ISSUE 6

BUILD THE GHOSTBUSTERS™ ECTO-1

FANHOME

BUILD THE ICONIC ECTO-1 CAR FROM GHOSTBUSTERS™


ECTO-1
NEW YORK

BUILD THE GHOSTBUSTERS™ ECTO-1

CONTENTS

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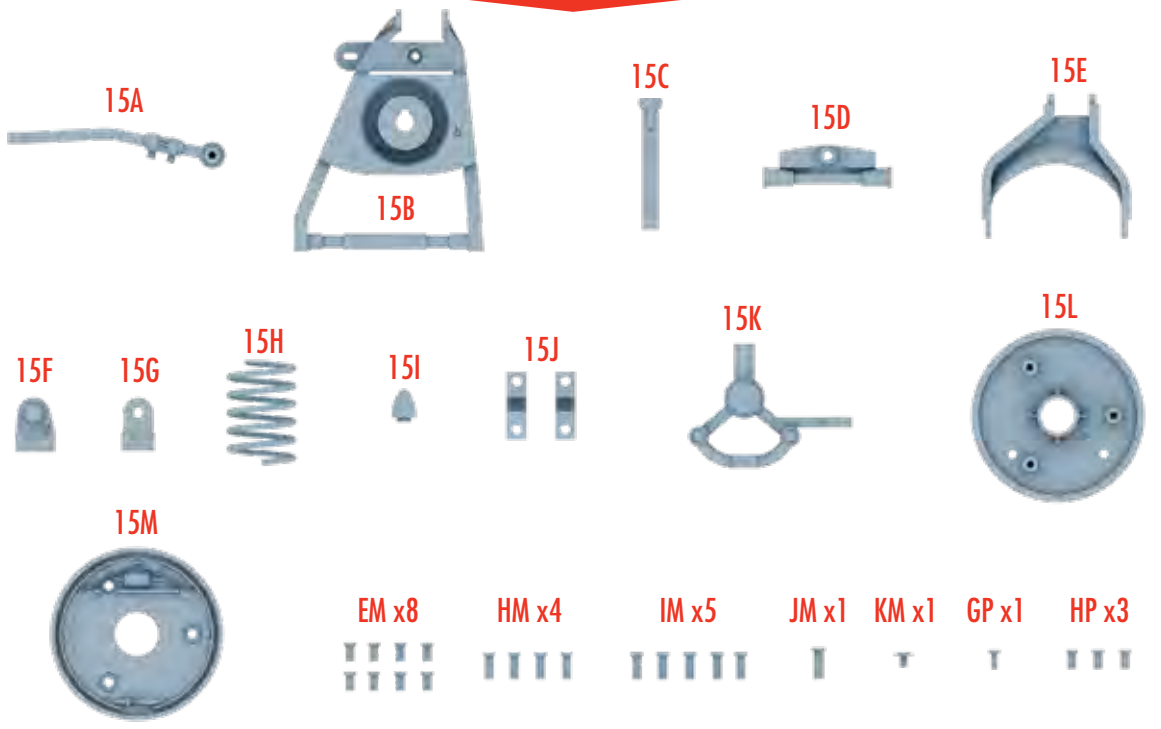
The price of this issue includes the magazine and the attached pieces for model assembly.

TO OUR READERS
The publisher reserves the right to modify any components as required during the course of the collection. Not suitable for children under the age of 14 (12 in the USA). This product is not a toy and is not designed or intended for use in play. The collection is complete in 37 issues. Items may vary from those shown.

More information at **fanhome.com**

CAR PARTS STAGE 15

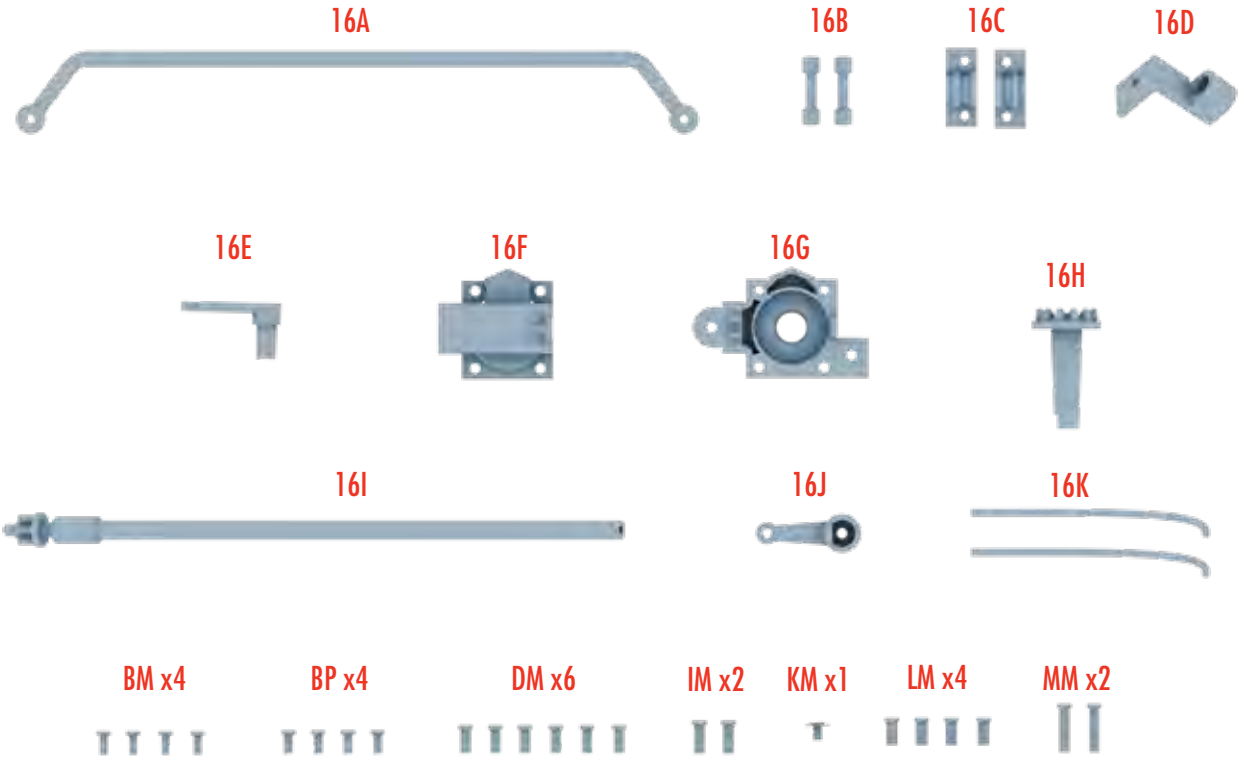
In this stage, you receive further suspension parts for your model, ready to be fitted to the frame.



PART NUMBER	DESCRIPTION	QUANTITY
15A	RIGHT TIE ROD	1
15B	LOWER SUSPENSION ARM	1
15C	SHOCK ABSORBER	1
15D	SHAFT	1
15E	UPPER SUSPENSION ARM	1
15F	LOWER STEERING KNUCKLE CONNECTOR	1
15G	UPPER STEERING KNUCKLE CONNECTOR	1
15H	COIL SPRING	1
15I	RUBBER BUMPER	1
15J	MOUNTING BRACKET	2
15K	STEERING KNUCKLE	1
15L	BACKING PLATE	1
15M	BRAKE DRUM	1
EM	2x4MM	8 (+2 SPARES)
HM	2x6MM	4 (+1 SPARE)
IM	2.3x6MM	5 (+2 SPARES)
JM	2.3x7MM	1 (+1 SPARE)
KM	2x3x6MM	1 (+1 SPARE)
GP	1.5x3MM	1 (+1 SPARE)
HP	2x4MM	3 (+1 SPARE)

CAR PARTS STAGE 16

In this stage, you receive integral parts for the steering, as well as final parts for the front suspension.



PART NUMBER	DESCRIPTION	QUANTITY
16A	STABILIZER BAR	1
16B	STABILIZER BAR LINKAGE	2
16C	MOUNTING BRACKET	2
16D	IDLER ARM BRACKET	1
16E	IDLER ARM	1
16F	PINION HOUSING	1
16G	PINION BASE	1
16H	STEERING PINION	1
16I	STEERING COLUMN	1
16J	PITMAN ARM	1
16K	POWER STEERING HOSE	2
BM	1.7x4MM	4 (+1 SPARE)
BP	1.5x4MM	4 (+1 SPARE)
DM	2x5MM	6 (+2 SPARES)
IM	2.3x6MM	2 (+1 SPARE)
KM	2x3x6MM	1 (+1 SPARE)
LM	2.3x5MM	4 (+1 SPARE)
MM	2x8MM	2 (+1 SPARE)

CAR PARTS STAGE 17

In this stage, you receive the right front wheel and tire, ready to be fixed to the suspension of your vehicle.

17A

17B

17C

17D

17E

CM x3 LM x1

17F

17G

PART NUMBER	DESCRIPTION	QUANTITY
17A	RIGHT FRONT TIRE	1
17B	HUB CAP	1
17C	CENTER CAP	1
17D	OUTER WHEEL	1
17E	INNER WHEEL	1
17F	RIGHT BRAKE FLUID HOSE	1
17G	LEFT BRAKE FLUID HOSE	1
CM	2.3x4MM	3 (+1 SPARE)
LM	2.3x5MM	1 (+1 SPARE)

CAR PARTS STAGE 18

In this stage, you receive the front parts of the chassis for the underside of your Ecto-1 model.

18A

18B

18C

18D

18E

DM x4

EM x4

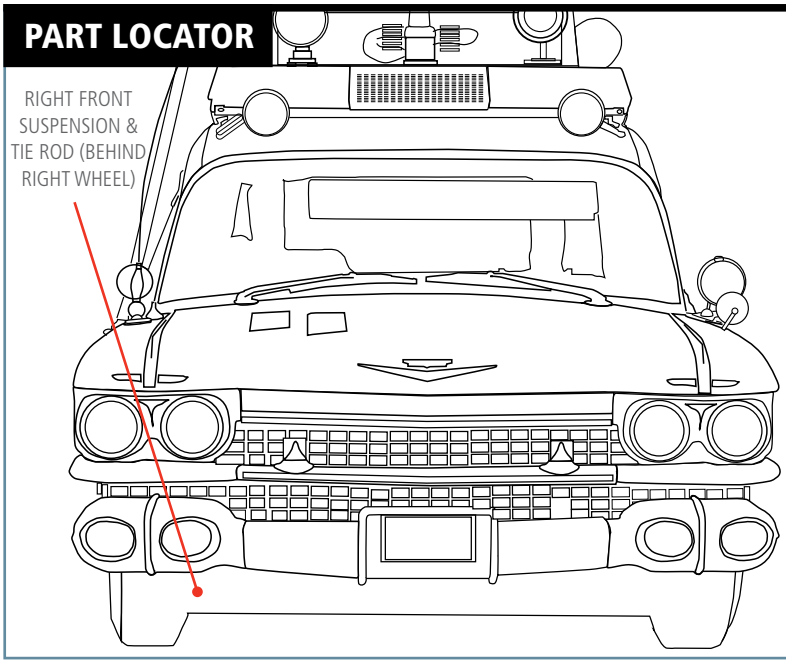
HM x4

PART NUMBER	DESCRIPTION	QUANTITY
18A	FRONT CHASSIS	1
18B	FRONT LEFT CHASSIS PART	1
18C	FRONT RIGHT CHASSIS PART	1
18D	FRONT LEFT CHASSIS SKELETON	1
18E	FRONT RIGHT CHASSIS SKELETON	1
DM	2x5MM	4 (+1 SPARE)
EM	2x4MM	2 (+1 SPARE)
HM	2x6MM	2 (+1 SPARE)

STAGE 15
RIGHT FRONT SUSPENSION & TIE ROD

In this stage, you will assemble the right front suspension and attach it to the front chassis frame. You will also fit the tie rod to the steering rack.

PART LOCATOR



TIP: HANDLE CAREFULLY

Unpack all the parts carefully.
To avoid losing any of the smaller pieces, work on a tray or keep the parts in a bowl until they are assembled.

KEY: The illustrations are color-coded to help you identify which parts are being assembled.

RED Highlights where the new part/s fit and screw in

YELLOW Identifies the new part/s

GREY–BLUE Indicates the previous assembly on to which the new part is fitted

01

ASSEMBLING THE LOWER SUSPENSION ARM: Locate the lower steering knuckle connector (15F) and insert it into the gap at the end of the lower suspension arm (15B). The two parts should have the inscribed "R" on the same side. Fix this in place using two EM screws (figure A). Then push the rubber bumper (15I) into place on the lower suspension arm (15B), securing from beneath using one GP screw (figure B).

FIGURE A

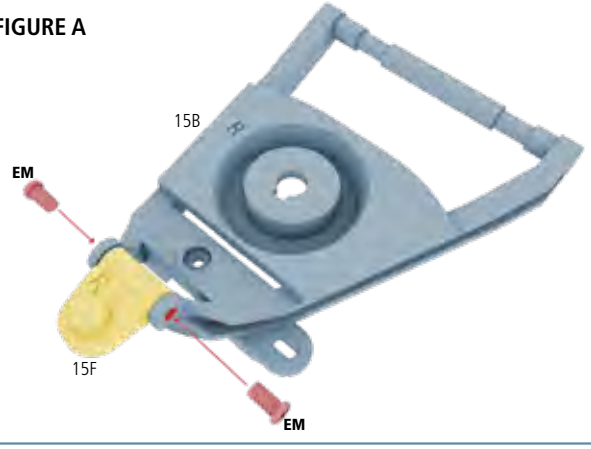
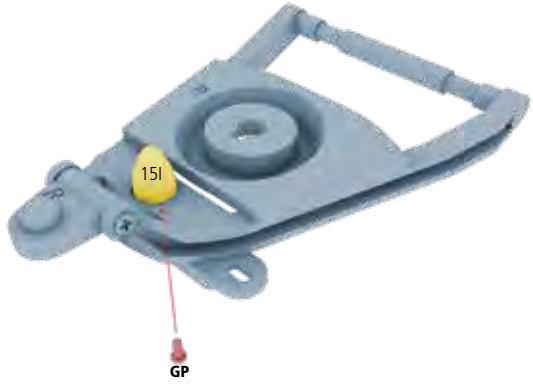


FIGURE B



02

CONSTRUCTING THE UPPER SUSPENSION ARM: Slot the upper steering knuckle connector (15G) into the narrow end of the upper suspension arm (15E), securing with two EM screws (figure A). Next, slot the shaft (15D) into the wider end of the upper suspension arm (15E) as shown in figure B. This is also fixed using two EM screws.

FIGURE A

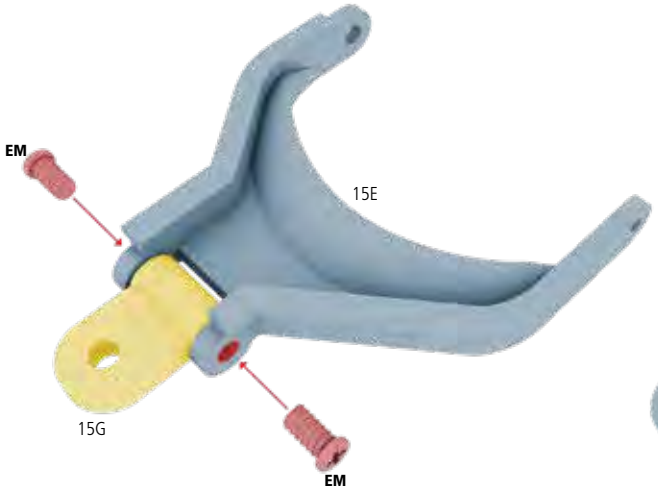
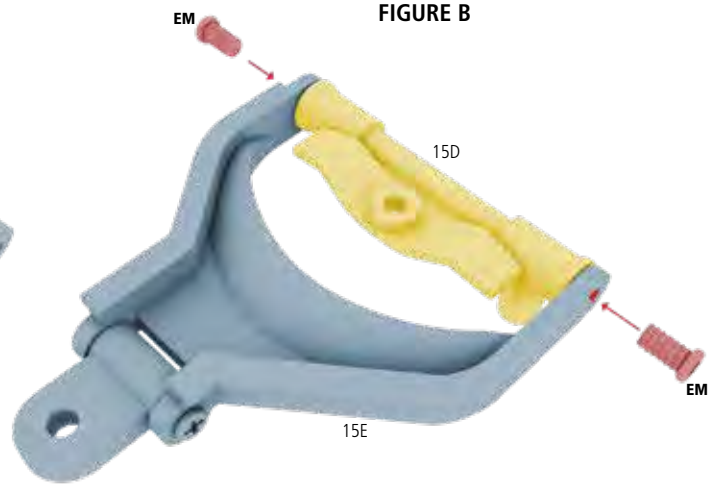


FIGURE B



03

FITTING THE ARMS TO THE FRAME: Place the upper suspension arm (15E) on the front chassis frame (13A) so that the two pegs on the shaft (15D) go into the slot in the frame (figure A). Then turn this over and secure using two HM screws (figure B).

Lay the lower suspension arm (15B) on the front chassis frame. (figure C). Then, place the two mounting brackets (15J) so the cylindrical bar of the suspension arm is clamped to the chassis frame, fixing each mounting bracket with two IM screws (figure D).

FIGURE A

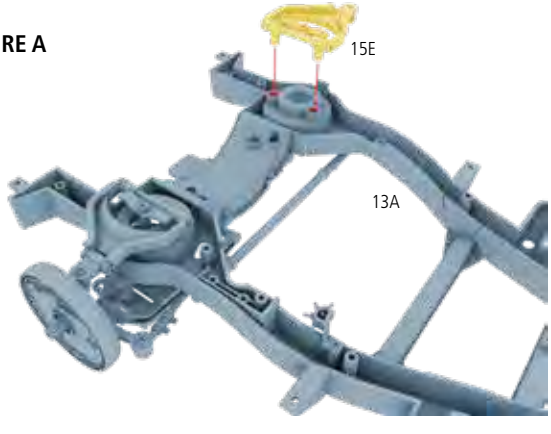


FIGURE B

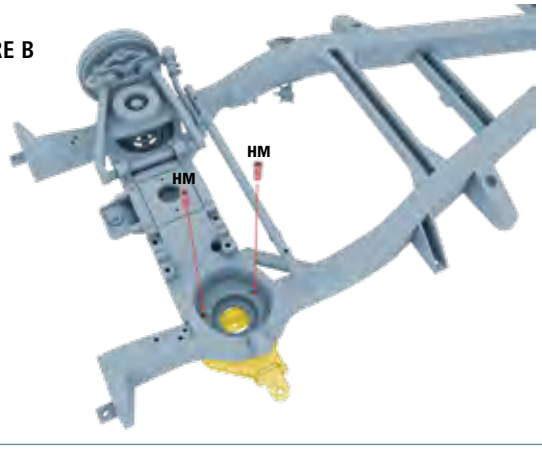


FIGURE C

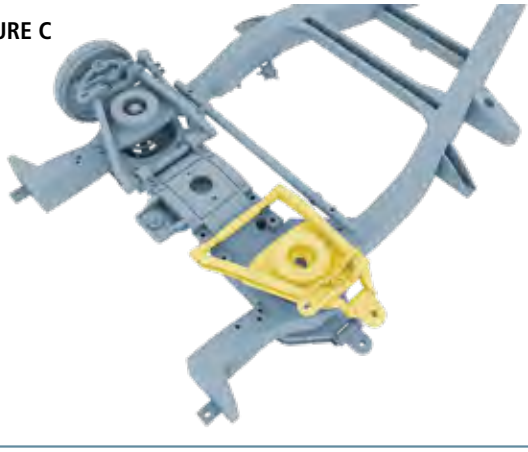
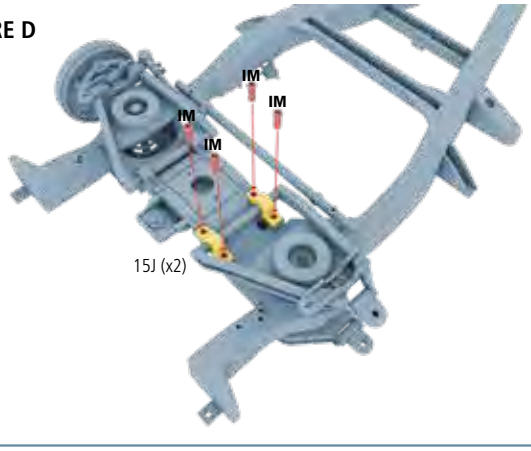


FIGURE D



04 **ASSEMBLING THE BRAKE DRUM:** Push the center of the steering knuckle (15K) through the middle of the backing plate (15L), securing from the other side using two EM screws (figure A). Then, place the brake drum (15M) on top of the backing plate on the side you have just driven the screws through. These parts are fixed together using three HP screws (figure B).

Take the brake drum and steering knuckle assembly and connect it to the suspension by placing the flat screw hole at the top of the steering knuckle (15K) on top of the screw hole at the end of the lower steering knuckle connector (15F). Use a single JM screw to attach the two parts together (figure C).

FIGURE A

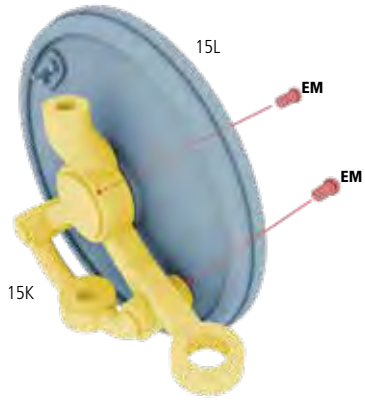


FIGURE B

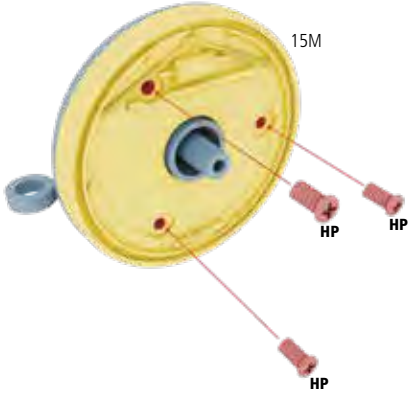
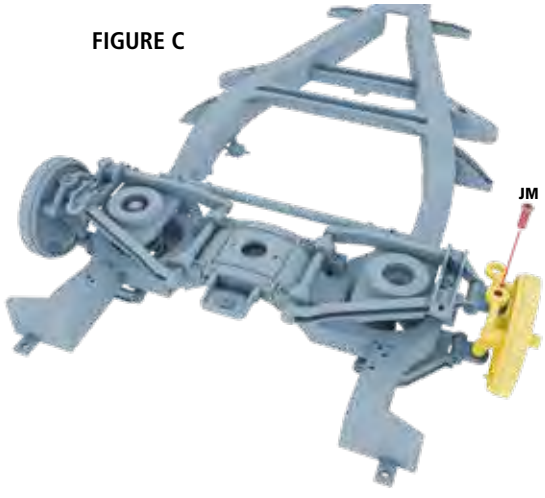


FIGURE C



05 **FITTING THE SHOCK ABSORBER:** Lift up the lower suspension arm fitted in step 3 to reveal the circular opening in the chassis frame (figure A). Place the coil spring (15H) into this space (figure B), then push the suspension arm back into place. You will feel resistance from the spring as you do so.

Turn the assembly over and fix the upper steering knuckle connector (15G) to the steering knuckle (15K) using an IM screw (figure C). This will hold the spring in place. Finally, turn the assembly over again and take the shock absorber (15C), inserting it into the hole in the chassis and through the coil spring that you have just fitted (figure D). This is kept in place with an HM screw, fitted from the underside, through the shaft (15D) (figure E).

FIGURE A

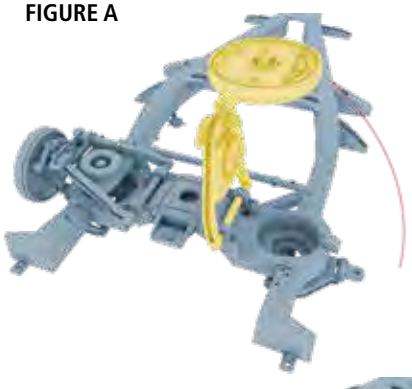


FIGURE B

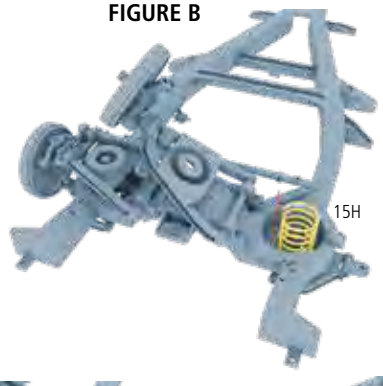


FIGURE C

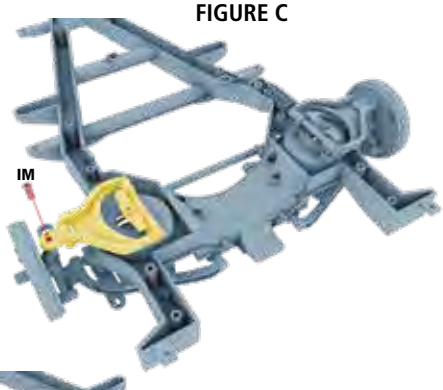


FIGURE D

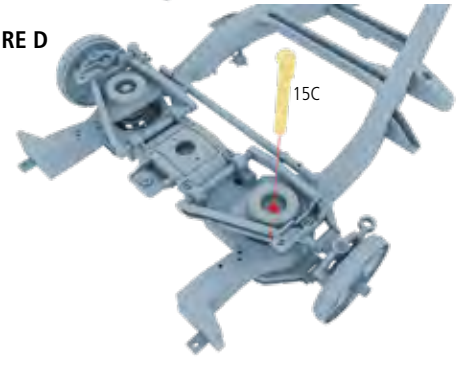
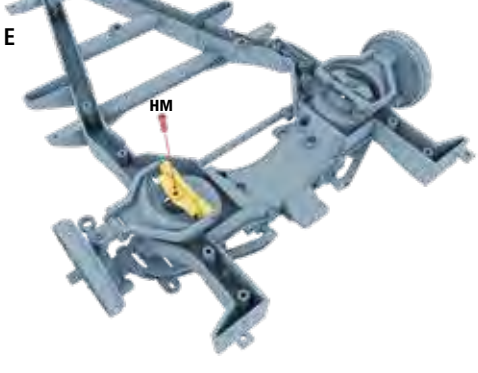


FIGURE E



06 **FITTING THE TIE ROD:** Take the right tie rod (15A) and fix it to the steering rack (14N) using one HM screw (figure A). Then, push the pin at the end of the tie rod (15A) through the round hole in the steering knuckle (15K) (figure B). Secure with one KM screw (figure B).

FIGURE A

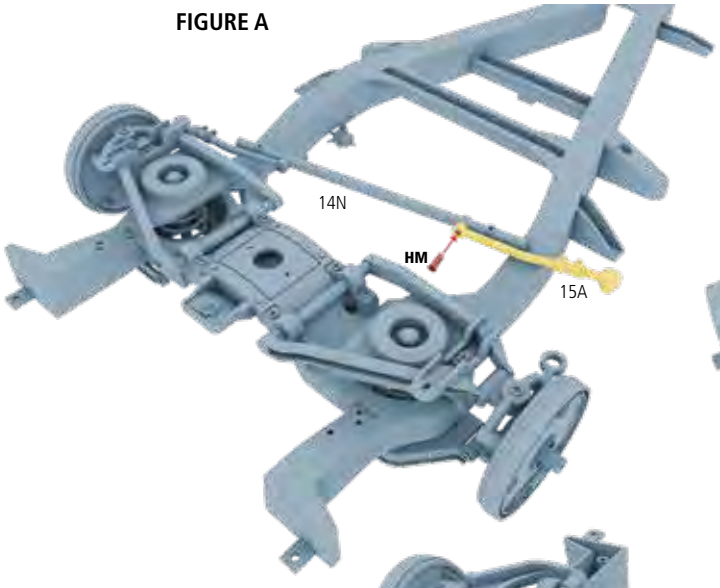


FIGURE B

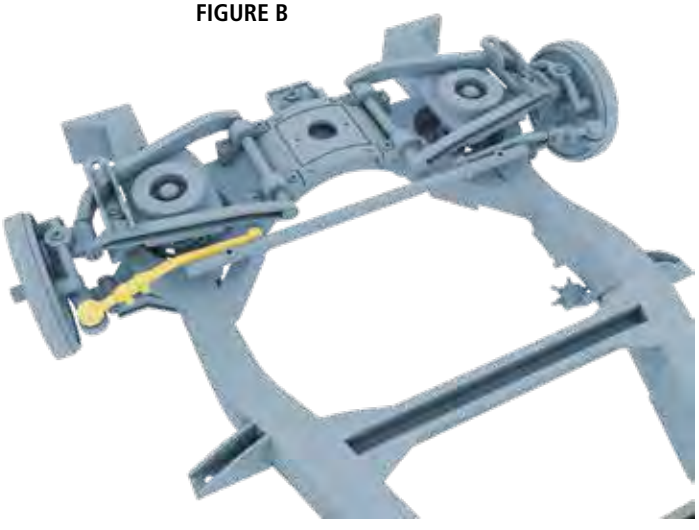
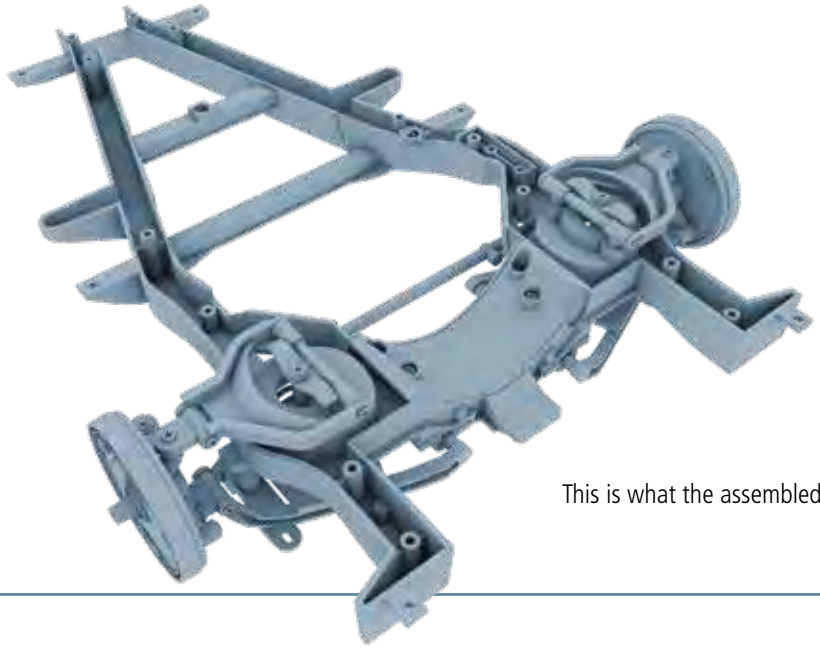


FIGURE C

STAGE 15 BUILD

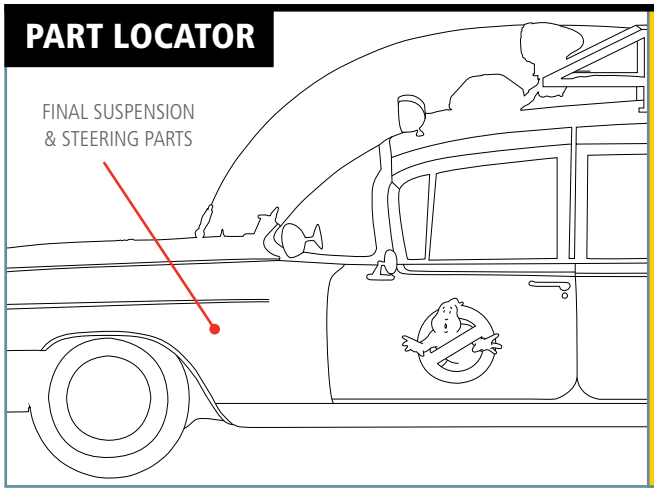


This is what the assembled piece should look like.

STAGE 16
FRONT SUSPENSION & STEERING

In this stage, you will add finishing touches to the front suspension as well as fitting the steering, engine and left front wheel.

PART LOCATOR



TIP: TIGHTENING THE SCREWS

Screws with codes ending in the letter M (such as BM and CM) drive into metal; those ending in the letter P (such as BP and CP) drive into plastic.

Self-tapping screws for metal cut their own thread in the pre-drilled socket. To prevent the screw from jamming before it is fully tightened, drive the screw only half way in at first. Then unscrew it to release the shavings (swarf) created as the screw cuts its thread. Finally, drive the screw fully into the socket.

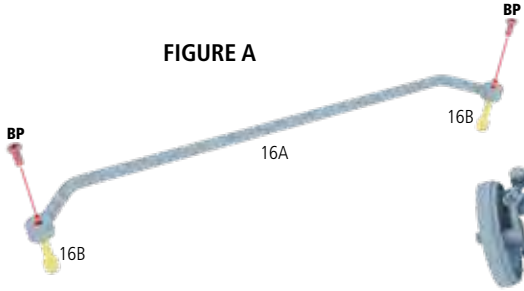
Do not over-tighten screws into plastic. Ensure that screws for metal are tightened securely so that the head makes firm contact with the fixing surface.

KEY: The illustrations are color-coded to help you identify which parts are being assembled. **RED** Highlights where the new part/s fit and screw in **YELLOW** Identifies the new part/s **GREY–BLUE** Indicates the previous assembly on to which the new part is fitted

01 **FITTING THE STABILIZER BAR:** Locate the first stabilizer bar linkage part (16B) and place it at the end of the stabilizer bar (16A), securing these parts together using one BP screw. Repeat this step at the other end of the stabilizer bar (16A) with the remaining linkage part (16B) (figure A).

Take this assembly and position it on the front chassis, securing the first stabilizer bar linkage (16B) to the front left lower suspension arm (14A) using a BP screw. The second stabilizer bar linkage part (16B) attaches to the front right lower suspension arm (15B) with another BP screw (figure B). Secure the stabilizer bar (16A) to the front chassis frame (13A) by applying the two mounting brackets (16C) between these parts, each mounting bracket being fixed in place with two BM screws (figure C).

FIGURE A



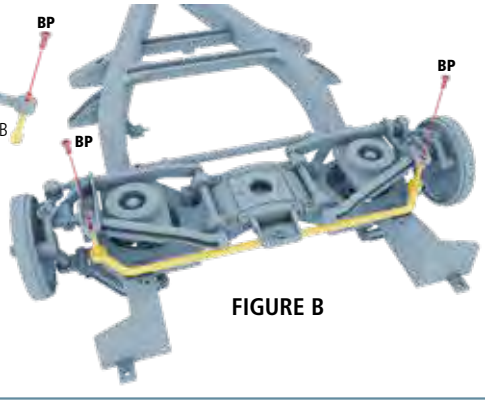


FIGURE B

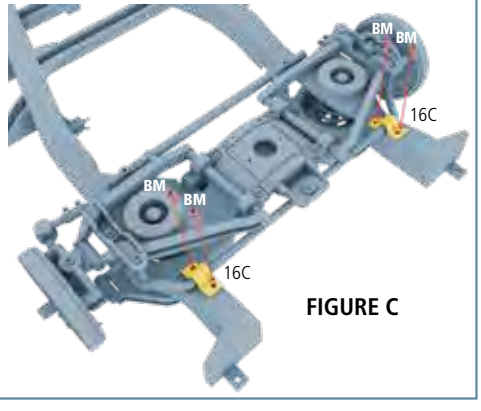
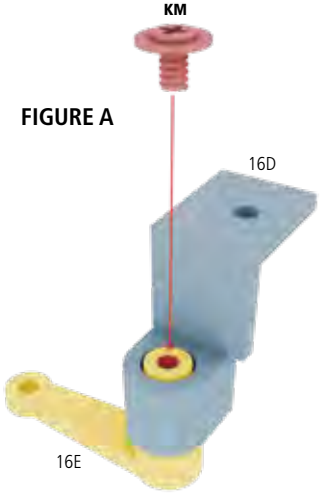


FIGURE C

02 **ASSEMBLING THE STEERING ARMS:** Place the idler arm (16E) on the idler arm bracket (16D), fixing together using one KM screw (figure A). Then, take the flat square part of the bracket and attach it to the front chassis frame (13A) using one LM screw (figure B). Turn the assembly over and fasten the idler arm (16E) to the steering rack (14N) using one DM screw (figure C).

FIGURE A



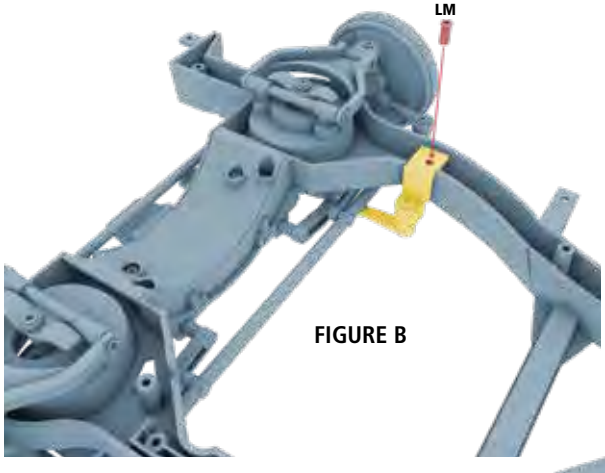


FIGURE B

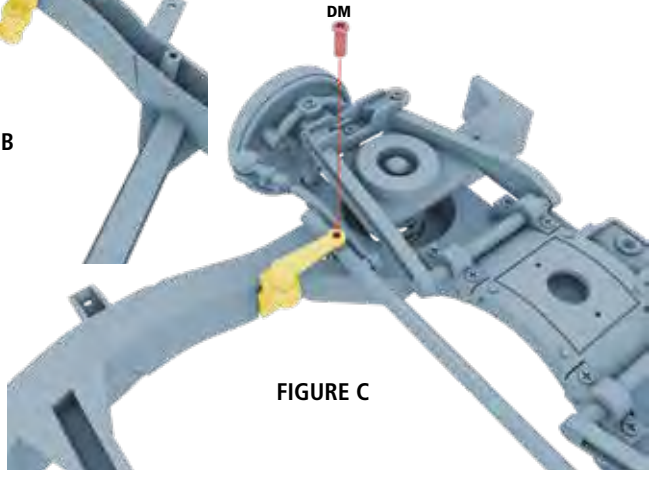


FIGURE C

03 **FITTING THE STEERING PINION:** Join the pinion base (16G) to the front chassis frame (13A) using one LM screw and one DM screw (figure A). Push the steering pinion (16H) through the base (16G) (figure B). Align the screw hole at the larger end of the pitman arm (16J) with the end of the pinion, driving one DM screw through the pitman arm (16J) into the steering pinion (16H), and one DM screw through the pitman arm into the steering rack (14N) (figure C).

FIGURE A

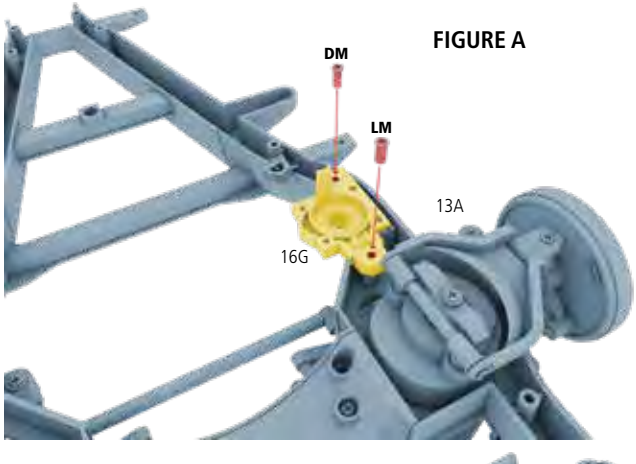


FIGURE B

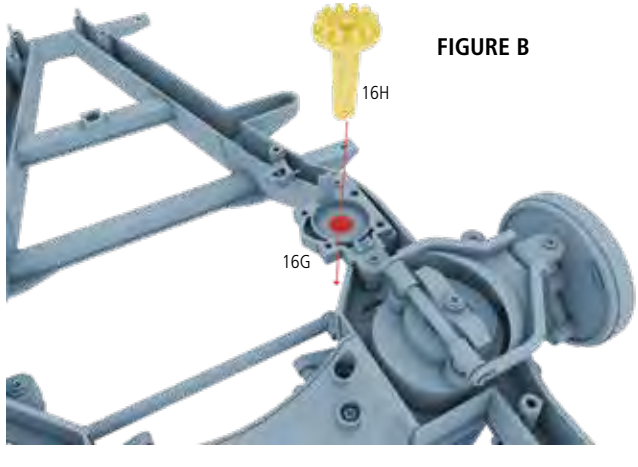
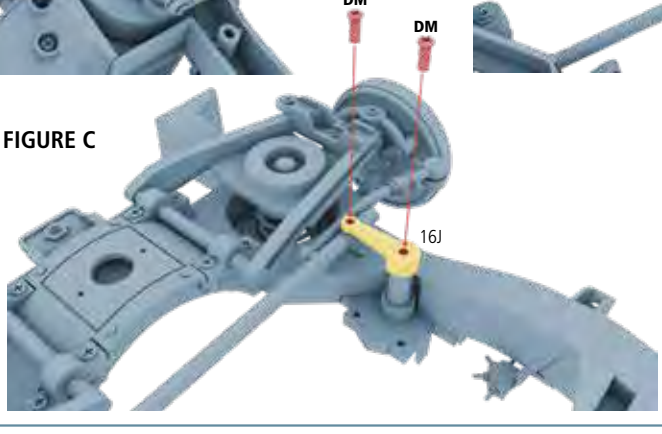


FIGURE C



04 **ADDING THE STEERING COLUMN:** Ensure that both wheel bases are headed straight forwards, then push the steering column (16I) into the steering pinion (16H) so that the straight part of the cylinder at the top of the column is facing the rear of the car (figure A).

Place the pinion housing (16F) on top of the pinion base and steering column, fixing in place with two MM screws and two DM screws (figure B).

FIGURE A

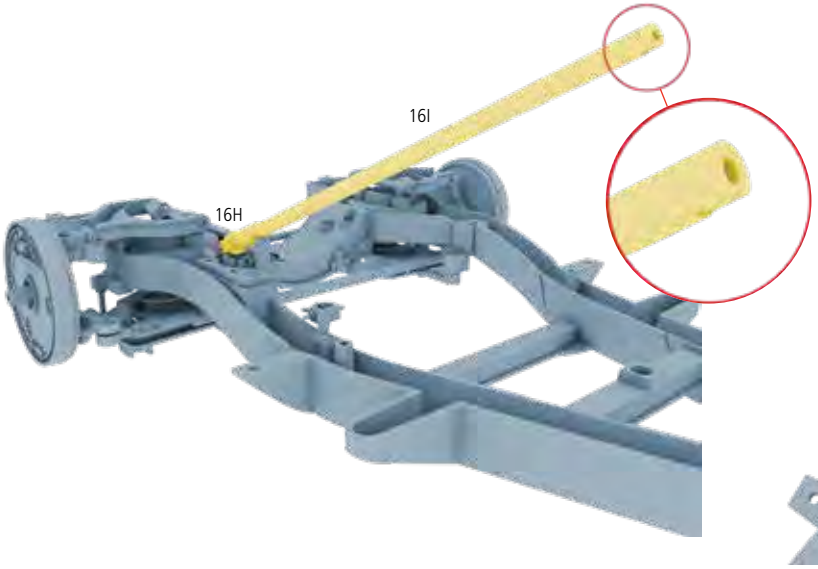
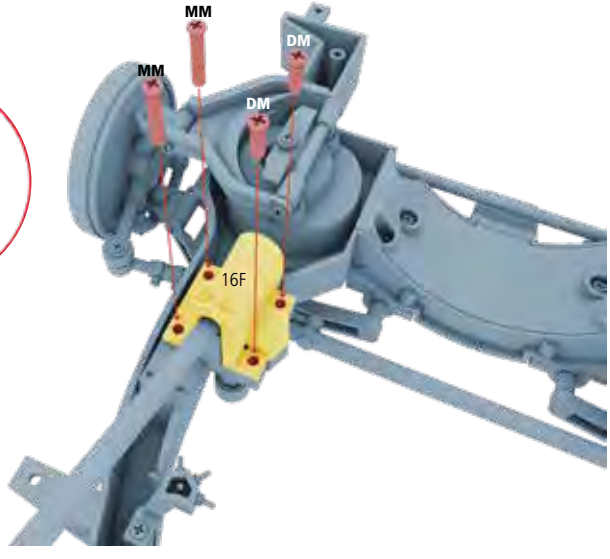


FIGURE B



05 **FITTING THE ENGINE:** Take the engine and gearbox parts you assembled between issues 5 and 12 and place it on the front chassis frame, so that the fan is at the front of the car (figure A). Holding the parts together carefully, turn them over and insert two IM screws from underneath (figure B). Then, fasten the gearbox to the frame with one LM screw (figure C).

Finally, fit the two power steering hoses (16K) between the power steering pump end plate (11D) and pinion housing (16F) using the pins on both parts (figure D).

FIGURE A

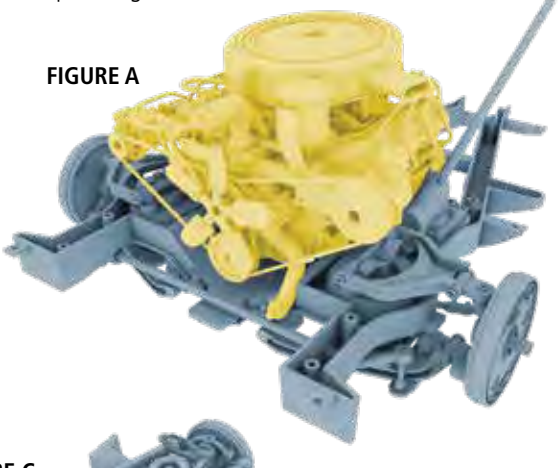


FIGURE B

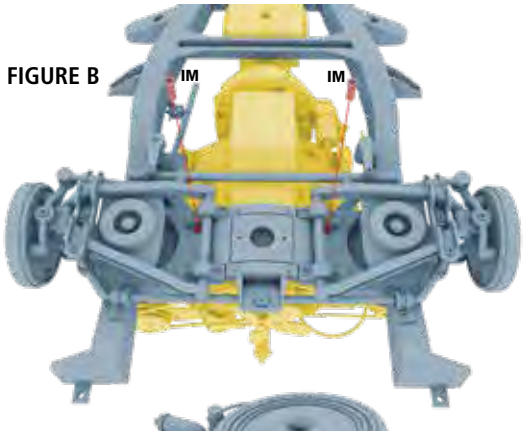


FIGURE C

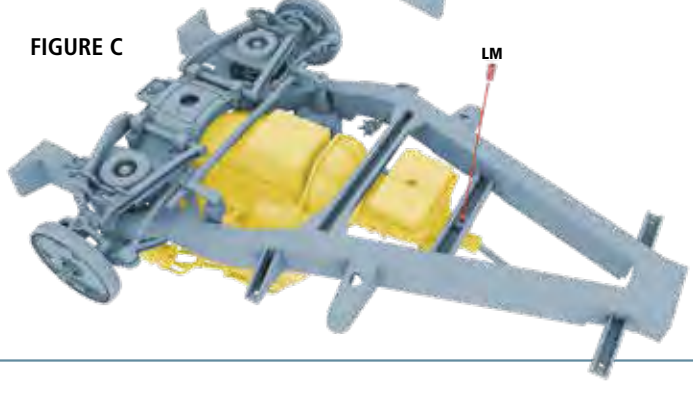
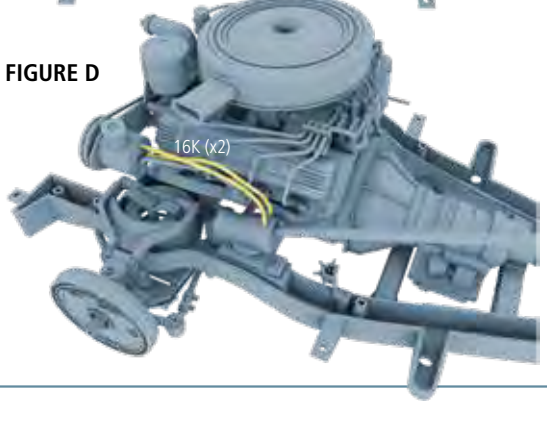


FIGURE D



06 **FITTING THE LEFT FRONT WHEEL:** Locate the left front wheel that you assembled with issue 4 and push it onto the left steering knuckle (14J) (figure A). Then push the hub cap (04B) onto the outside of the wheel and secure the wheel to the steering knuckle with one LM screw (figure B). Finally, push the center cap (04C) into the center of the wheel, hiding the screw that you just fastened (figure C).

FIGURE A

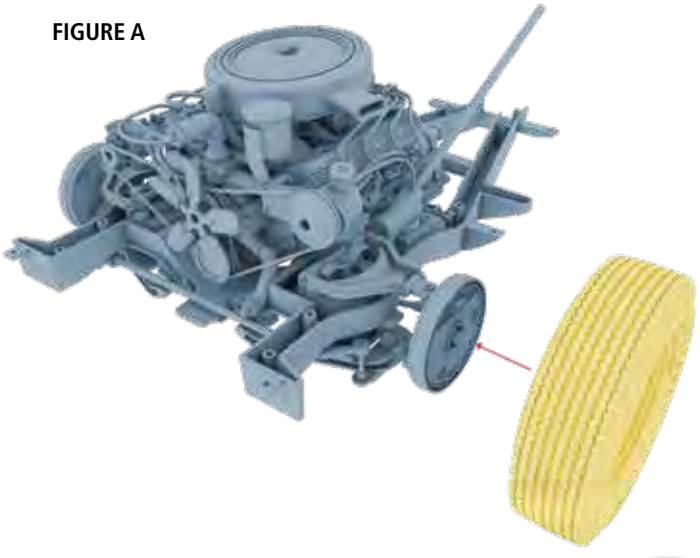


FIGURE B

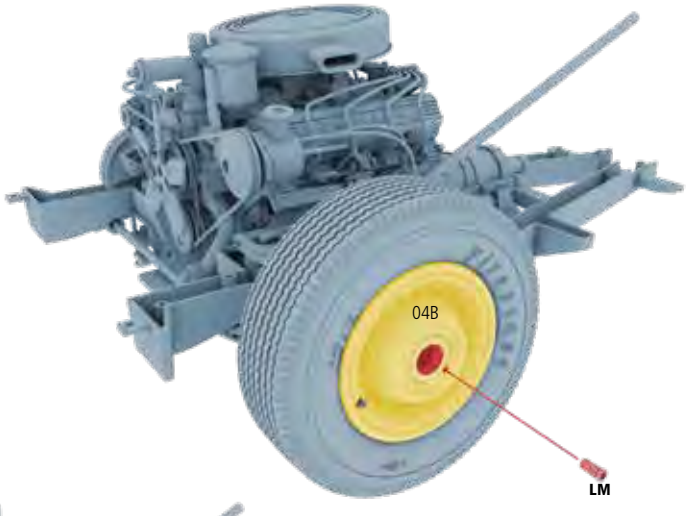
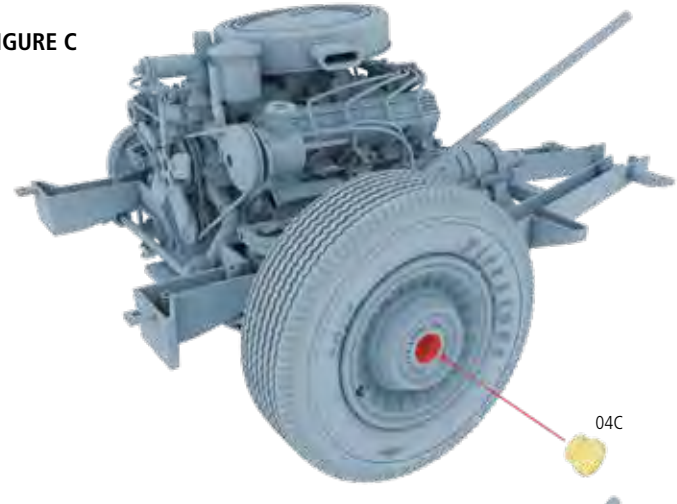
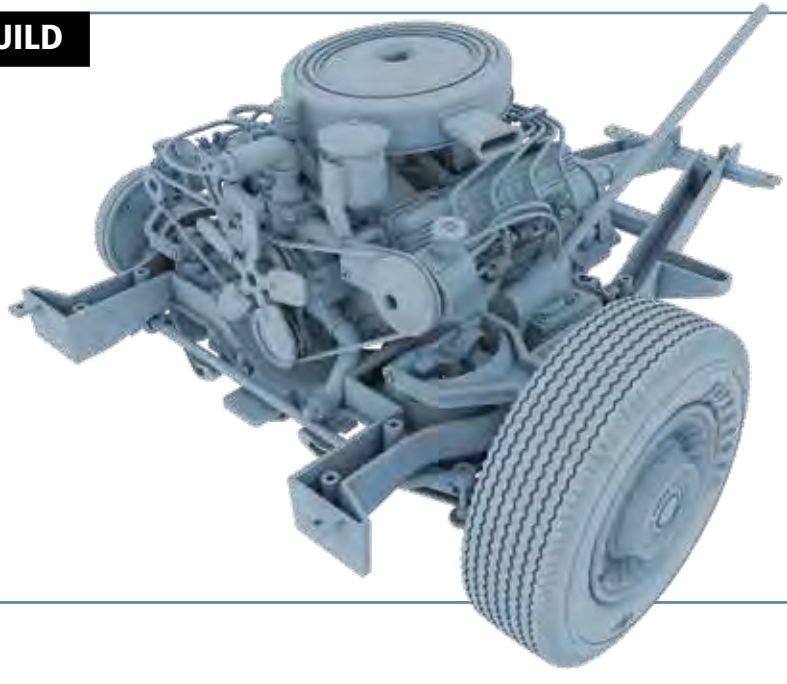


FIGURE C



STAGE 16 BUILD

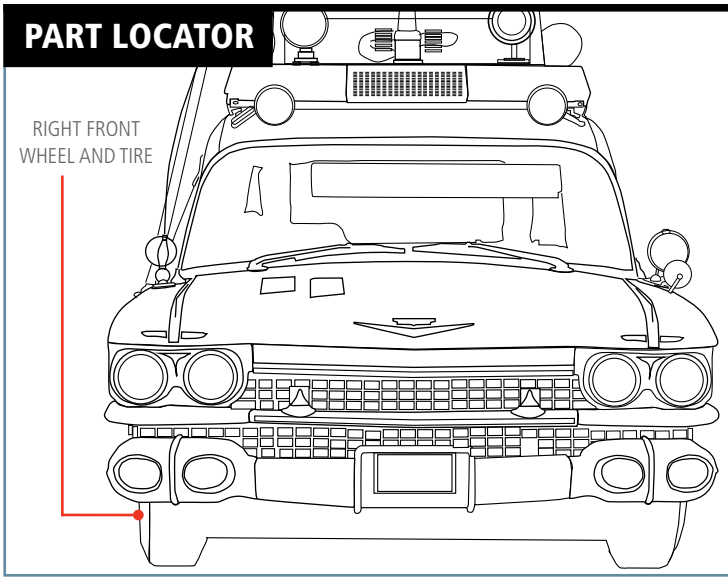


This is what the assembled piece should look like.

STAGE 17
RIGHT FRONT WHEEL & TIRE

In this stage, you assemble the right front wheel and tire, as well as fitting them to the suspension.

PART LOCATOR



TIP: PVC CABLES

When fitting PVC cables, use a pair of tweezers and grip carefully around 5mm from the end of the cable. The ends of the cables should fit tightly onto the connector pins.

If the end of the cable is too narrow to fit on to the pin, gently insert a cocktail stick into the end of the cable to make it wider. Be careful not to split the end of the cable doing so.

KEY: The illustrations are color-coded to help you identify which parts are being assembled. **RED** Highlights where the new part/s fit and screw in **YELLOW** Identifies the new part/s. **GREY–BLUE** Indicates the previous assembly on to which the new part is fitted.

01 **FITTING THE WHEEL TO THE TIRE:** Locate the outer wheel (17D) and fit it into the center of the right front tire (17A) (figure A). Turn this over and place the inner wheel (17E) so that the three screw holes on the outer and inner wheels meet. Then secure them together with three CM screws (figure B).

FIGURE A

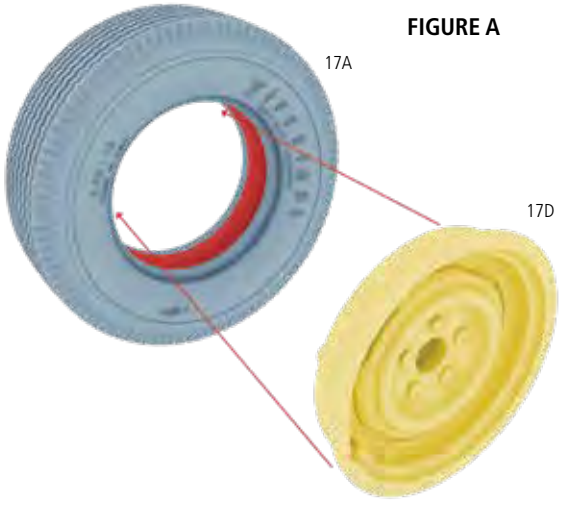
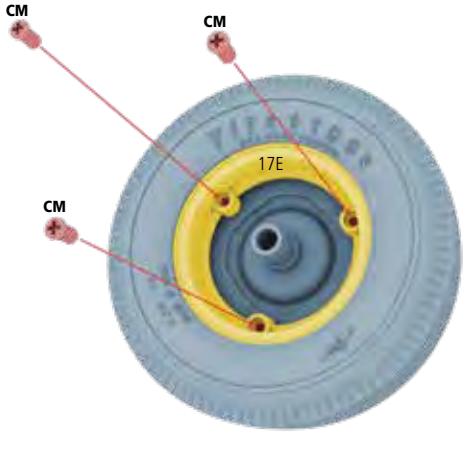


FIGURE B



02 **FIXING THE WHEEL TO THE STEERING KNUCKLE:** Take the wheel and push it onto the right steering knuckle (15K). Push the hub cap (17B) onto the outside of the wheel and fasten the wheel to the knuckle with one LM screw (figure A). Then push the center cap (17C) into the middle of the wheel, covering the screw that you have just fixed (figure B).

FIGURE A

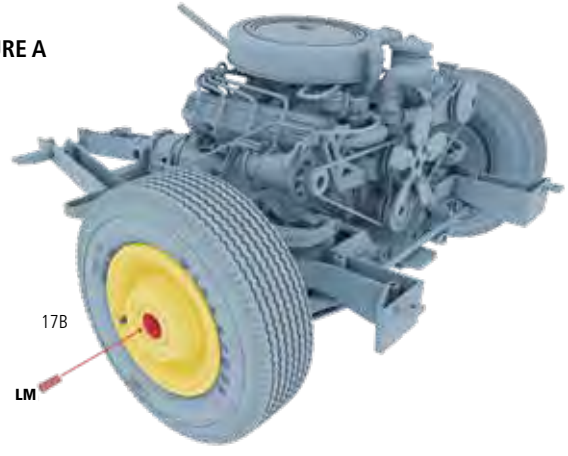
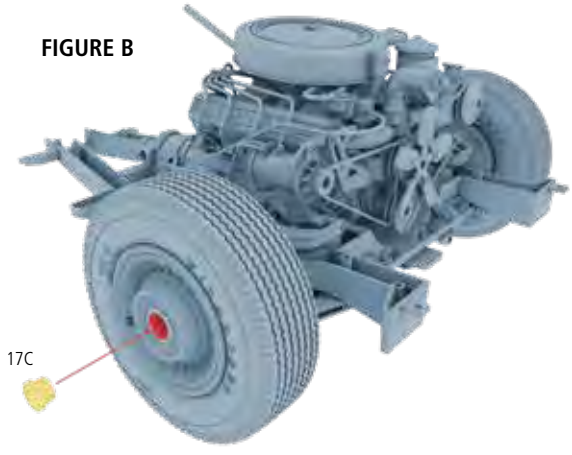


FIGURE B



03 **FITTING THE BRAKE FLUID HOSES:** Locate the right brake fluid hose (17F), the longer of the two pipes, and push it onto the pin on the right backing plate (15L). Push the other end of the hose onto the lift valve (13C) as shown in figure A. Then push one end of the left brake fluid hose (17G) into the left front backing plate (14K), with the other end going into the lift valve (13C) as shown (figure B).

FIGURE A

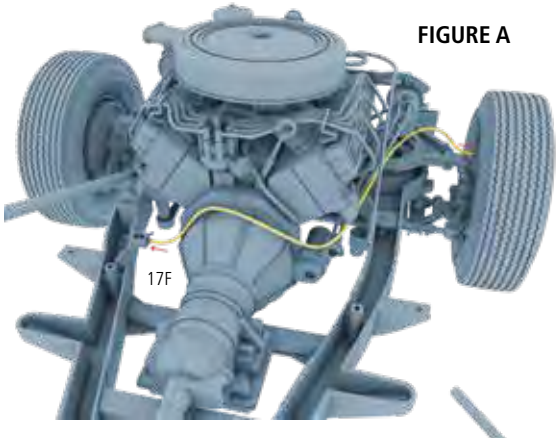
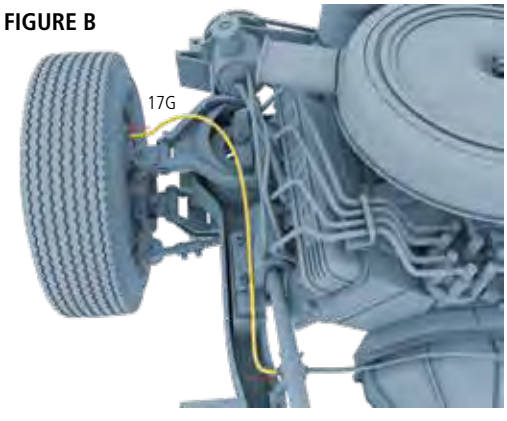
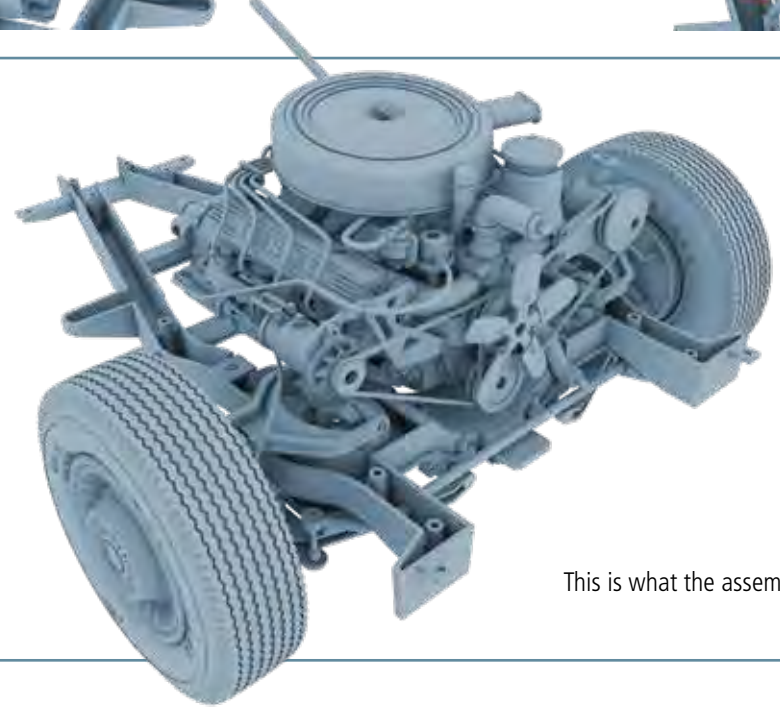


FIGURE B



STAGE 17 BUILD

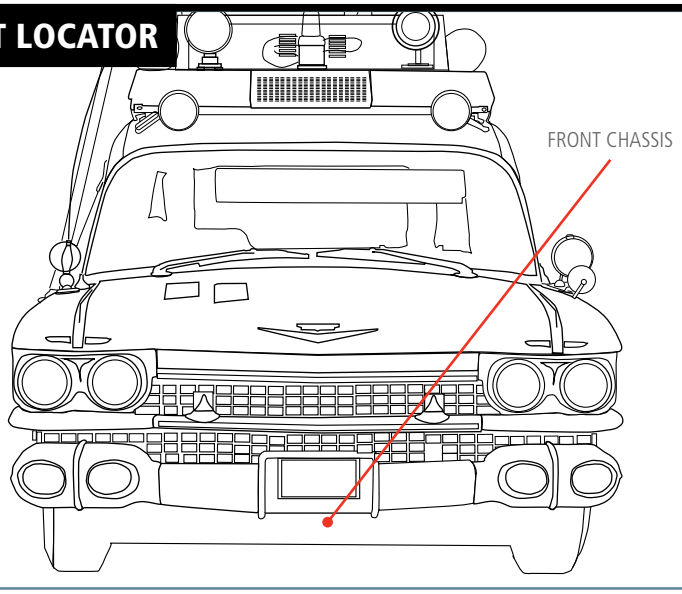


This is what the assembled piece should look like.

STAGE 18
FRONT CHASSIS

In this stage, you assemble the front chassis and associated parts, ready to be fixed to other chassis parts over the next few issues.

PART LOCATOR



TIP: HANDLE CAREFULLY

Unpack all the parts carefully.

To avoid losing any of the smaller pieces, work on a tray or keep the parts in a bowl until they are assembled.

KEY: The illustrations are color-coded to help you identify which parts are being assembled.

RED Highlights where the new part/s fit and screw in

YELLOW Identifies the new part/s

GREY–BLUE Indicates the previous assembly on to which the new part is fitted

01

FITTING THE CHASSIS PARTS: With the front chassis (18A) on its back, place the front left chassis part (18B) on the left-hand side of the front chassis. Fasten using one EM screw (figure A). Then, secure the front right chassis part (18C) to the right of the front chassis (18A) with one more EM screw (figure B).

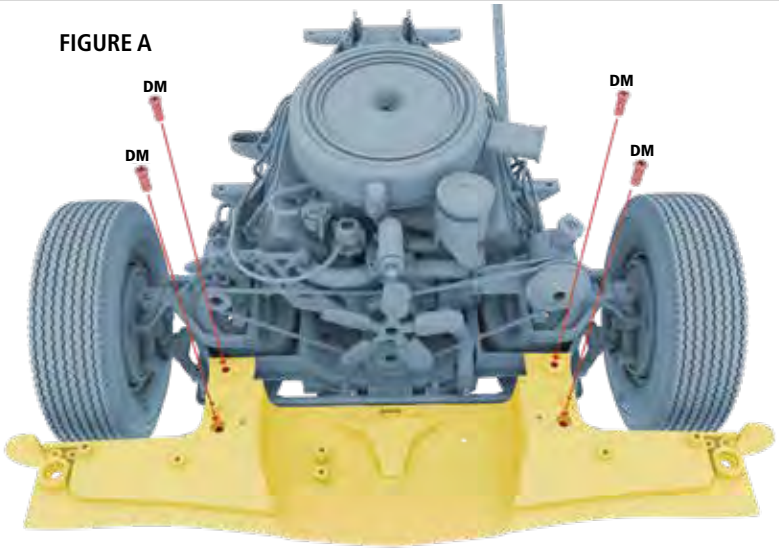
FIGURE A

FIGURE B

02

FITTING THE FRONT CHASSIS TO THE FRONT CHASSIS FRAME: Turn the front chassis assembly from step 1 over so it is the right way up and place it on the front chassis frame (13A) so that the four screw holes in the front chassis are aligned with the holes in the frame. Fix the two parts using four DM screws (figure A).

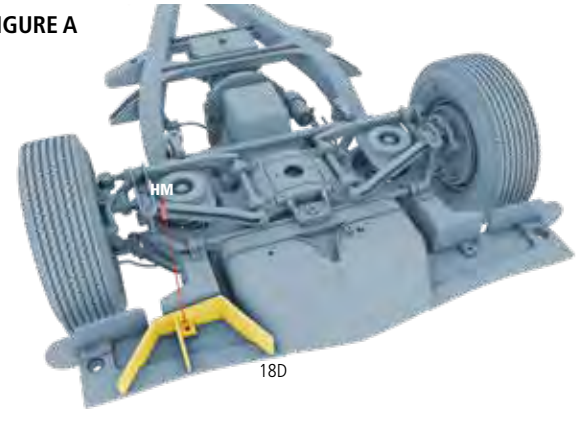
FIGURE A



03

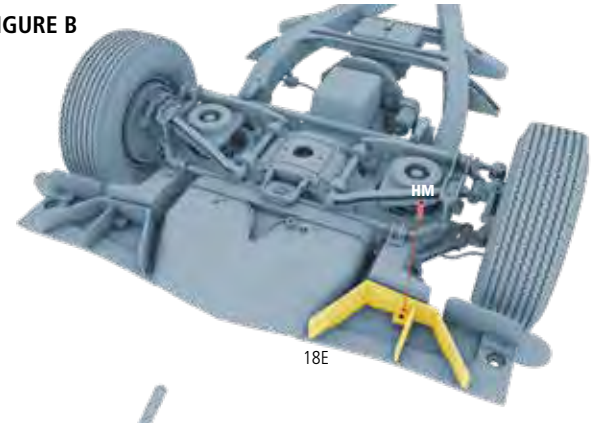
ASSEMBLING THE CHASSIS FRAME SKELETON: Turn the assembly back over, being careful not to damage the engine parts on the other side. Then place the front left chassis skeleton (18D) on the left underside of the front chassis (18A), keeping place with one HM screw (figure A). Finally, secure the front right chassis skeleton (18E) to the front chassis (18A) with one HM screw (figure B).

FIGURE A



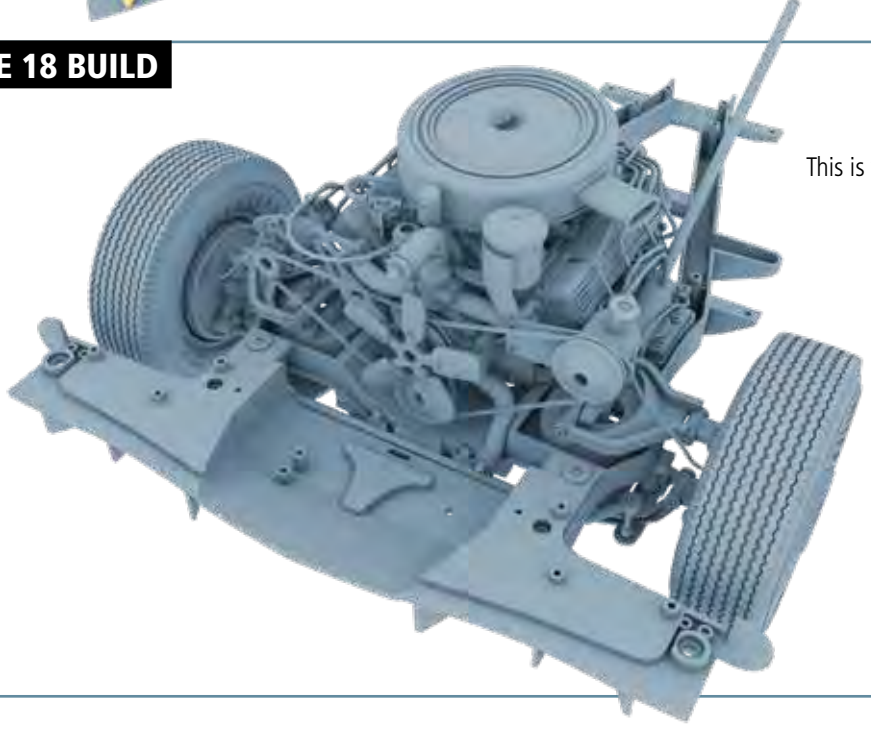
18D

FIGURE B



18E

STAGE 18 BUILD



This is what the assembled piece should look like.

ATTACK OF THE TERROR DOGS

Stop-motion animator Randy Cook and puppeteers Mark Wilson and Tim Lawrence reveal how they brought the snarling Terror Dogs to life.

RENOWNED STOP-MOTION ANIMATOR Randy Cook has a confession. "I never found stop-motion creatures to be scary," he admits. "When they were good, I always found them to be thrilling, but not scary. Of course, I didn't tell anyone at the top that…"

It was probably a wise decision. Cook – who oversaw Boss Film Studio's creature shop with Steve Johnson – was explicitly told to make the demonic Terror Dogs "straight and scary." He had initially hoped to animate either Slimer of Stay Puft ("Though considering how well they both turned out in other hands, I can't really object"), but once it became clear that his domain was going to be Gozer's canine demi-god acolytes, he set to work trying to find a way to make them as effective as possible.

Groundwork on the design had begun before Cook started. "They showed me a bunch of sketches by a number of artists – Bernie Wrightson, Thom Enriquez. They were fishing around for an idea. Thom Enriquez especially did about 50 different designs. He eventually did a very simple sketch of what became the Terror Dog. But it was much like the *Forbidden Planet* monster. It was suggestive of a creature, but it was a concept design rather than a creature design. It was subject to interpretation in any number of ways… I said to [associate producer] Michael Gross, let me do something that's animatable, that's got some kind of organic quality so you can move the legs and make it lope across the street."

Cook worked quickly on creating a maquette, which he positioned on top of a wooden platform. Not entirely happy with his work, he remembers his trepidation in showing the model to his fellow crew-members. "As I was sculpting it, it got top-heavy and too big for the stand. It was sort of moving forward and I had it grip the front of the platform because that was the way it evolved. I went to show it to [production designer] John DeCuir, but was a little embarrassed by it. John DeCuir did *Cleopatra* for Pete's sake! But he said, 'Oh, this is great, I love it!' He was very complimentary,

ABOVE Randy Cook's stop-motion Terror Dog is shot against blue screen at Boss Film Studios, before being composited into the shot.

which was a huge thrill for me. He said, 'We've got to have some static statues on a plinth. Is it OK with you if I take this idea?' Sometimes the mistakes lead you in the right direction!"

Visual effects supervisor Richard Edlund felt that the model needed to be bigger, so a larger quarter-scale version was made. Cook says that the larger model had certain disadvantages. "Something this big can be hard to move and you have to move it in a more mechanical fashion… What happens is you require more stage space, and problems can become exponentially larger when you're dealing with something this huge. It was the biggest puppet I ever worked with!"

The foam rubber model was fitted to a metal armature made by experienced animator and machinist Doug Beswick. This model was also used as a guide for the full-size Terror Dogs, which were shot on location prior to the stop-motion sequences.

The two full-size versions, which were sculpted by Linda Frobos and Michael Hosch, were four times the size of the stop-motion Terror Dogs at around six feet. Cook oversaw their construction, and it was his responsibility to ensure that the two versions matched one another. "I basically just kept taking pictures of the two of them with a Polaroid camera – close up of the small one, close up on the big one. When I couldn't tell the difference between the two, I knew it was time to stop."

Though the full-size models had cables that allowed puppeteers to operate them, there wasn't time to finish the mechanics before shooting. However, Cook says this didn't matter for the initial footage.

"Work hadn't progressed far enough to have

the fully articulated dogs up – they didn't have any moving parts. But because they were going to be in a wide shot, you wouldn't necessarily see them. We did the inserts [with a third model] later when the mechanics were finished." This articulated third model was completed near the end of shooting and used for the shot in Dana's kitchen.

STAIRCASE TO THE TERROR DOGS

The full-size Terror Dogs were operated by various puppeteers, including Harrison Ray, Mark Bryan Wilson, Tim Lawrence and Terri Hardin. Holes were cut into the back of the puppets, allowing the puppeteers to operate them from beneath the floor. "We could push down on the head to make it lean forward, backward and side to side, and we had a pole we could lean on to make the Terror Dog spread its legs," Wilson remembers. "There were tiny Watchman monitors inside the Terror Dogs which allowed us to react to what was happening in front of camera."

For the climactic sequence at the Temple of Gozer, the Terror Dogs were fastened to rigs constructed by mechanism builder Larz Anderson. Wilson recalls how much he enjoyed the experience of climbing into the Terror Dogs. "It was phenomenal! We were on the tallest stage on Warner Bros, pretty high up. We would go through the back of the staircase and climb up ladders to get inside of the Terror Dog. It was super-exciting."

Tim Lawrence also has vivid memories of clambering inside the Terror Dogs. "It was like climbing into a kids' treehouse with all the chains, rigging and crossbars," he says. "We wore these special safety harnesses to clip us into the armature. So if there was an earthquake or something, we wouldn't just fall out. But it turned out that since we were fastened to the puppet with those, we could use them to move the puppet to give it more animation. Mark was the front half of the long-horn [Vinz Clortho] and I did the eyes, which you almost never see in close-up. The pupils were lights behind glass orbs; they moved and had direction."

Anything that required the Terror Dogs to jump or

TOP TO BOTTOM Randy Cook's original maquette; Cook moves his Terror Dog model into a new position; the puppet on the motion-mover; stop-motion work on the model; Cook inspects the full-size model.

LEFT TO RIGHT The full-size model, complete with glowing eyes; the Terror Dog in Louis's apartment, which was operated from beneath the floor; the armature inside the full-size Terror Dog.

run was created using stop-motion in post-production. Cook shot the animation with cameraman Jim Aupperle and computer technician Mike Hoover. To give the creature a sense of movement, the puppet was attached to a programmable model-mover rig and shot with a motion control camera to generate motion blur. "It was stop-motion fed into a computer," says Cook. "It was the early days of those computers, and we were kind of making it up as we went along."

Cook recalls numerous challenges. Firstly, the sequence where the Terror Dog leaps across the street had to match the location footage – but no measurements of the street had been taken during first-unit filming. "We had to send someone back to New York to take all the measurements, and Hoover and Aupperle matched it frame by frame," Cook says. Another problem soon arose. "It almost worked – except that it was changing scale as it went across the street. I finally realized, the street's got to have a camber in it! A little higher in the centre so the water can flow down. We figured out what the camber was and I redid the move. Then it all came together."

BELOW Linda Frobos and Michael Hosch sculpt the head and tail while Gunnar Ferdinandsen makes the mold of one of the front feet.

The schedule was so punishing that Cook estimates they worked for around 28 hours straight over Easter Sunday on the sequence. "This was a big deal scene on a motion control rig which required us to make a 30-foot move on the stage, more or less. The thing took a long time to set up and we were up against it."

When the dailies came back, Cook was largely happy with their work except for one issue. "After we made the model touch down [on the street] for the first time, we moved it [into position for] the next frame – but the model-mover started to tear the model apart [because it was moving so quickly]. So we turned off the model-mover when it touched down. But because the motion of the camera wasn't canceled out by the moving model, the model blurred during

the touchdowns. If I had been able to do it over, I would have shot it without blurring. But when I came back, the whole set-up had been struck. The camera was gone and the blue screen was down for [creating effects on] *2010*."

The stop-motion segments of the sequence inside Louis's apartment were also not without challenges. "There was a shot where I had him hit the wall and his head compressed, then his body went way up to the wall and flopped down. It was my favorite shot in the picture. Ivan Reitman saw it and said, "It's funny. But we don't want it to be funny…" So we wound up taking out the armature in the creature's neck and having it accordion a bit as it fell backwards."

Despite these difficulties, the Terror Dogs became one of *Ghostbusters*' key ingredients, with the screams of cinema-goers proving that stop-motion – as well as puppetry – could most definitely be scary. "Menacingly cute" is how Wilson sums up the creatures. "I think that the Terror Dogs are so memorable after all these years, because of their strong character design," he says. "A lot can be seen in their brows. You'd really like to pat them on the head – but you might not have a hand there when you pull it back."

BROKEN TOES

The shot of the Terror Dogs' toes bursting out of the marble statues did not go to plan first time, says Randy Cook. "It was a big elaborate shot, Ivan was shooting with a big crane, and I was underneath the set with levers to break the toes out of the plaster. We got to where the final position was, Ivan said 'break!'… and nothing happened. I said, 'Sorry, it's not working.' So we tried again and the same thing happened. Supposedly, the outer shell was cast in snow plaster which crumbles very easily, so what was going on? A big burly grip came down and said, 'OK, kid, I'll do it.' And this guy groaned like this [makes elaborate groaning noise]... and broke one of the cables! Turns out they cast this thing in hard plaster, like concrete. They had to break and score the plaster so the toes would finally break out!"

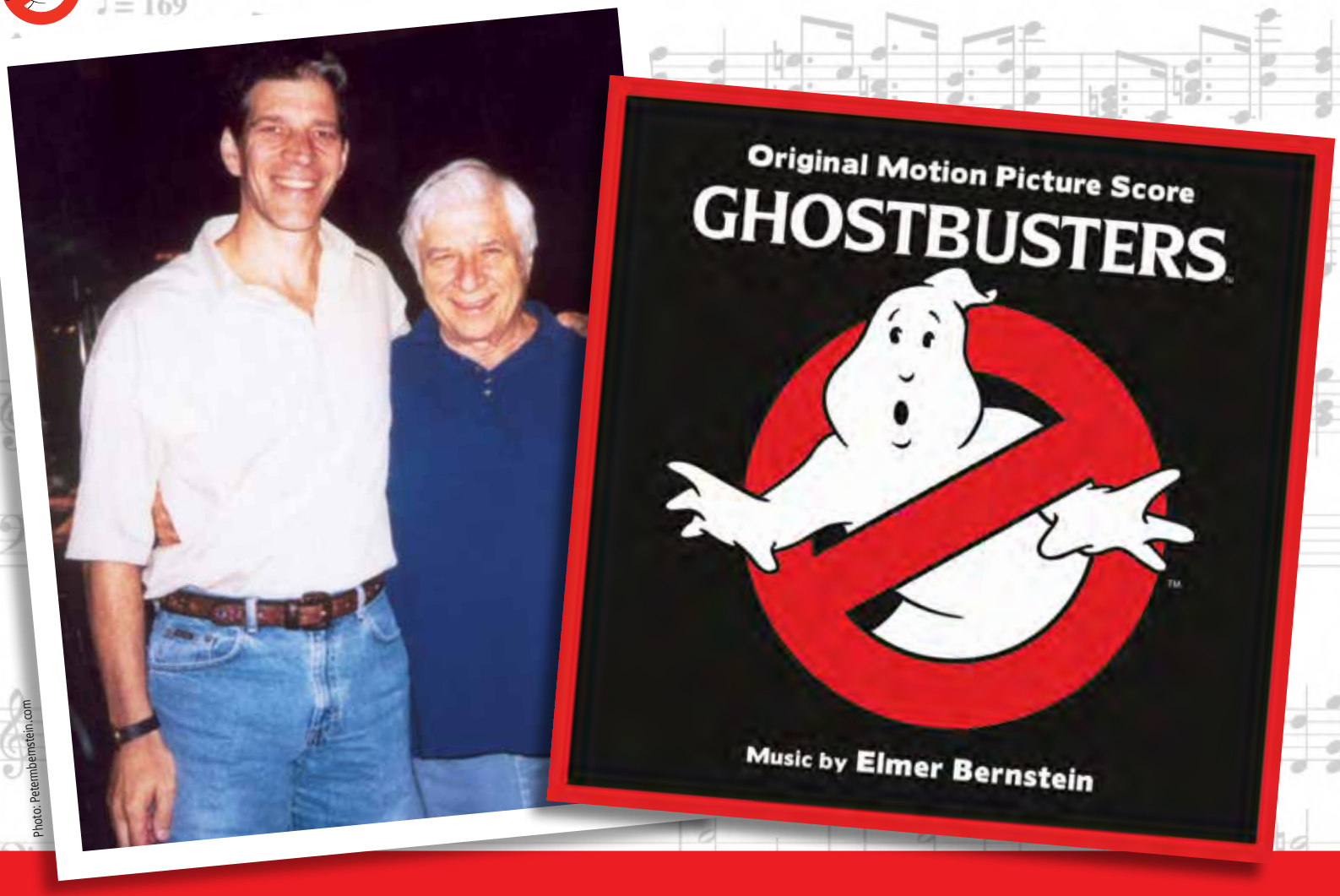


Photo: Petembernstein.com

THE PERFECT SCORE

Ghostbusters' orchestrator Peter Bernstein looks back on working with his father, legendary composer Elmer Bernstein, on one of the greatest scores of the 1980s.

COMPOSING THE MUSIC TO *GHOSTBUSTERS* was a trickier prospect than any of the four scores that Elmer Bernstein had previously written for Ivan Reitman. Reitman required a score that echoed the film's unusual balance of comedy, horror and romance, and while Bernstein had composed music for all of those genres, he hadn't had to blend them together quite like this.

"The music had to walk a fine line between all of those things without tipping too far one way or another," says Elmer's son Peter Bernstein, who orchestrated the score with David Spear. "The ghost story had to be scary enough, but then there was the comedy and the love story which had to be believable – plus the end of the world was in there somewhere. All of that meant he had to make a lot of choices along the way."

While the final score couldn't be composed until principal filming had finished, Elmer and Peter Bernstein got a feel for the story by reading the script and taking a tour of the sets during filming. "It looked funny and interesting, but making a movie – especially when you're as well-prepared as Ivan – is very workmanlike," says Peter Bernstein. "It was difficult to get a complete picture of what was going to happen. Though I do remember that Ivan had a golf cart with the *Ghostbusters* logo, which I thought was very impressive at the time!"

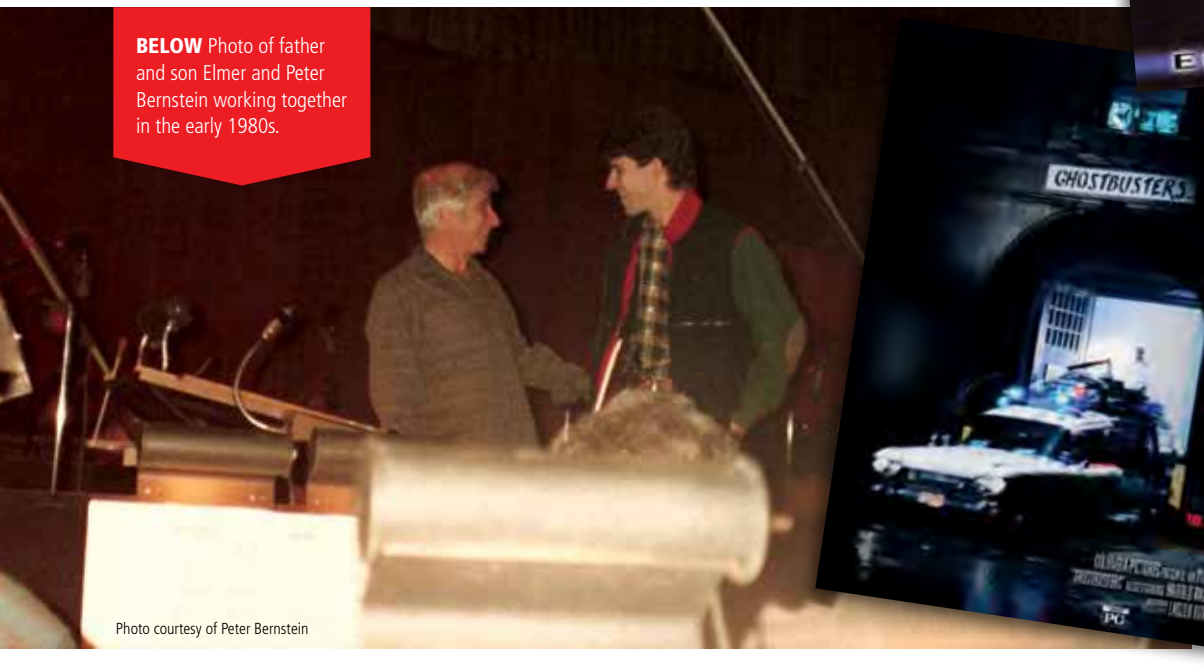
While composing the score for such a tonally varied film was a challenge, it helped that Elmer Bernstein and his orchestrators had a long-established working relationship. "By that time I had been working for him on and off for about a decade, and David for almost the same," says Peter Bernstein. "The system was streamlined and he knew what he could rely on us for. He would usually sketch on four lines, whereas a score will have maybe 30. He could [write] very complete sketches where we didn't have to do much aside from translate what he wanted onto a full score page. At other times he would sketch something very bare and say, 'You know what to do, make it sound like this, make it sound big, use all octaves.' There would be a lot of shorthand involved, but after 10 years we knew pretty much what he was expecting."

STRANGE SOUNDS

Elmer Bernstein incorporated a couple of unusual instruments into his score. Firstly, there was the ondes Martenot, an early electronic instrument that resembled a cross between a keyboard and a Theremin and suited the spooky elements of the movie (as heard in tracks such as 'Library and Title' and 'Dana's Theme').

While Bernstein had used the ondes Martenot on his earlier scores for the Reitman-produced *Heavy Metal* and *Spacehunter: Adventures in the Forbidden Zone*, *Ghostbusters* also saw him use another (soon-to-be-ubiquitous) instrument for the first time. "There was a new Yamaha digital synthesiser on the market called a DX7, which was extremely sought after and hard to get," Peter Bernstein remembers. "My father happened to be friends with the Yamaha importer for the Los Angeles area. Even though there was a vast waiting list for these things, I showed up at his shop and literally snuck one out the back so that no one would see! I drove up to Santa Barbara where my dad lived, and we started going through the factory sounds. We chose about 10 or 15 of them to use. In fact, the very first

BELOW A collector's edition of Elmer Bernstein's *Ghostbusters* score was released in 2006 by Varese Sarabande. It was limited to 3,000 copies.



BELOW Photo of father and son Elmer and Peter Bernstein working together in the early 1980s.

Photo courtesy of Peter Bernstein

RIGHT The otherwordly sound of the ondes Martenot can be heard in Elmer Bernstein's composition 'Library and Title' early on in the movie.

note that you hear in the score is a factory programme from a DX7. We had three of them on the scoring sessions. At the time it felt rather leading edge."

DOWN TO THE WIRE

The score was recorded at the famed Village Studios in West Los Angeles and performed by the Hollywood Studio Symphony Orchestra. However, the music continually evolved during the recording sessions, not least because much of the score had been composed for footage without special effects in place. "Once we got to the recording sessions, you'd see the special effects, and things would have to be changed to accommodate the fact that things were funnier or scarier than you might have thought," Bernstein remembers. "Plus, the special effects didn't always come in at the same length that we thought they would, so you'd have to adjust the length of the music as well…. There was constant fine-tuning during the recording sessions."

The tight schedule, combined with the fact that the score was being refined as the effects were finished, meant that its recording and mixing went right down to the wire. "They were mixing the film down the hall, so – if it didn't need to be remixed – as soon as a piece was recorded, the music editor would snip that piece out of the recording and run it down to the mixing stage. It was all going on at the same time, and it was very stressful. Usually in a good way, but not always!"

Amazingly, Peter Bernstein says that the score to the climax and end titles were still to be written the day before the final recording session. "After the recording finished [on the day before the final recording session], my father set out all his scores on a piano in the studio and stayed there for a couple of hours constructing the end titles and some of the climactic cues out of previously recorded bits. Then he would write material to connect one piece to another. As orchestrators, David and I got things like, 'Copy bars 5 through 27 of this cue but transpose it up a half step' or 'Here's 10 bars of some connecting material I've just written, and after that copy bars 43 through 60 of this other cue but

RIGHT Elmer Bernstein only wrote the music that accompanies the climax of the movie the day before the final recording session.

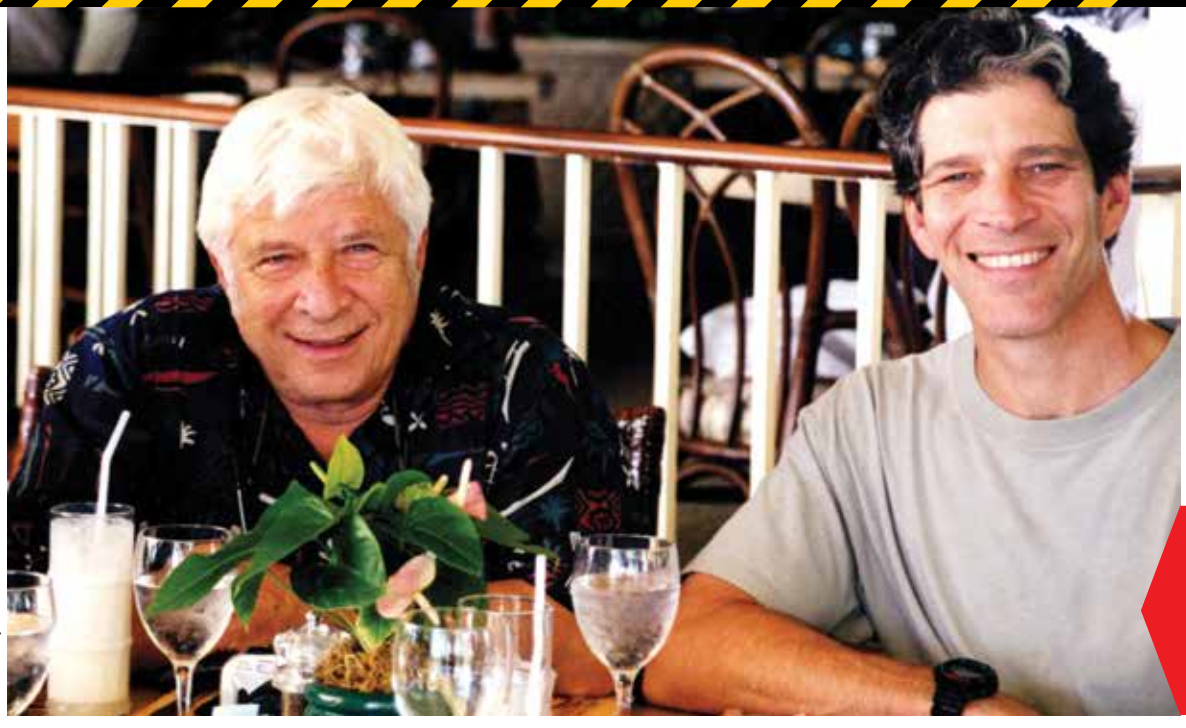


Photo courtesy of Peter Bernstein

LEFT Photo of Elmer Bernstein (left) and Peter Bernstein (right), taken in Hawaii in 1999. The two worked together on many projects.

transpose it down a whole step.' To do something like that the day before the final recording session not only speaks to how tight the schedule was, but also his level of self-confidence. To know that whatever happened, he'd be able to fix it the next day while recording. David and I gathered up the road maps and sketches he gave us – and this was at least eight at night – and went over to my house and stayed up all night orchestrating it. It was picked up by the copyist I believe at five in the morning, and the first piece was ready to go at nine."

Of course, elements of Elmer Bernstein's score were replaced with pop music in the final edit, including Ray Parker Jr.'s theme song and Air Supply's 'I Can Wait Forever.' Peter Bernstein says they had a fairly good idea of which pieces were likely to be substituted during the recording sessions. Did his father mind some of his music being swapped out for pop songs? "He would have rather scored it all himself, but he understood what was going on in the market place and who this movie was for. I liked it as I was in the rock and roll business myself, but it was not where he came from."

Impossibly tight schedule or not, Elmer Bernstein's score complimented the movie perfectly, eerie one minute, jazzily upbeat the next, and often hauntingly beautiful. Today it endures as one of the best scores of the 1980s. "We had so much fun in those days," Peter Bernstein recalls. "This was in my father's comedy career phase. The movies made us laugh, they were tremendously successful and it was great to work under those conditions. It was kind of perfect."

THE LIVE ORCHESTRA

In recent years Peter Bernstein – who went on to compose the scores for everything from the two 1980s Ewoks TV movies to *21 Jump Street* and *Chicago Hope* – has found himself appreciating the nuances of the score all over again while conducting a live orchestra for screenings of the film. "I forgot about a lot in 35 years!" he says. "It's a constant reminder of how skilled and creative my father really was. The score sounds like it couldn't have been any other way. But that's not true at all. It was the result of many, many small decisions that he made. That's always a great lesson at any stage of someone's career."

Photo: Petermbernstein.com

ECTO-101

A MONTHLY LIST OF ALL THE THINGS THAT MAKE GHOSTBUSTERS GREAT.

#6 THE TV BROADCAST EDIT

Television edits of movies, particularly those shown pre-watershed, often feature the bad language dubbed out – sometimes with amusing results (who can forget "You are gonna be a bad muthacrusher" from *Robocop*). However, with *Ghostbusters*, the fact that different improvised takes existed for many scenes offered up another solution.

The original (and most famous) TV edit of *Ghostbusters* was screened on ABC on 29th January 1989. One of the most memorable switches in this edit was replacing Venkman's "We came, we saw, we kicked its ass!" with the inoffensive (but still funny), "What a knockabout of pure fun that was!" Another endearing change was Ray's "dickless" insult to Walter Peck becoming "Wally Wick," with Venkman's subsequent line becoming the bizarre but amusing, "Yes, it's true, your Honor. The man is some kind of rodent – I don't know which."

Other alternate takes that were incorporated into the clean version include Venkman mocking Peck with the line, "I'll sue your funny face for wrongful prosecution," and Winston talking of seeing "stuff that will turn you white."

The TV edit has something of a cult following amongst Ghostheads, and fansite *Spook Central* even organized an internet broadcast of it in 2009, complete with original adverts.

> *You can't always count on money in the arts. It has to come from your heart. The best art comes from learning how to step out of the way, to not try to control the process, but to open your heart and let it use your body as a tool.*

▲ *Steve Johnson, effects artist and the sculptor behind Slimer, tells the* Stan Winston School *about his creative ethos.*

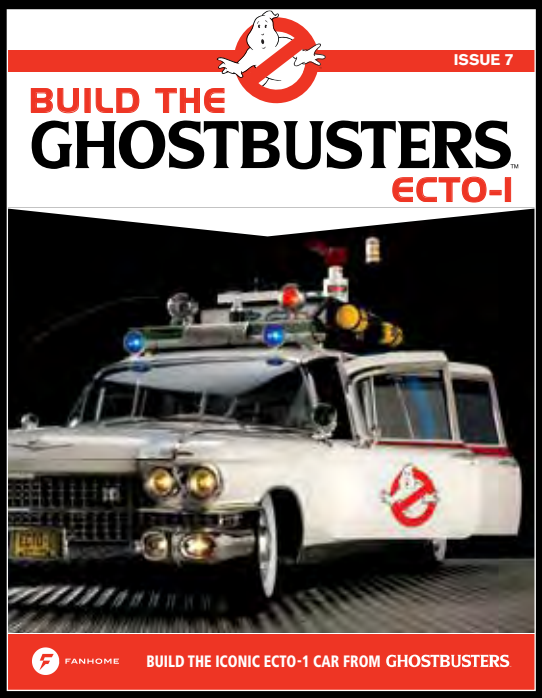
> *It's nice to see how it's had an impact on people's lives, their kids. A lot of people shared the film with their kids when they were growing up, and now their kids are grown and they're sharing with their kids.*

▲ *Ernie Hudson discusses Ghostbusters' connection with fans in a 2019 interview with* Complex.com

> *When I watch movies that I've worked on, I'm just amazed at how much of it was discovered on the set and how insane we were to take that chance.*

▲ *Harold Ramis chats about improvisation on the talk show* Later With Bob Costas *in 1989.*

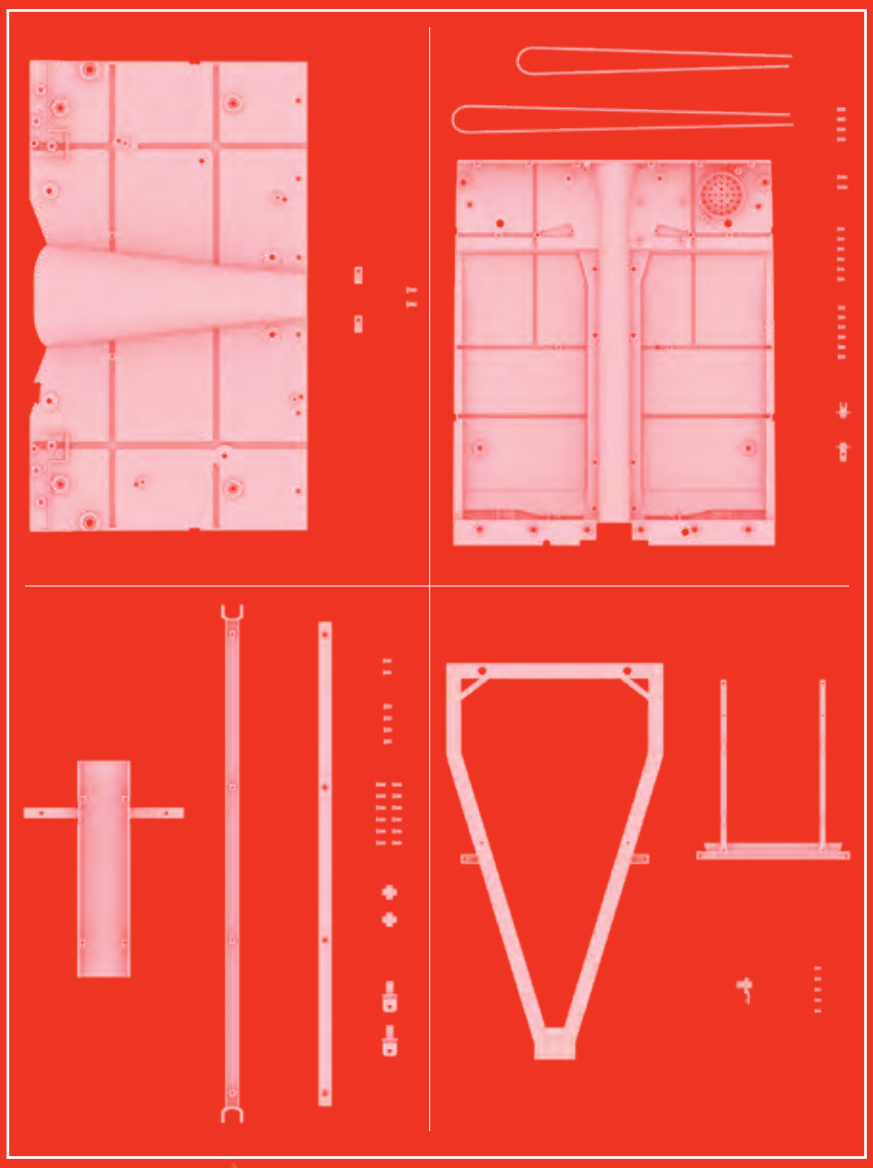
COMING IN ISSUE 7



ERNIE HUDSON
The actor looks back on playing Winston.

LIBRARY GHOST
Creating *Ghostbusters'* first apparition.

YOUR PARTS



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