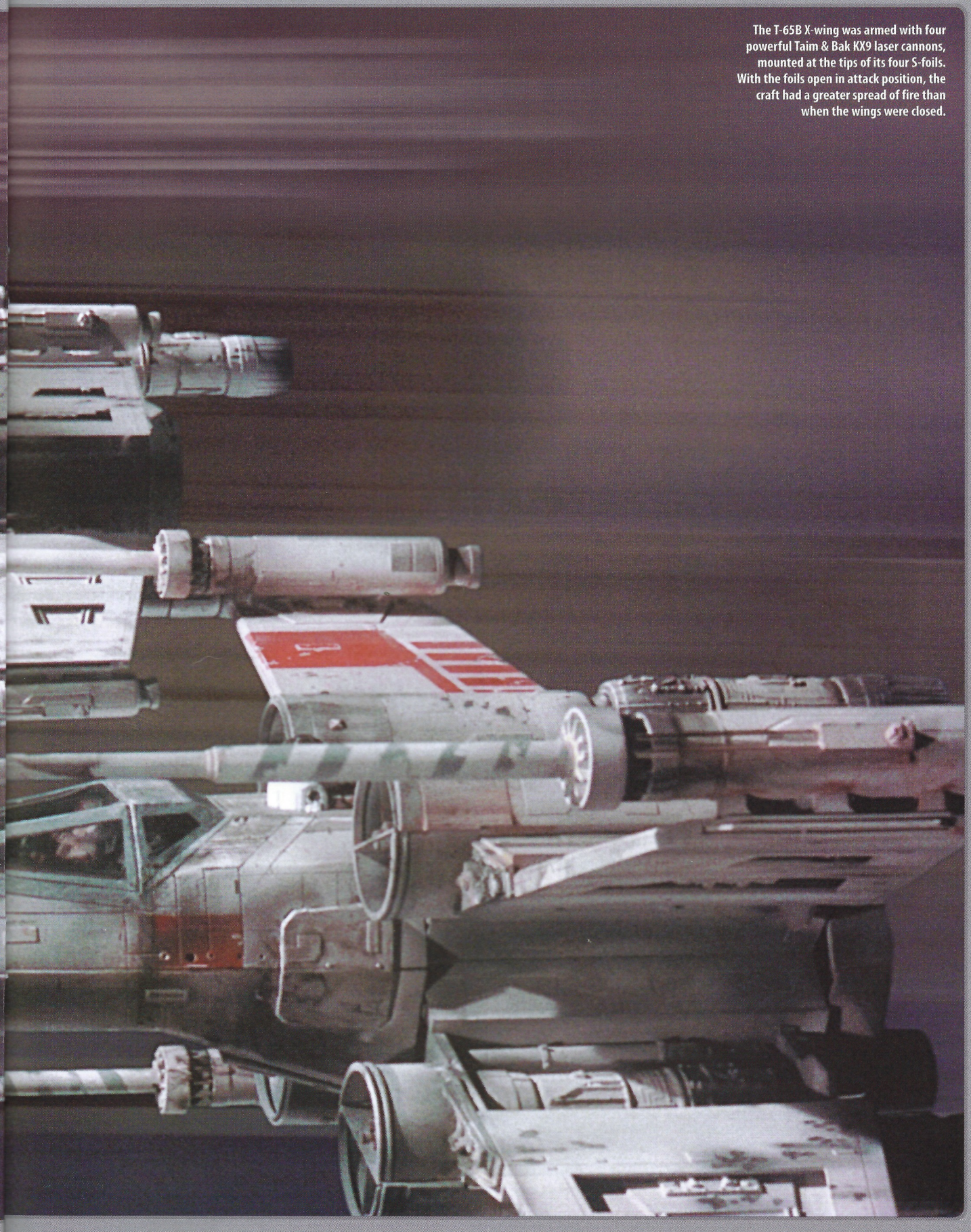


A blast from Vader's TIE Advanced x1 destroyed Biggs's starfighter, but this act of sacrifice meant that Luke was able to launch his own attack on the Death Star.

LASER CANNONS

Laser cannons were the weapon fitted to most starships and vehicles, and were made in a range of sizes to suit different classes of vessel.





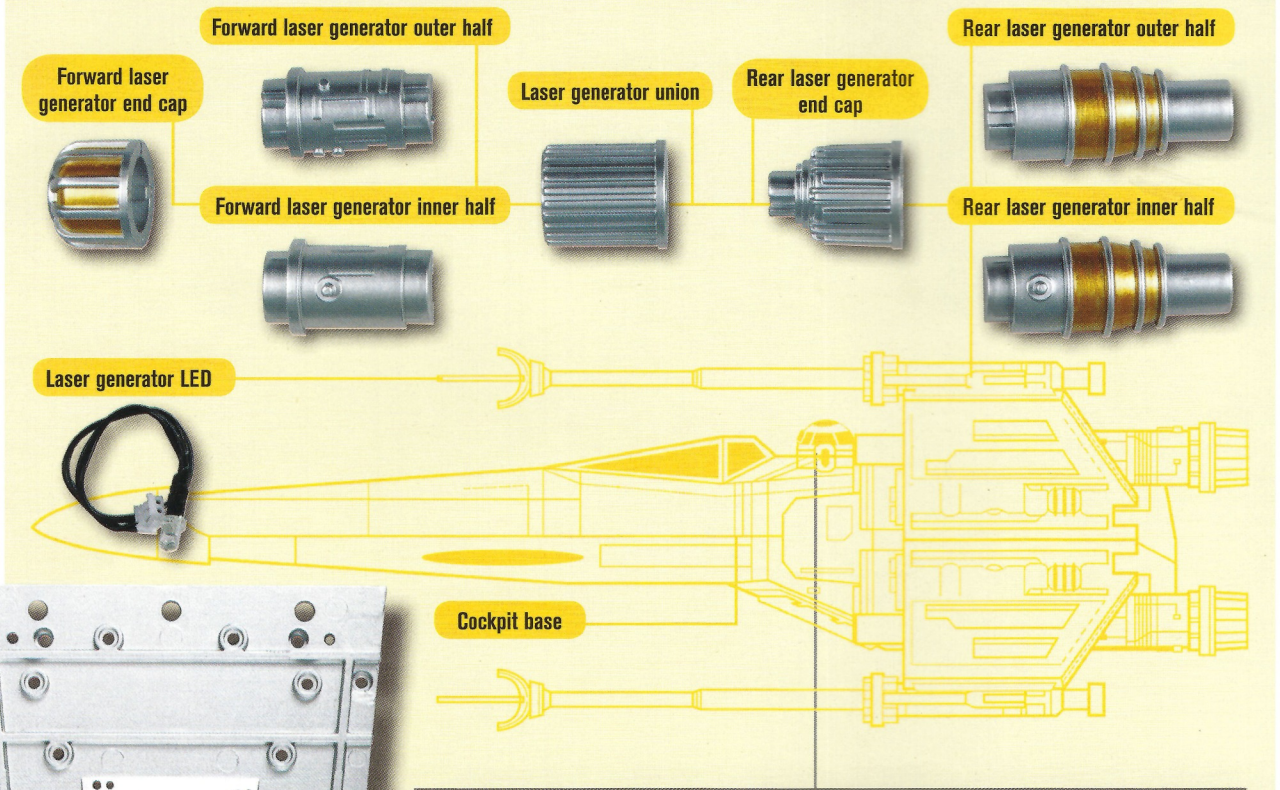
The T-65B X-wing was armed with four powerful Taim & Bak KX9 laser cannons, mounted at the tips of its four S-foils. With the foils open in attack position, the craft had a greater spread of fire than when the wings were closed.

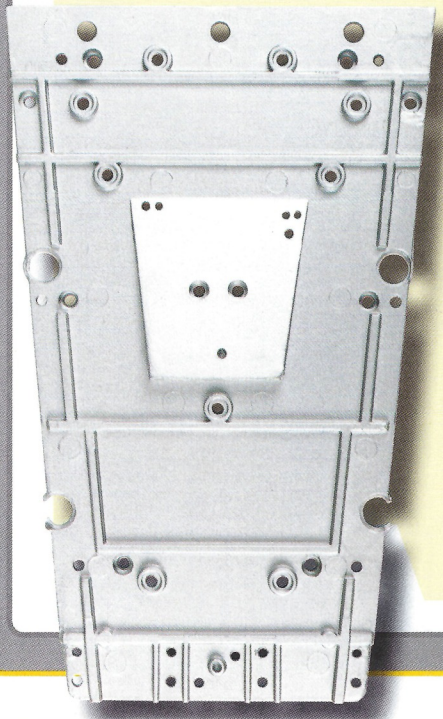
Cockpit base, laser cannon, and astromech droid (R2-D2)

This issue includes all the components to complete the laser generator that fits inside the first laser cannon. You also have all the parts to assemble R2-D2's left leg, plus the base for the cockpit that fits inside the fuselage, which you will start to assemble over the next two stages. Keep the cockpit base safe for now, until you receive the next set of parts.

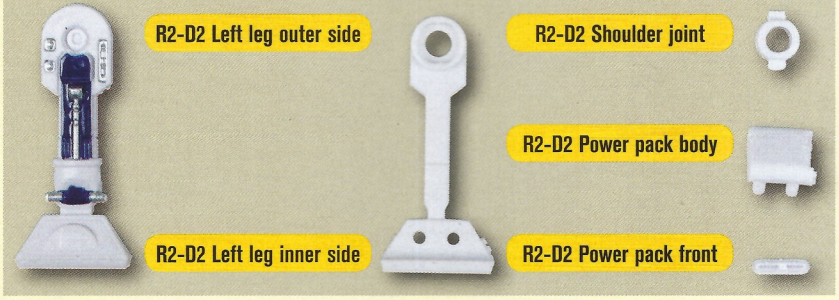
COMPONENTS CHECKLIST

Use this guide to check what parts you have received and where they fit on the model





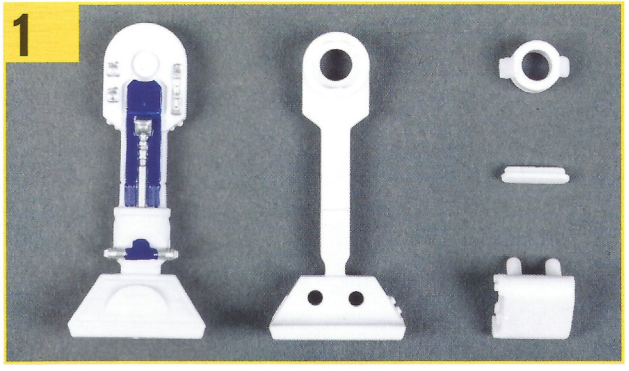
R2-D2 COMPONENTS CHECKLIST



ASSEMBLING R2-D2'S LEFT LEG

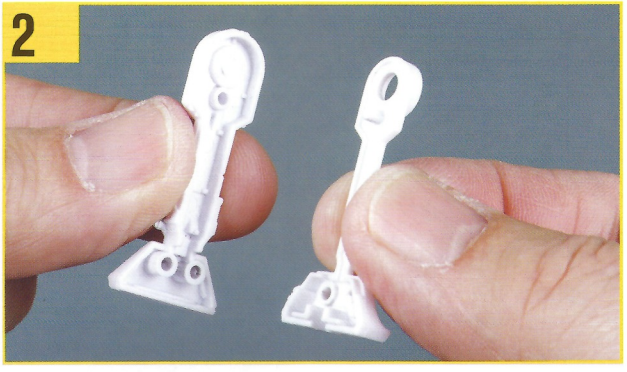
R2-D2's leg comes in five pre-finished sections, which are joined with simple push-fit connections.

1



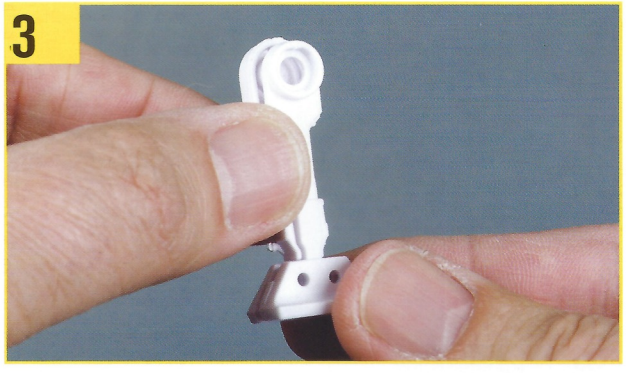
Take all five parts of R2-D2's leg, provided with this issue.

2



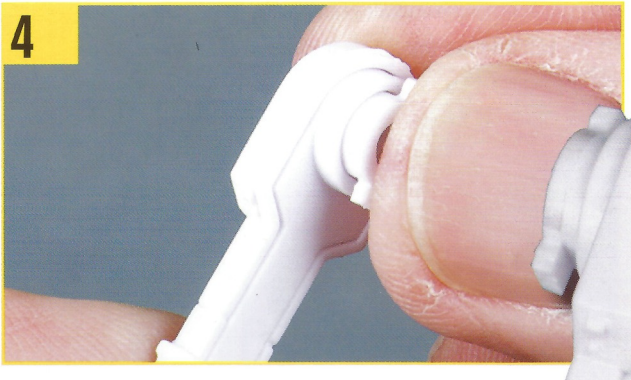
Align the inner and outer sides of the leg, which have internal pins and sockets to join the parts.

3



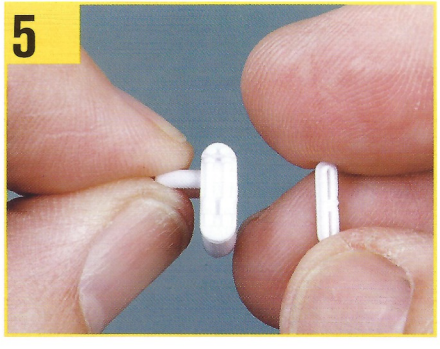
Press the two parts together firmly.

4



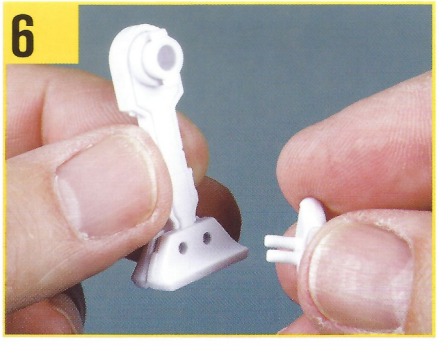
Push the joint into the circular mounting on R2-D2's shoulder. The two lugs go at the top and the bottom.

5



Press the small oval front panel into the matching recess in the power pack body.

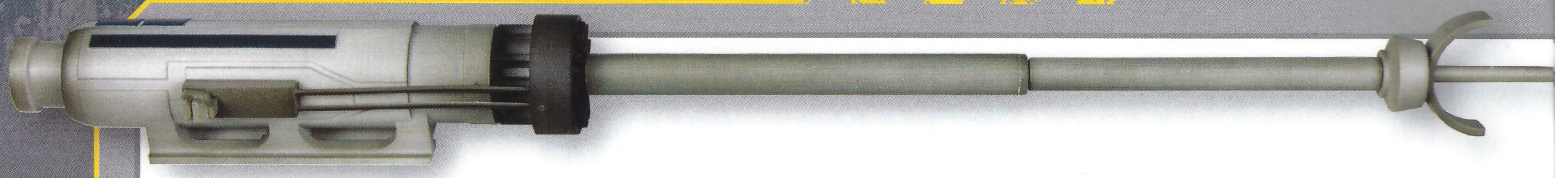
6



Press the two pins on the power pack into the matching holes in R2-D2's foot.

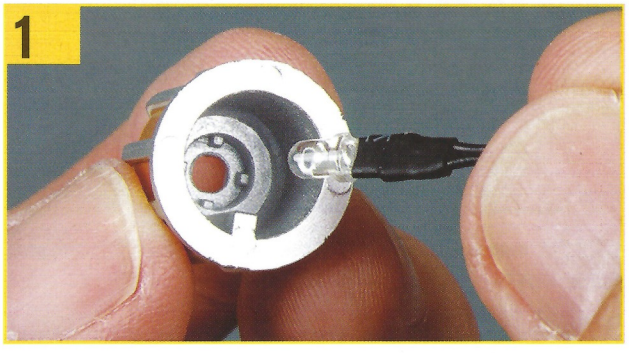
That completes the left leg, ready to fit to R2-D2's body at a later stage.



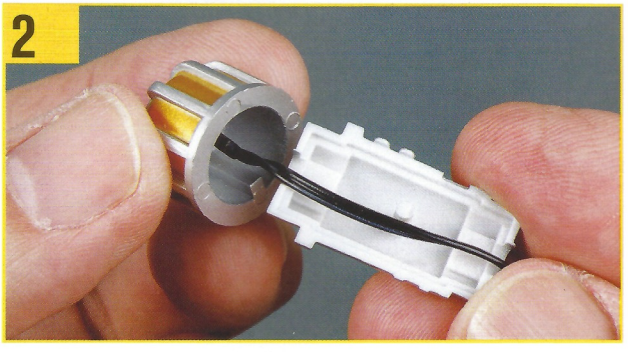


ASSEMBLING THE LASER GENERATOR

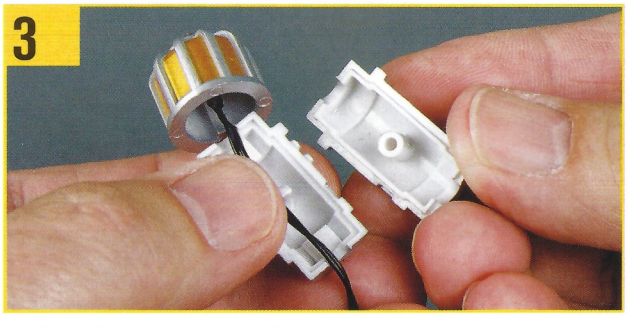
The laser generator (which you will complete in this stage) fits inside the laser cannon housing, and contains an internal LED that provides the lighting effect for the laser fire.



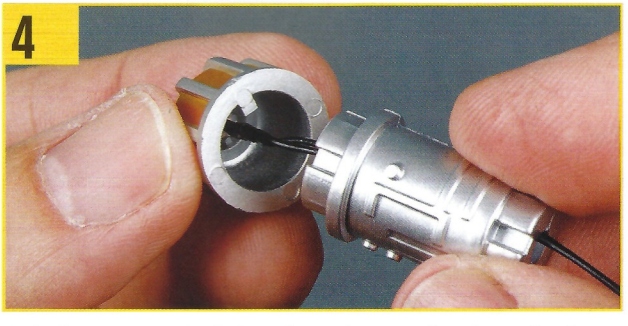
Fit the LED into the small hole in the end of the forward generator end cap.



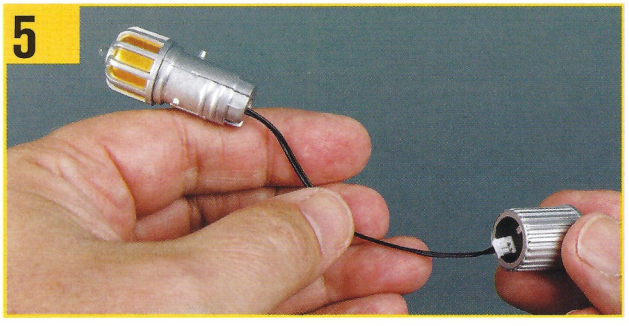
Feed the wire past the pin inside this half of the forward generator body.



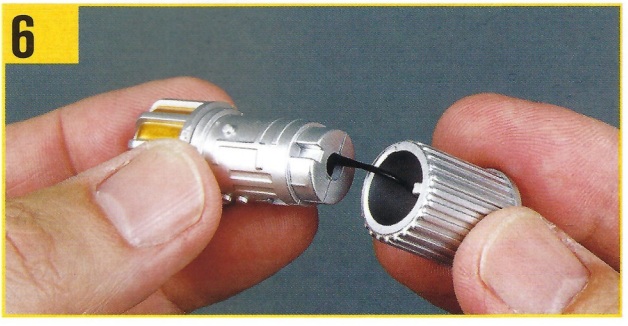
Fit the socket in the other half of the generator body over the pin and press the two halves together, taking care not to trap the wire.



Push the generator body into the end cap, noting the projecting lug, which only allows it to fit in one position.

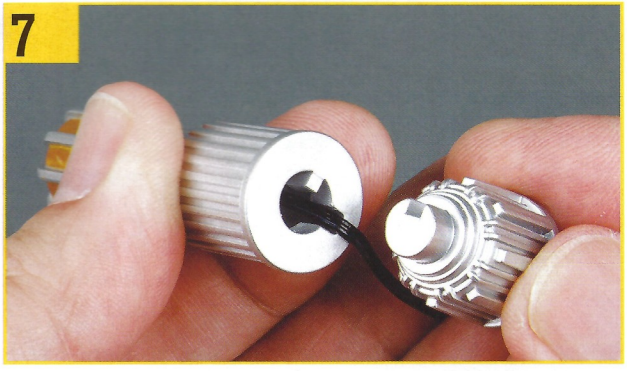


Feed the wire through the central union.



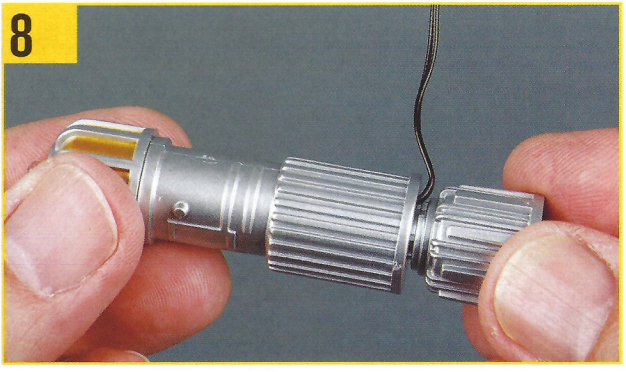
Push the union onto the generator body, noting the projecting lug, which only allows it to fit in one position.

7



Take the rear end cap, which has a slot to match an internal lug in the central union.

8



Push the end cap into the central union, leading the wire out through the groove in the union.

9



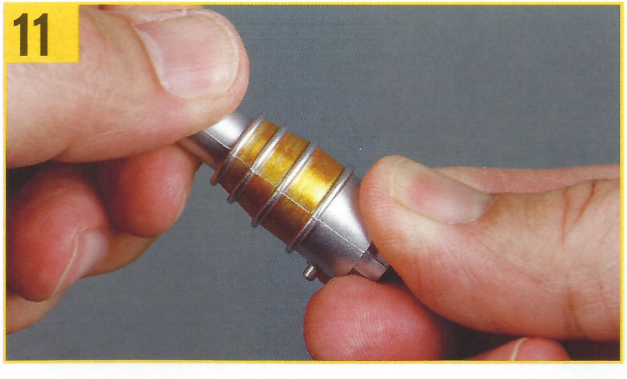
Take the two halves of the rear generator body.

10



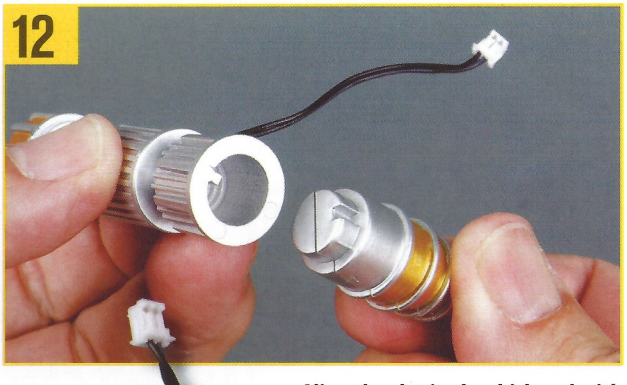
Fit the internal pins into the matching sockets.

11



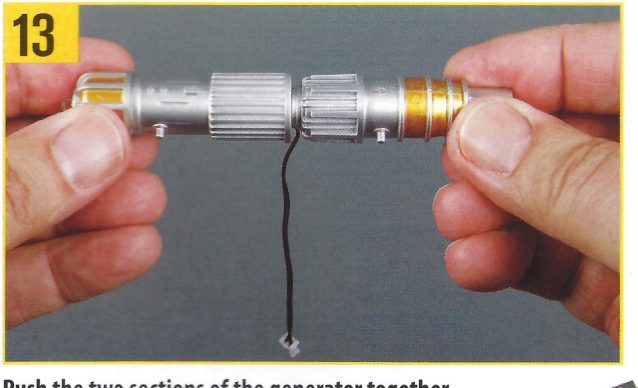
Push the halves together firmly.

12



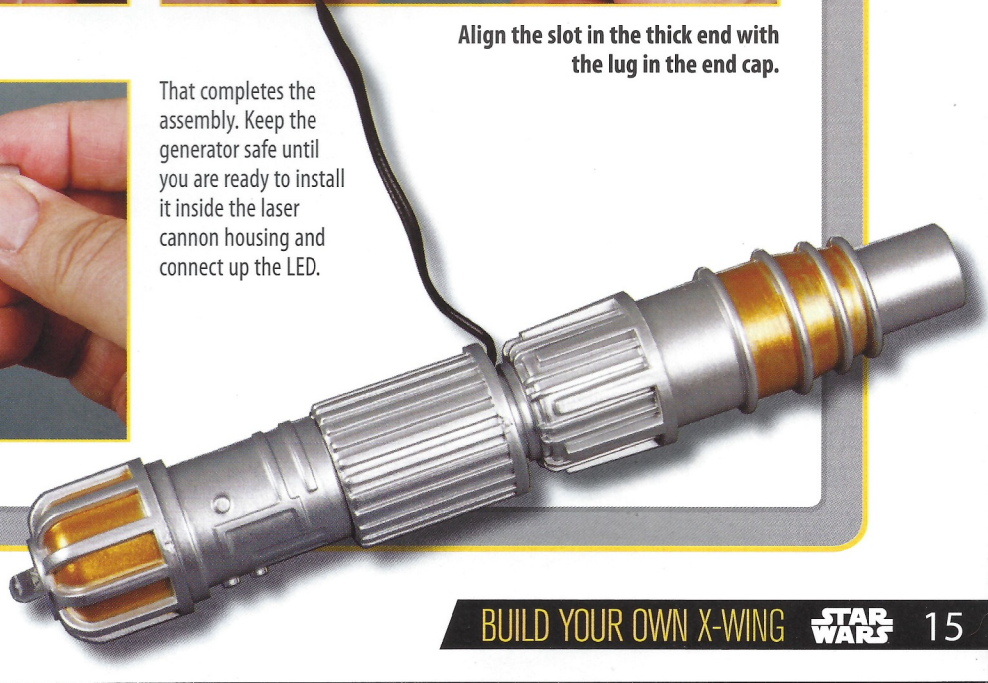
Align the slot in the thick end with the lug in the end cap.

13



Push the two sections of the generator together.

That completes the assembly. Keep the generator safe until you are ready to install it inside the laser cannon housing and connect up the LED.



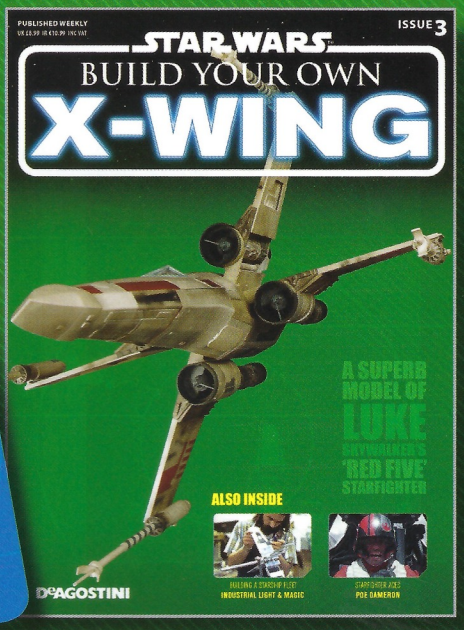
DON'T MISS OUT!

ISSUE 3

Building the X-wing model at ILM

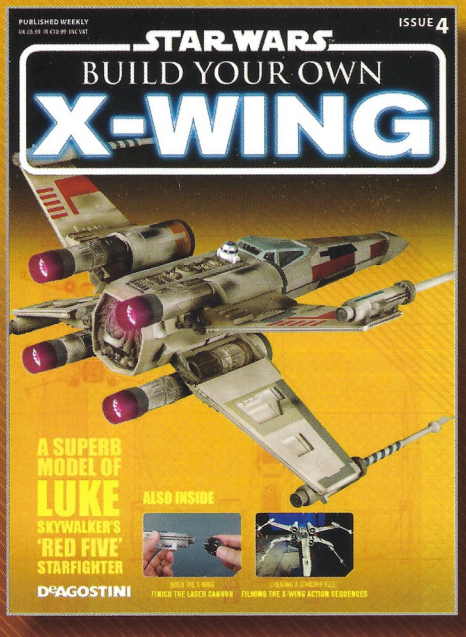
Starfighter Aces: Poe Dameron





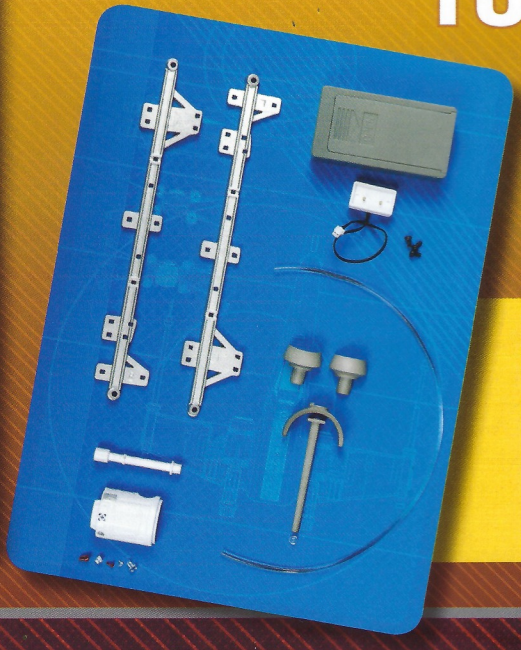
R2-D2's left leg
Laser housing
Cockpit frames

PLUS FREE SCREWDRIVER



ISSUE 4

Filming the X-wing action sequences



Cockpit parts
R2-D2 parts
Battery box
Flash suppressor and emitter

Items may differ from those shown.

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