

THE OFFICIAL STARSHIPS COLLECTION



FEDERATION
ATTACK FIGHTER

TYPE: FIGHTER

LAUNCHED: 24th C

CREW: TWO

LENGTH: 25 METERS

Contents

04: FEDERATION ATTACK FIGHTER

10: **DESIGNING THE SHIP**

12: **DIGITAL REVOLUTION**

18: ON SCREEN

Stand assembly:



ORDER ONLINE

Order binders, missing issues or other Eaglemoss products at:

www.mycollectionshop.com



EAGLEMOSS

Eaglemoss Publications Ltd. 2016
1st Floor, Kensington Village, Avonmore Road,
W14 8TS, London, UK, All rights reserved.

M & © 2016 CBS Studios Inc. © 2016 Paramount Pictures Corp. STAR TREK and related marks and logos are trademarks of CBS Studios Inc. All Rights Reserved.

Development Direct Maggie Calmels

STAR TREK – The Official Starships Collection is published fortnightly.

DON'T MISS AN ISSUE: place a regular order with your magazine retailer.

www.starfrek-starships.com
Call 0344 493 6091
Post the subscription form included with issues 1 to

BACK ISSUES

To order back issues: Order online at www.startrek-starships.com or call 0344 493 6091

UK distributor: COMAG Magazine Marketing



CUSTOMER SERVICES: www.startrek-starships.co

UK: 0344 493 6091

startrek-ship@eaglemoss-service.com

Australia: (03) 9872 4000 bissett@bissettmags.com.au

New Zealand: (09) 308 2871 Fax: (09) 302 7661 subs@ndc.co.nz

South Africa: (011) 265 4307 service@jacklin.co.za

Malaysia: (03) 8020 7112 sales@allscript.com
Singapore: (65) 6287 7090

OVERSEAS BACK ISSUES

Place your order with your local magazine retailer

Warning! Collectable figurines.
Not designed or intended for play by children.
Do not dispose of in domestic waste.

FEDERATION ATTACK FIGHTER

SPECIFICATION



TYPE: FIGHTER

AFFILIATION: FEDERATION

LAUNCHED: 24th CENTURY

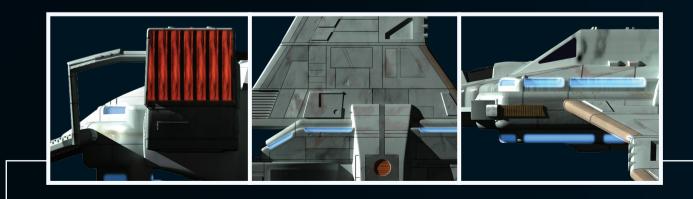
LENGTH: 25 METERS

CREW: TWO

TOP SPEED: WARP 9

WEAPONRY: PHASER EMITTERS, PHOTON

TORPEDOES, PULSE CANNONS



Attack fighters were used on some Federation worlds as a line of defense. The Maquis managed to get their hands on many of these ships during their fight against the Cardassians. Later, squadrons of attack fighters fought in the Dominion War. FEDERATION

ATTACKFIGHTER

Federation attack fighters were versatile combat craft that could be configured to fire a wide range of weaponry.

he Federation attack fighter was a small, highly-maneuverable starship that packed a powerful punch for its size. These warpcapable vessels were used for defense purposes on Federation worlds in the mid-to-late 24th century. Many were later appropriated by the Maquis for their insurrection against the Cardassians, and in the mid 2370s Starfleet employed these vessels in squadrons in the fight against the Dominion and their allies.

In appearance, the Federation attack fighter was much more like a suborbital aircraft. It featured downward-swept gullwings and two impulse engines fixed to a spar at the rear. These fixtures indicated that the vessels were designed for atmospheric flight as well as space flight. Certainly they were capable of extreme aerobatic-type maneuvers, making them difficult to hit while they carried out attacks.

PROTECTED PROPULSION

These vessels possessed warp engines, while inboard warp nacelles were located between the main body of the ship and the wings. As the nacelles were protected, it made it more difficult for enemy craft to target their propulsion units.

Despite being approximately 25 meters in length, attack fighters could be armed with a formidable array of weaponry. These included pulse cannons located in the wings, energy disruptors, particle accelerators and photon torpedoes. Together with their deflector shields, these weapons meant attack fighters delivered a considerable threat,

also be retrofitted to fire third-party weapons. For example, in 2370 the Maguis engineered them to fire weapons provided by the Pygorians, including particle accelerators and high-energy disruptors.



► The Maguis managed to get their hands on several attack fighters to help in their fight against the Cardassians. They used two closely-related designs of fighter. The version Ro used featured a larger central cockpit.

The interior of an attack fighter was small, with room for only two occupants. It did have space for a single transporter pad in the rear, which Lieutenant Ro used to beam medical supplies aboard.







▲ The overall design of the attack fighter was closer to an atmospheric aircraft that a spaceship. The wings provided added stability for extreme flight maneuvers, making it hard to target in combat situations. Its warp nacelles were enclosed within the main body, in much the same way as they were on the *Defiant* class, helping to keep them protected.

especially when they launched a coordinated assault in numbers. By attacking in formation, these vessels were capable of disabling or destroying much larger vessels.

The cockpit of an attack fighter was very similar to the interior of Starfleet shuttles, and normally contained just two seats for the pilot and co-pilot. At the rear of the cramped cockpit was a single

By 2370, a number of Federation attack fighters had been stolen by the Maquis, and were used to fight the Cardassians. These resistance soldiers had to use any means at their disposal to arm the attack fighters, and using Quark as a go-between, they obtained weapons from the Pygorians. These black market goods included deflector shields, navigation arrays, pulse cannons and energy disruptors that could all be modified to work on the attack fighters.

Calvin Hudson, a former Starfleet officer turned Maquis leader, planned to use two attack fighters to carry out a strike against the Bryma colony, a world that the Maguis believed was being used as a weapons depot by the Cardassians. Commander Benjamin Sisko learned of this imminent attack and managed to put a stop to it using three *Runabouts*, but Hudson and his colleagues got away.

TARGETING THE CARDASSIANS

Later the same year, Gul Evek's Galor-class vessel came under assault from several Federation attack fighters being deployed by the Maquis. According to Evek, these attack ships were armed with photon torpedoes and type-8 phasers. The Cardassian ship would surely have been destroyed had the U.S.S. Enterprise NCC-1701-D not come to its rescue and driven off the attack fighters.

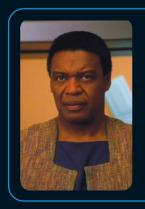
At around the same time, it was decided that more had to be done to stop the Maquis, and Lieutenant Ro Laren was tasked with infiltrating one of their resistance cells. To gain the trust of the Maquis, Ro staged a raid on the *Enterprise* and stole medical supplies using an attack fighter.

Later, Ro was supposed to lure a Maguis cell into a trap set by Starfleet. She was to lead several attack fighters in a raid against a Cardassian convoy that was supposedly carrying components for a biogenic weapon. The plan was that a Starfleet force would ambush them as they began the attack, but in the end Ro's sympathies lay with the Maguis. She exposed the Starfleet vessels that were waiting for them, and the attack fighters turned back at the last minute so they could live to fight another day with Ro by their side.

By 2374, Federation attack fighters were being employed by Starfleet in the fight against the

Dominion and its allies. During 'Operation Return,' squadrons of attack ships were used in an effort to take back control of *Deep Space 9*. Eight successive waves of fighters were deployed to attack Cardassian ships, hoping to provoke them into breaking formation and creating an opening through which larger Starfleet ships could advance towards Deep Space 9.

▲ In the battle to regain control of Deep Space 9 from the Dominion. Starfleet used several squadrons of attack fighters alongside larger ships to try and punch a hole through the lines of enemy ships.



DATA FEED

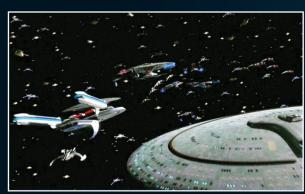
Calvin Hudson was Starfleet's attaché to the Federation colonies in the Demilitarized Zone. After years of witnessing the brutal treatment of colonists at the hands of Cardassians, he secretly joined the Maquis. Hudson led two attack fighters in a raid against the Bryma colony that was believed to be storing weapons for the Cardassians. In the end, the mission was stopped by his old friend Benjamin Sisko, but Hudson escaped to continue the Maquis' fight.

'OPERATION RETURN'

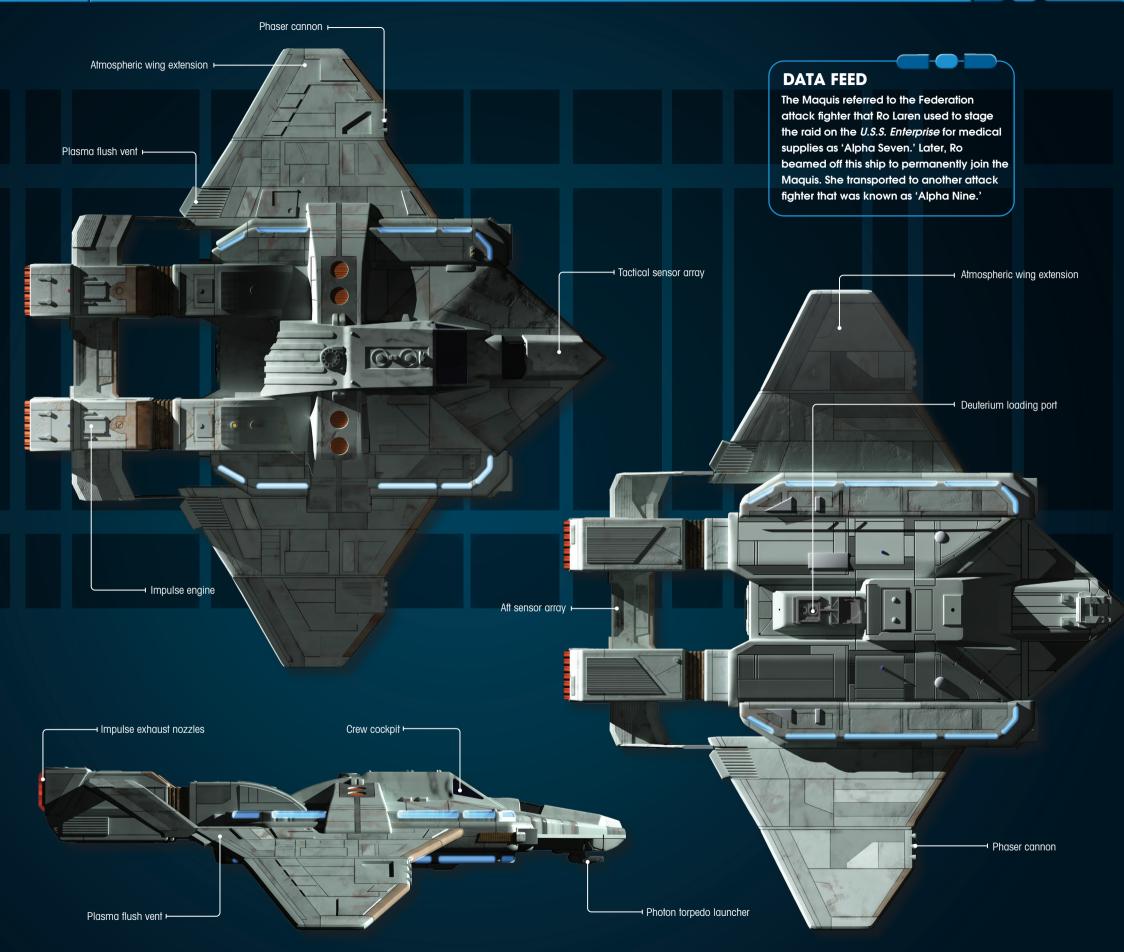
Federation attack fighters played a pivotal role in the battle to retake control of *Deep* Space 9 in 2374. Captain Sisko devised a plan in which attack ships would swarm Cardassian vessels before retreating in the hope that the Cardassians would follow them. The idea was that this would create a weakness in their defenses through which larger Starfleet ships could punch a hole.

After the eighth wave of attack fighters flew in, Gul Dukat appeared to take the bait, but he was merely laying a trap as he left several Galor-class destroyers in reserve. Sisko recognized that it was an ambush, but pressed ahead as he felt that they might not get a better chance. Finally, just the *Defiant* managed to get through the enemy lines, but as it closed in on *Deep Space 9*, the minefield that was preventing Dominion forces coming through the wormhole was brought down.

With hundreds of Dominion reinforcements ready to emerge in the Alpha Quadrant, Sisko ordered the *Defiant* to engage them in the wormhole. Just as they were about to meet the Dominion forces, the Bajoran Prophets intervened. They mysteriously made the Dominion reinforcements simply disappear, much to the bafflement of everybody. By this time, the Starfleet forces had been joined by the Klingons and 200 allied ships had broken through the Dominion lines. The Dominion and Cardassian occupation force had to abandon Deep Space 9, while the rest of their fleet had broken off the fight and were in full retreat.



▲ Starfleet destroyer units provided cover as squadrons of attack fighters swooped in on Cardassian vessels, hoping that they would be followed and a gap in the Dominion's defenses would be opened up.



FLIGHT TRAINER

According to a LCARS display screen seen on the U.S.S. Voyager NCC-74656, the fighter was used as a flight trainer for students at Starfleet Academy.

REBEL DEATH

Calvin Hudson, who was seen piloting an attack fighter in 2370, was killed three years later by the Jem'Hadar. In fact, the Maquis were completely wiped out around this time after the rebel insurrection

MAQUIS SHIPS

Ships used by the Maquis included the *Peregrine*-class courier and the Maguis Raider. The latter was similar in design to the attack fighter, but larger. Its cockpit had seating for four, while the aft section could accommodate around 40 personnel



DESIGNING THE

FEDERATION FIGHTER

Fighters were unusual for *STAR TREK* but it made sense for the Maquis to have them, and for Starfleet to use them in the battle with the Dominion.

he Starfleet Fighter began life as a Maquis ship that appeared almost simultaneously on STAR TREK: THE NEXT GENERATION and STAR TREK: DEEP SPACE NINE. Two episodes, 'Preemptive Strike' and 'The Maquis, Part II,' were filming together and the VFX team took advantage of the scheduling to pool their resources.

As VFX supervisor Joe Bauer told

Cinefantastique at the time, the producers were keen to make the Maquis look like a rag-tag operation that had got their ships from different places. "(They) wanted different types of ships, so it wouldn't look like the Maquis were the Blue Angels. The Maquis are a political group whose pilots and ships are drawn from wherever they could get them."

As a result, two similar ships were made. Greg Jein created a larger version, informally known as the Maquis 2, that would eventually be converted into Chakotay's ship, while Tony Meininger's Brazil Fabrication created the smaller fighter, based on a design by DS9 illustrator Jim Martin.

The physical model of the fighter was used for three more episodes of *DS9*

before it was rebuilt as a CG model for the massive battle in 'Sacrifice of Angels,' when it was finally established that it was a Federation ship that had been appropriated by the Maquis.

As Digital Muse's David Lombardi recalls, the CG modeling work was done by Danny Braet. "He had just come to us as a freelancer after his stint at Digital Domain (Film FX). As such, he was very used to building super detail, extremely high-resolution models. I remember him taking great pride doing a side-by-side image of the photographed model and his model and showing it to the VFX supervisor from Paramount (David Stipes) and

testing to see if David could tell. David pretty much had to do a mental 'coin flip' and just guess. It looked fantastic. The funny thing was in his effort for accuracy, it was built to actual scale... of the prop, so the CG ship was only about 2.5 feet long and we had to scale it up."

OUT OF SCALE

Despite the small scale of the model, Lombardi goes on to say that Braet had done his work a little too well. "This tiny little fighter that was never going to fill frame. If anything it would just be buzzing around, but it had large texture maps for every single panel – more then any other model we'd done up to that point. This made it a bit of a beast to render."

As a result, not along afterward, another modeler, Andy Wilkoff, made a simpler, lower polygon version with new texture maps that the computers of the day could handle more easily. This new model was used for shots that didn't show the fighter up close. No one is sure which of these versions was adapted to become the Kraylor medical ship and the Annari warship when the CG model was reused on VOYAGER.

The physical model was sold as part of the 40 years of *STAR TREK:* The Collection auction, and fetched \$10,800.

As TNG drew to an end, the producers wanted to set up the backstory for VOYAGER, so the Maquis made appearances on both TNG and DS9. As a result the fighter made appearances on both shows in the May of 1994.



➤ The Maquis fighter was one of several ships that was rebuilt in CG for the massive battle in DS9's Sacrifice of Angels. The work was done at Digital Muse, who had access to the original shooting model in order to copy it.





DIGITAL

REVOLUTION

Converting all the ships into CG models was a massive undertaking, but it meant that dazzling space battles could now be shown.

▲ The thrilling space effects Without it shots like that of the U.S.S. Majestic being blown to pieces would not have been possible

or its first few appearances, the Federation attack fighter had been built as a studio model and filmed using motion control photography. For its appearances in 'Sacrifice of Angels' and 'What You Leave Behind', the makers of STAR TREK: DEEP SPACE NINE had far grander plans. They wanted to show dozens and dozens of ships on screen at the same time, and

depict sophisticated space battles as the Federation and its allies took on the Dominion and its forces.

This was a hugely ambitious plan as visual effects supervisor David Stipes explained. "The producers wanted to do a huge space battle for 'Sacrifice of Angels'. I said that we should probably go digital for this, but they said, 'No. I want you to

About Digital Muse





JOHN GROSS

Digital Muse was founded in February 1996 by John Gross and his then partner John Parenteau. Apart from its work on STAR TREK, the company handled an impressive variety of film, TV and advertisement work, including an entire season of Sliders and episodes of The X-Files, plus a number of special projects, including effects for Paramount's STAR TREK World Tour, starting in Europe. In its short lifetime, movie credits included Devil's Advocate. Spawn and Battlefield Earth; the company also worked

DAVID I OMBARDI

on many theatrical trailers, among them STAR TREK: FIRST CONTACT, Starship Troopers, Tomorrow Never Dies, and Lost in Space.

Digital Muse closed down in February 2000 after a decision to sell a portion of the company to an internet company in order to raise capital backfired, resulting in a hostile takeover of the company. Gross opted to start over, leaving the company to found Eden FX with Digital Magic's Mark F. Miller.

budget it for motion control.' So, that's what I did. I knew how many shots we needed to get, how many ships we could shoot in a day, and it was just crazy. I think the budget I turned in was that it would take six months to shoot and would cost \$1.3 million. I remember a whole episode only had a budget of \$1.2 million! Of course, everybody just said, 'Well, you can do this, but you've got to make a commitment to go digital.' There was just no way that this could be accomplished using studio models."

At that time in 1997, STAR TREK had been using digital effects for a few years, but most of the scenes involving starships were still filmed with studio models and motion control. Stipes had

been pushing for them to 'go digital' for some time, but had met with some resistance. Now, however, was the perfect time to push again.

TAKING THE PLUNGE

Visual effects producer Dan Curry explained, "When 'Sacrifice of Angels' came up, David Stipes had a coronary and said, 'We can't do this.' And I and I sat down, and looked at the volume of work and at the numbers of ships. It would have been physically impossible for us to accomplish that with motion control. With the nature of the camera moves, how complicated everything was, the time crunch, and the improvement in the look of CG, we ultimately decided that the only way we could really get the show done with the kind of scale we were looking for was to go CG."



 Visual effects supervisor David Stipes previsualized many of the shots using simple wireframes. This helped everyone to know exactly what was required before committing to the final visual effect

➤ Using Stipes' wireframe as a guide, the digital modelers could then complete the final effect. The main challenge for the digital artists was to get the ships to look as real as a traditional physical studio model.





A digital environment allowed the modelers to create the kind of moves and visuals that were prohibitively expensive with motion control.

The task ahead of them was still monumental. Some ships, such as the *U.S.S. Defiant* had already been digitally rendered using LightWave 3D software, but most had not, or if they had, it was done in a different program. There was so much to do, it was decided that the work would be split between two visual effects houses: Digital Muse and Foundation Imaging.

These two companies had been providing visual HUGE UNDERTAKING

effects for STAR TREK for the past few years, and were ready to take up the task. The head of Digital Muse John Gross said, "We were pretty much doing all the DEEP SPACE NINE stuff, and Foundation Imaging was pretty much doing all the VOYAGER stuff, although there was a little crossover back and forth."

Digital effects supervisor at Digital Muse David Lombardi explained what the process involved. "The 'Sacrifice of Angels' episode was actually the first real major digital undertaking. Not only was it a huge number of digital shots for STAR TREK - it was about 40 shots per house - it was a huge space battle. Up until then, the largest battle they'd had was, I think, a Borg battle, Wolf 359, back in THE NEXT GENERATION, where you saw at most three or four ships on the screen at any given moment. What the producers wanted for 'Sacrifice of Angels' was something where you saw two, three hundred ships on the screen.

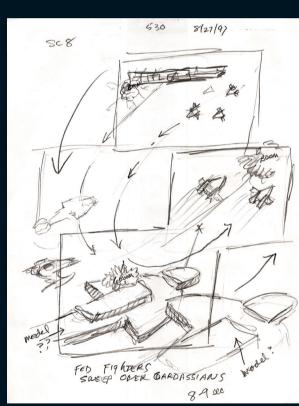
"At that time, hardly any of the ships were built in CG," continued Lombardi, "so between Foundation and Digital Muse we split up the workload. Quite a few of the ships we built from scratch; some of the other ones came in as partially translated models from the STAR TREK movies. Those models were not readily usable in the format we needed, so we kind of used them

as templates and rebuilt them almost from scratch. A good month was spent rebuilding and creating the entire fleet."

SHARING SHIPS

Gross added, "Digital Muse built all the Federation ships and Foundation Imaging built all the bad guys, then we did what we call a hostage swap where we gave them the Federation ships and they gave us the others. We did all the shots up to a certain point, and then they did all the shots after that. And it kind of worked out, because up till then there were mostly Federation shots, and afterward there were a lot of the alien shots. It was very seldom - I don't think it had ever happened, actually - where one sequence of shots was split up between two or three houses."

Speaking in Cinefantastique, Bruce Branit, effects supervisor at Digital Muse, elaborated further on just what was involved. "It was the first time that anyone had actually assembled the entire Starfleet fleet in CG. Normally there were always a few ships they used for CG, and then they pulled the studio models out, and filmed them with motion control. There was just not enough time and not enough money to do that for 'Sacrifice of Angels'. They were talking about having 50 to 100 Starfleet vessels on the screen at one time, and there was no way to pull that off using traditional methods. So we were a collecting



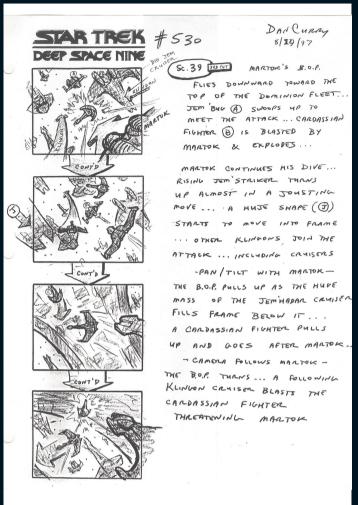
point for anything that had been done in CG before. We brought the digital models in and converted them to LightWave."

Branit was also involved in creating the CG version of the Federation attack fighter. He explained, "There was also the Federation fighter, which was a smaller one or two man ship that was mixed in with everything else. They'd been established in a few earlier episodes, where it was

- ▲ Creating the huge number of ships that were needed to show the retaking of Deep Space 9 took seven weeks. It months using physical studio models.
- Stipes also sketched out many of the starship maneuvers that they wanted to show during the battle. This included illustrating just how the Federation attack fighters would swoop in on the Cardassian *Galor*-class warships.

14 BEHIND THE SCENES





▲ Stipes storyboarded many of the main individual ship attacks during the battle, such as the U.S.S. Defiant and General Martok's Bird-of-Prey taking on the Jem'Hadar and Cardassian ships.

shown in a couple of scenes. That one was built from scratch, as a first edition CG model, off the real studio model. In fact, they brought over a lot of the actual physical models. We were able to strafing a Galor-class ship use those to aid our building them as CG models."

BRINGING IT ALL TOGETHER

While Digital Muse worked on finishing the Federation ships, Foundation Imaging modelled the other ships, including the Cardassian cruiser, the Jem'Hadar bug and the Jem'Hadar cruiser. They were then brought together to create the spectacular space battles.

"It was a panic getting it all done," said Stipes. "The digital models were built, all the animation was done, and it was all completed within seven weeks. I storyboarded the battles, and many of the storyboards looked a lot like the stuff that ended up on screen.

"Somewhere along the line we realized that we were running out of time," continued Stipes. "We

were not going to finish the Harry effects, which is where the digital artist paints in the beams and photon torpedoes. The guys at the two effect houses said they could probably do them as LightWave objects. They ran some tests and it looked fine. They wound up doing a lot of beams in the shots, but there was no time to do photon torpedoes, so they were missing in the final shots. Anyway, we didn't use up something like \$100,000worth of Harry effects time, and as a result I came in something like \$100,000-\$120,000 under budget. After this, we did several more episodes where we did really big space battles."

PLEASING RESULTS

Gross was also extremely satisfied with the results, and 'Sacrifice of Angels' was one of his favorite episodes. "We did a lot of stuff in a short period of time and it all looked really good," said Gross. "I think the ones I liked as a fan were the ones where there were lots of space battles, because you



didn't get to see that kind of stuff so often."

Lombardi added, "Definitely my first really good episode was the first episode I worked on, 'Sacrifice of Angels'. I think one of the favorite shots for the show was where one of the Mirandaclass ships gets hit by a torpedo and rolls right into the camera. I think I learned very quickly what

they liked for the style of how STAR TREK ships move and that sort of thing, because I sat down with them for three to four hours every day for about a week and a half. Basically, every time you do a version of a shot you save it with a number. I went back and checked, and there was something like 87 versions of that shot!"



■ The 3D digital environment opened up a whole new range of possibilities that were not previously possible. The special effects for the episode were so successful that, with a few exceptions, STAR TREK used digital effects from then on.

■ Normally, the beams

post-production by what

from ship weapons

would be added in

is known in the trade

as Harry artists. As they

Angels,' this was done

saving both time and a

huge amount of money.

were running out of time

ON SCREEN



KEY APPEARANCES

DESIGNED BY:

STAR TREK: DEEP SPACE NINE 'The Maquis, Part II'

After Gul Dukat is kidnapped by the Maguis, Commander Sisko traces his location to the Badlands. He is shocked to find that his friend Calvin Hudson has joined the Maguis, and wants Sisko to join them. When he refuses, Hudson stuns Sisko and his colleagues with phaser fire, and when they wake up the Maquis are long gone. Later, Sisko learns that the Maguis are planning to blow up a hidden Cardassian weapons depot using attack fighters. Sisko leads a mission to stop them, but can he do it without killing his old friend?

STAR TREK: THE NEXT GENERATION 'Preemptive Strike'

Upon her return to the Enterprise-D, the Bajoran Ro Laren is assigned a mission to infiltrate the Maguis. It is not long before she gains their trust by staging a raid to steal medical supplies from the Enterprise using a Federation attack fighter. As Ro continues to work alongside the Maquis, she finds her loyalties more and more torn. She comes to see a Maguis leader named Macias as a father figure. When he is killed by the Cardassians, Ro decides she can no longer carry out her mission, and she defects to the Maguis.

TRIVIA

Kalita [pictured below] was a member of the Maquis who was initially suspicious of Ro Laren until they infiltrated the *Enterprise* using a Federation attack fighter. Kalita was played by Shannon Cochrane, who reprised this role in the STAR TREK: DEEP SPACE NINE episode 'Defiant.' Cochrane also played General Martok's wife Lady Sirella in the episode 'You Are Cordially Invited,' and Shinzon's Romulan co-conspirator Senator Tal'aura in STAR TREK NEMESIS.



Bernie Casey, who played Lieutenant Commander Calvin Hudson, had previously starred as CIA agent Felix Leiter in the unofficial Bond film 'Never Say Never Again.' Prior to becoming an actor, Casey was a professional American football player, playing wide receiver for the San Francisco 49ers (1961-1966) and the Los Angeles Rams (1967-1968).

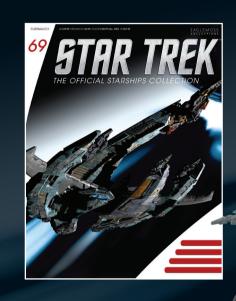


The CG model of the Federation attack fighter was later modified by effects house Foundation Imaging and appeared as the Kraylor medical transport ship in the STAR TREK: VOYAGER episode 'Nightingale.

COMING IN ISSUE 69

BREEN WARSHIP







Inside your magazine

- In-depth profile of the Breen Warship, a hugely powerful vessel that nearly helped to win the war for the Dominion against the Federation and its allies
- How designer John Eaves came up with a radically different type of starship design for the mysterious Breen
- A look behind the scenes at how the Breen were developed

me back into stock.



Register today and receive 5% off your next order Express delivery and standard postage available.

STAR TREK



