ISSUE 5

BUILD THE GHOSTBUSTERS™ ECTO-1

FANHOME

BUILD THE ICONIC ECTO-1 CAR FROM GHOSTBUSTERS™

BUILD THE GHOSTBUSTERS™ ECTO-1

CONTENTS

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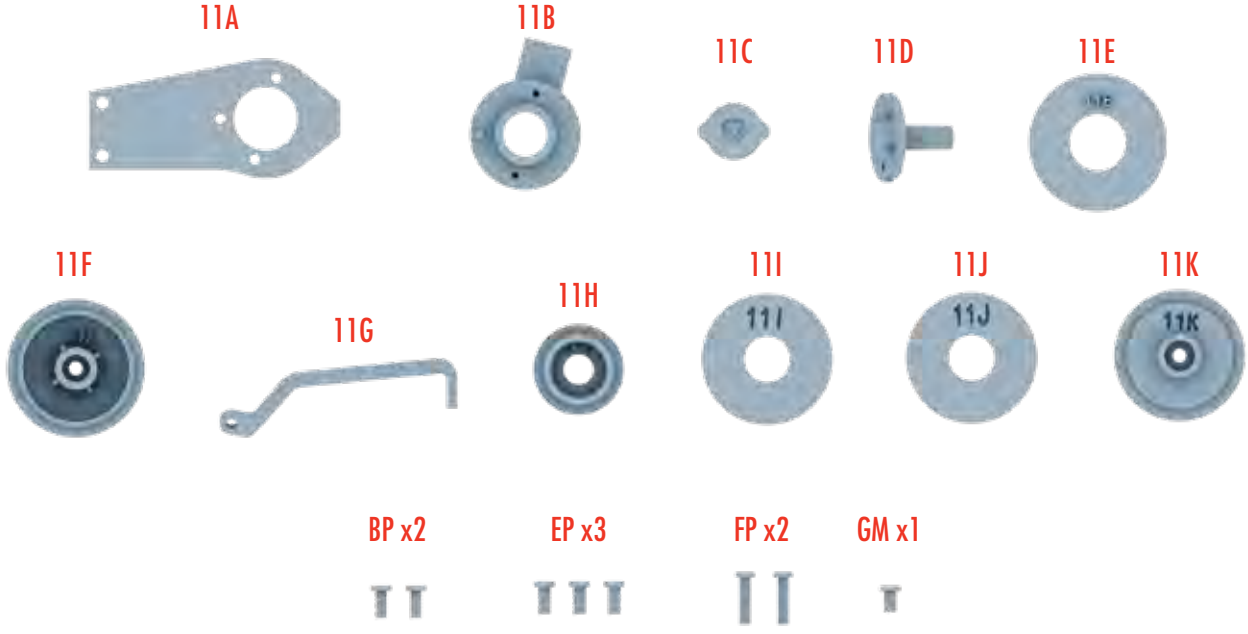
The price of this issue includes the magazine and the attached pieces for model assembly.

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 11

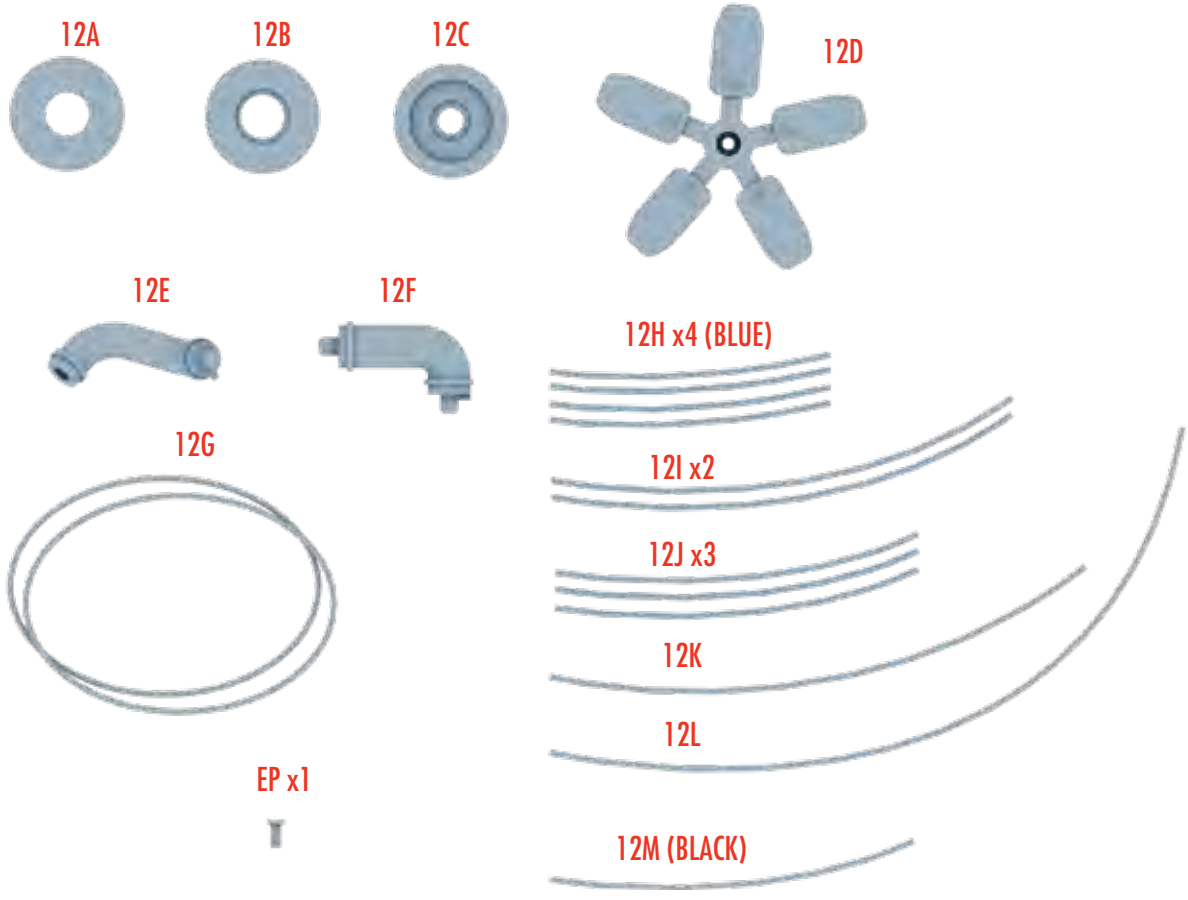
The Ecto-1 had the benefit of power steering, which was made possible by the power steering pump and crankshaft pulley.



PART NUMBER	DESCRIPTION	QUANTITY
11A	POWER STEERING PUMP SUPPORT	1
11B	POWER STEERING PUMP	1
11C	POWER STEERING PUMP CAP	1
11D	POWER STEERING PUMP END PLATE	1
11E	POWER STEERING PUMP PULLEY INNER	1
11F	POWER STEERING PUMP PULLEY OUTER	1
11G	PRESSURE HOSE	1
11H	CRANKSHAFT PULLEY BASE	1
11I	CRANKSHAFT PULLEY REAR	1
11J	CRANKSHAFT PULLEY CENTER	1
11K	CRANKSHAFT PULLEY FRONT	1
BP	1.5x4MM	2 (+1 SPARE)
EP	1.7x4MM	3 (+1 SPARE)
FP	1.5x7MM	2 (+1 SPARE)
GM	1.7x3MM	1 (+1 SPARE)

CAR PARTS STAGE 12

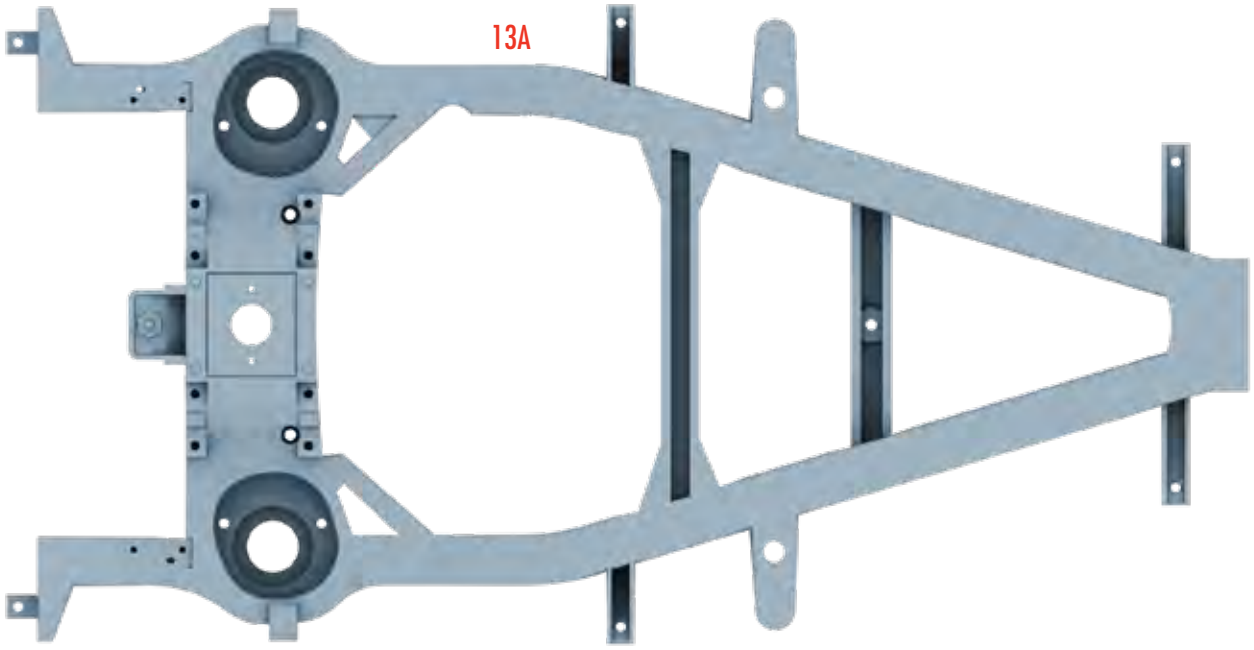
This stage consists of parts that help keep the Ecto-1's engine cool – namely the engine fan and cooling pipes.



PART NUMBER	DESCRIPTION	QUANTITY
12A	FAN PULLEY REAR	1
12B	FAN PULLEY CENTER	1
12C	FAN PULLEY FRONT	1
12D	ENGINE FAN	1
12E	COOLING PIPE 1	1
12F	COOLING PIPE 2	1
12G	BELT	2
12H	70MM CABLE	4
12I	90MM CABLE	2
12J	80MM CABLE	3
12K	100MM CABLE	1
12L	AIR FILTER CONTROL PIPE	1
12M	70MM PIPE	1
EP	1.7x4MM	1 (+1 SPARE)

CAR PARTS STAGE 13

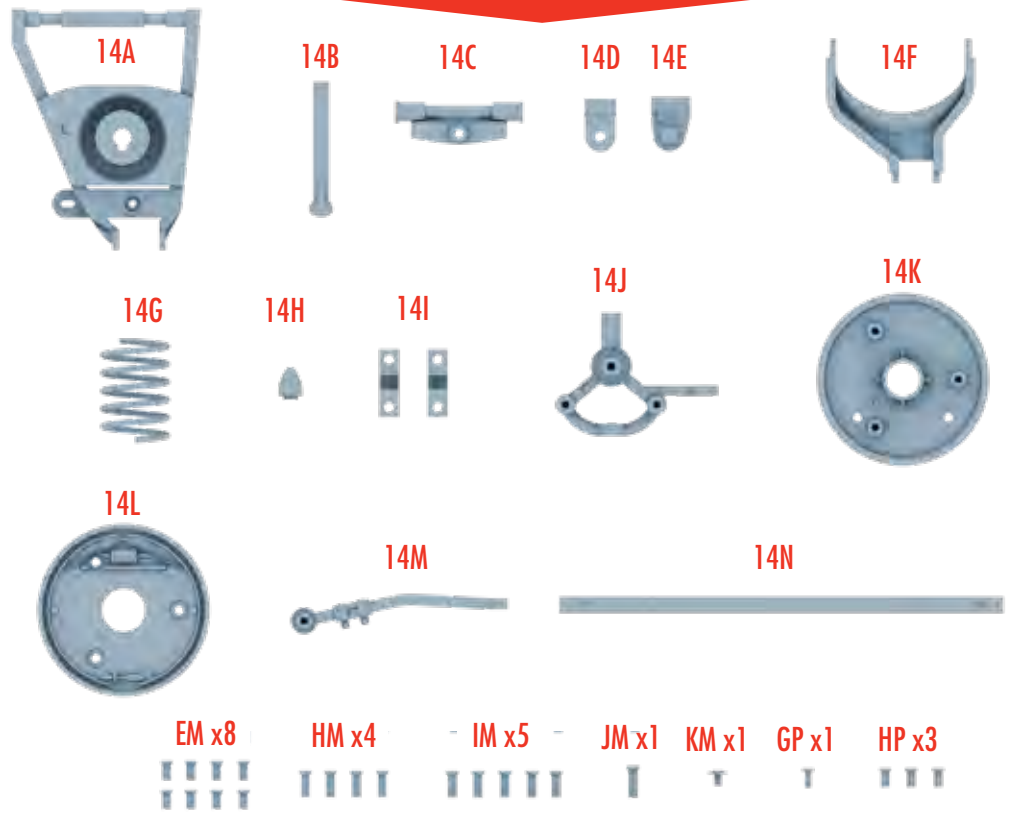
In this stage you will assemble the first part of the frame that underpins the body of your Ectomobile.



PART NUMBER	DESCRIPTION	QUANTITY
13A	FRONT CHASSIS FRAME	1
13B	FRONT CHASSIS FRAME COVER	1
13C	DISTRIBUTOR	1
EM	2x4MM	3 (+1 SPARE)

CAR PARTS STAGE 14

This stage consists of the first front suspension parts of your model Ecto-1.

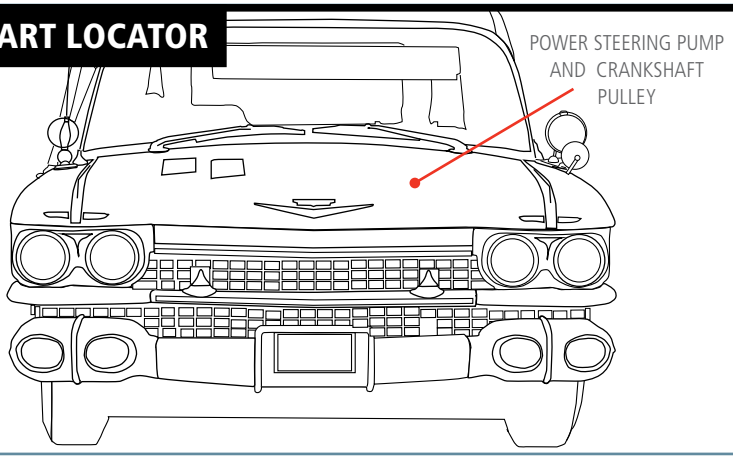


PART NUMBER	DESCRIPTION	QUANTITY
14A	LOWER SUSPENSION ARM	1
14B	SHOCK ABSORBER	1
14C	SHAFT	1
14D	UPPER STEERING KNUCKLE CONNECTOR	1
14E	LOWER STEERING KNUCKLE CONNECTOR	1
14F	UPPER SUSPENSION ARM	1
14G	COIL SPRING	1
14H	RUBBER BUMPER	1
14I	MOUNTING BRACKET	2
14J	STEERING KNUCKLE	1
14K	BACKING PLATE	1
14L	BRAKE DRUM	1
14M	LEFT TIE ROD	1
14N	STEERING RACK	1
EM	2x4MM	8 (+2 SPARE)
HM	2x6MM	4 (+1 SPARE)
IM	2.3x6MM	5 (+2 SPARE)
JM	2.3x7MM	1 (+1 SPARE)
KM	2x3x6MM	1 (+1 SPARE)
GP	1.5x3MM	1 (+1 SPARE)
HP	2x4MM	3 (+1 SPARE)

STAGE 11
POWER STEERING PUMP & CRANKSHAFT PULLEY

In this stage, you build and fit the power steering pump, as well as the pulleys for the crankshaft and the power steering.

PART LOCATOR



TIP: SMALL PARTS

This issue comes with many small parts. Please be careful not to lose any when you open the pack. You may also find it helpful to lay the parts out against a plain background, so they can be easily identified.

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 POWER STEERING PUMP AND PULLEY: Locate the power steering pump (11B) and push the small pin through the pinhole of the power steering pump support (11A), aligning the screw holes. Fix the two parts together using two BP screws (figure A). Place the power steering pump end plate (11D) in the round border at the end of the power steering pump (11B). This only fits one way as there is a notch on the pump which matches the divot on the edge of the end plate (figure B).

Push the power steering pump pulley outer (11F) through the center of the pulley inner (11E) (figure C), then secure these parts to the parts you assembled earlier using an EP screw (figure D). Finally, add the power steering pump cap (11C), which simply pushes into place on the cylinder at the top of the power steering pump (11B) (figure E).

FIGURE A

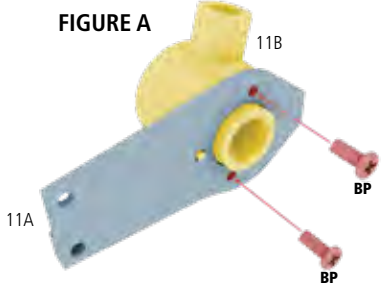


FIGURE B

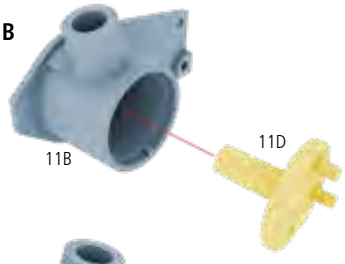


FIGURE C

FIGURE D

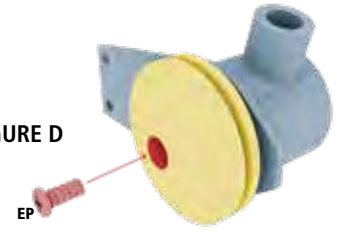
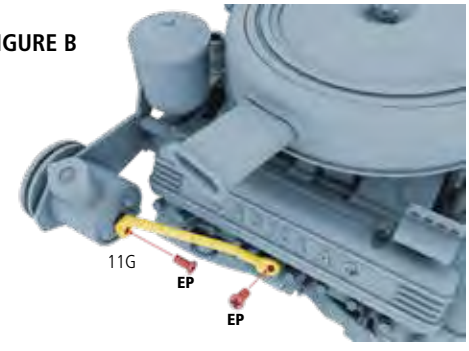


FIGURE E

02 **FITTING THE POWER STEERING PUMP AND PULLEY:** Connect the power steering pump to the engine assembly by screwing the support (11A) to the cooling system (07C) and oil filter (10K) using two FP screws (figure A). Then take the pressure hose (11G) and fix one end to the power steering pump end plate (11D) and the other to the left cylinder head (06F), using an EP screw for each fixing (figure B).

FIGURE A

FIGURE B



03 **FITTING THE CRANKSHAFT PULLEY:** Push the crankshaft pulley base (11H) onto the timing belt cover (07A) so that the end of the pulley base with the lip is facing outwards (figure A). Then combine the crankshaft rear (11I), center (11J) and front (11K) (figure B) and push these onto the timing belt cover (07A). Fix in place with a GM screw so that the parts are secured but the pulley parts can rotate (figure C).

FIGURE A

FIGURE B

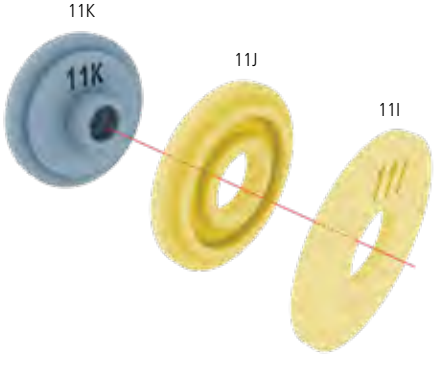
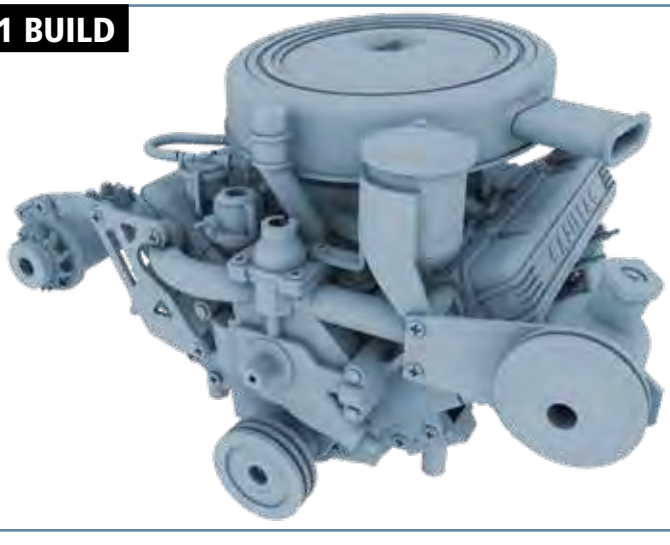


FIGURE C

STAGE 11 BUILD

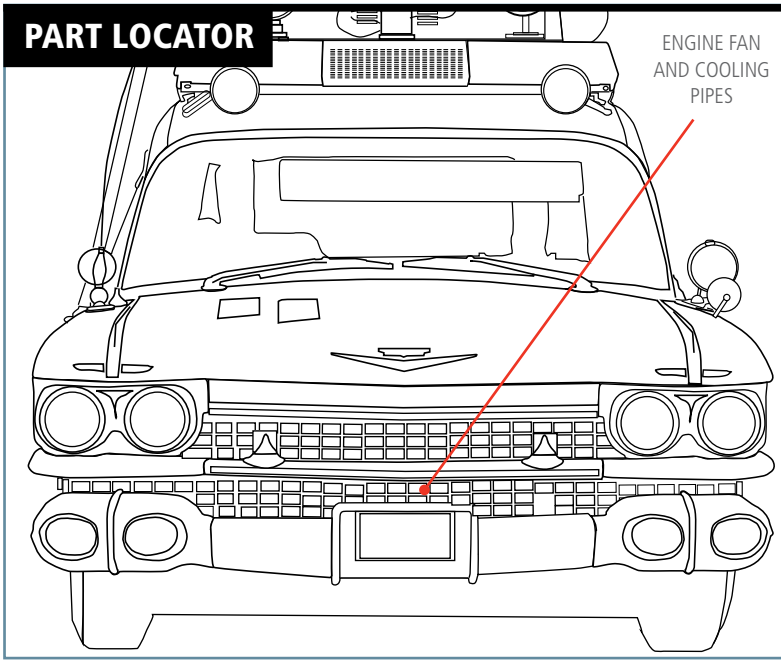


This is what the assembled piece should look like.

STAGE 12
ENGINE FAN AND COOLING PIPES

In this stage, you will assemble the engine fan, including its pulley system, as well as fitting the spark plug wires.

PART LOCATOR



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 FAN AND FAN PULLEYS:** Start by assembling the fan pulley rear (12A), center (12B) and front (12C) parts (figure A). Then slide these onto the cylinder on the cooling system (07C) (figure B). Push the engine fan (12D) into the center of the fan pulley front (12C) and secure with an EP screw (figure C).

FIGURE A

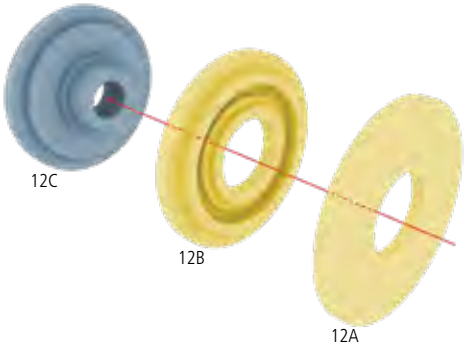
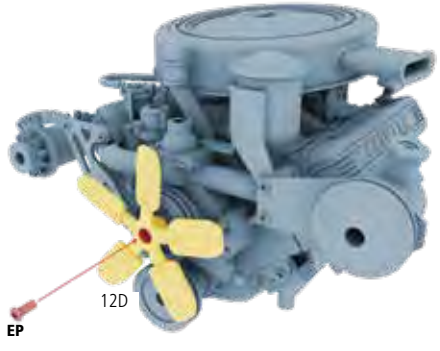


FIGURE B

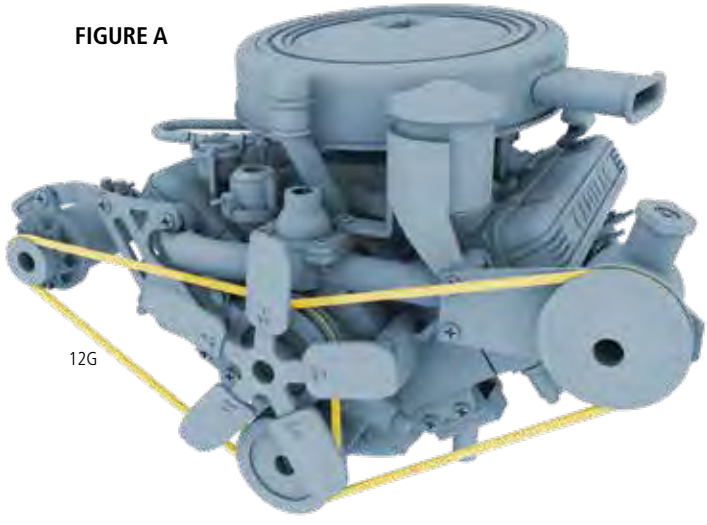
FIGURE C



02

ATTACHING THE BELTS: Take the first belt (12G) and stretch it over the rear parts of the crankshaft and fan pulleys, fitting it to the generator pulley. The remaining belt is fitted to the front parts of the crankshaft and fan pulleys and fitted to the power steering pump pulley (figure A). Take care to ensure the belts are not twisted.

FIGURE A



03

FIXING THE SPARK PLUG CABLES (LEFT CYLINDER):

Attach a 90mm cable (12I) to the spark plug (08L) on the left cylinder head (06F) closest to the front of the engine. Feed it through the ignition wire junction (06F) and attach the other end of the cable to the distributor cap plug (08M) as shown (figures A & B).

The next-closest spark plug to the front of the engine takes am 80mm cable (12J), and the remaining two take 70mm cables (12H) and are fitted as shown (figure C).

FIGURE A

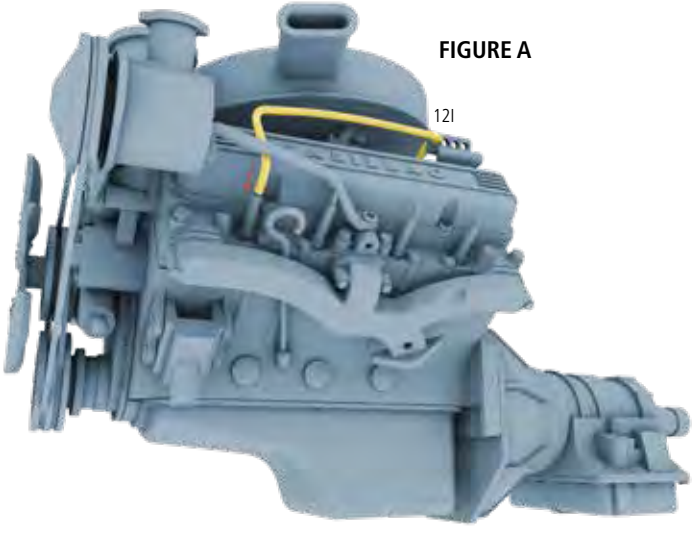
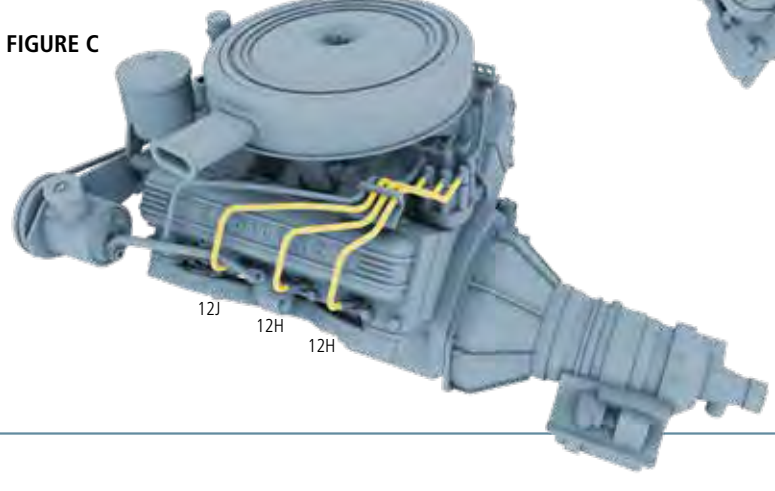


FIGURE B

FIGURE C



04 **FIXING THE SPARK PLUG CABLES (RIGHT CYLINDER):** Turn the engine around to start working on the spark plug cables for the right cylinder. Attach a 100mm cable (12K) to the spark plug (08L) closest to the front of the engine, feeding it through the ignition wire junction (08B) and attach it to the distributor cap plug (08M). The next-closest spark plug to the front of the engine takes a 90mm cable (12I) and the remaining two take 80mm cables (12J) (figure A). Finally, attach the 70mm pipe (12M) to the pipe joint (07H) that sits on the engine block cover (07G) (figure B).

FIGURE A

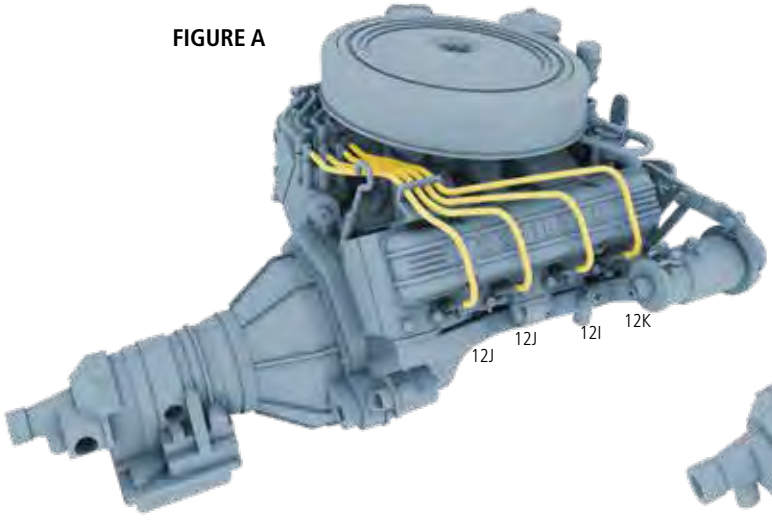
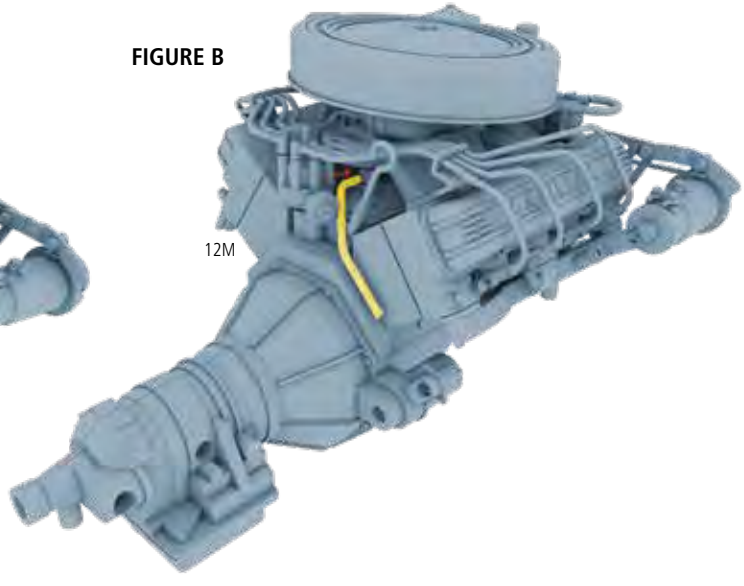
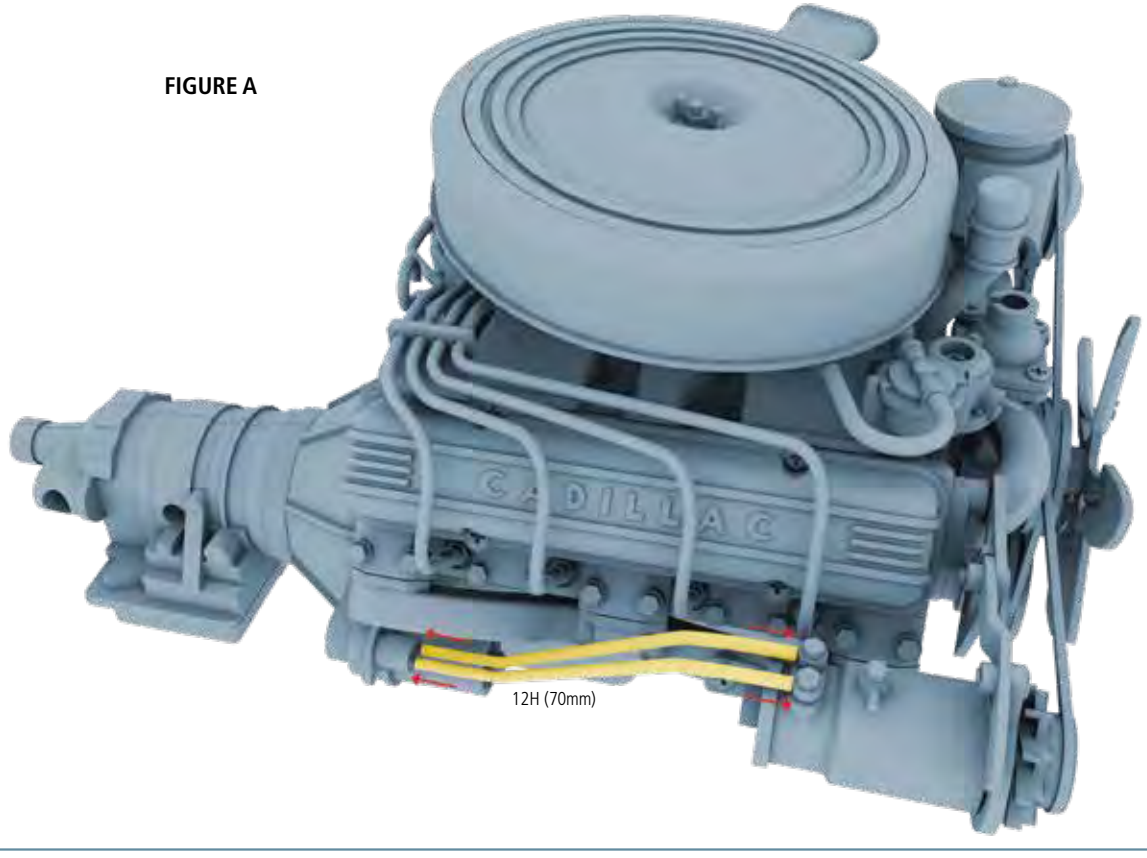


FIGURE B



05 **FITTING THE STARTER SOLENOID CABLES:** Push one end of the 70mm cable (12H) into the pin at the end of the starter solenoid (08R) and the other into the generator plug (10F) at the rear of the generator. Repeat this with the remaining 70mm cable, starter solenoid pin and generator plug (figure A).

FIGURE A



06 **ATTACHING THE BELTS:** Take cooling pipe 1 (12E) and push the open end onto the pin at the bottom of the cooling system (07C). Cooling pipe 2 (12F) is fitted by pushing the pin at the shorter end of the pipe into the hole at the top of the water pump housing (10J) (figure A). The air control filter pipe (12L) is pushed onto the pin at the front of the fuel pump (08D) (figure B).

FIGURE A

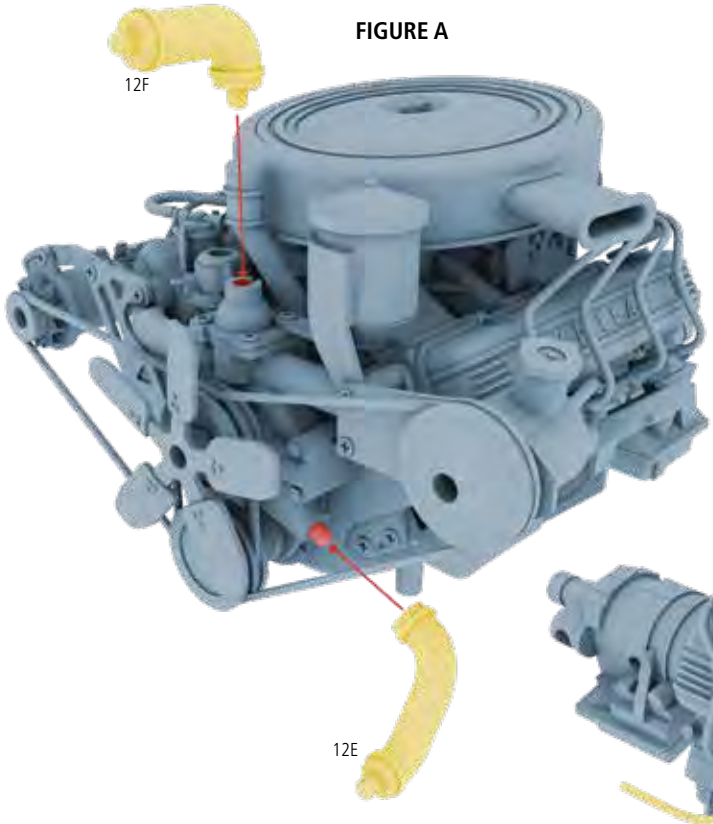
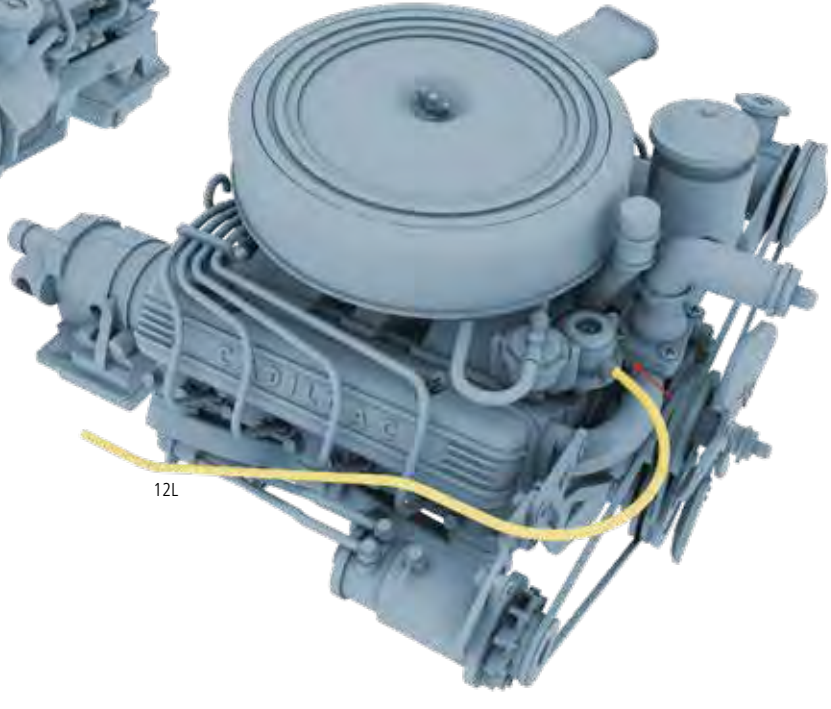


FIGURE B



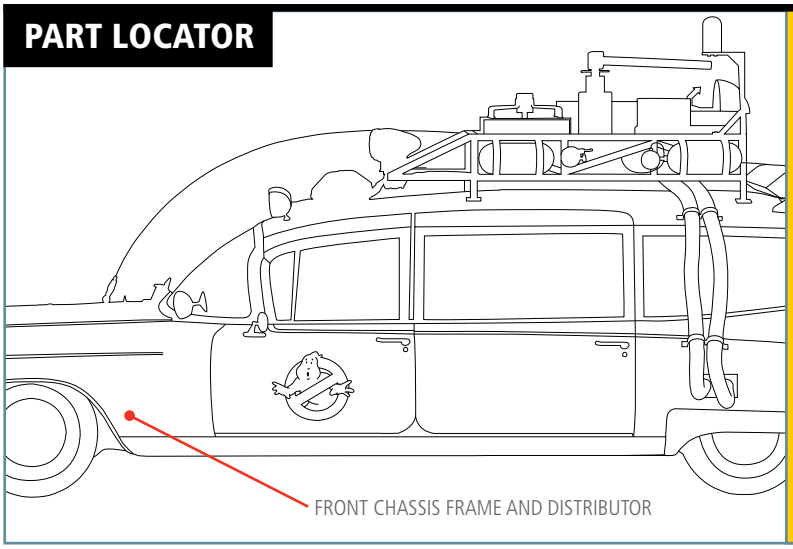
STAGE 12 BUILD

This is what the assembled piece should look like.

STAGE 13
FRONT CHASSIS FRAME & DISTRIBUTOR

In this stage, you fit the cover and distributor to the front chassis frame, which is where the engine and gearbox will later sit.

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 **ATTACHING THE COVER:** Lie the front chassis frame (13A) on your building surface. Then place the front chassis frame cover (13B) in the concave section (figure A). Secure the parts together using two EM screws (figure B).

FIGURE A

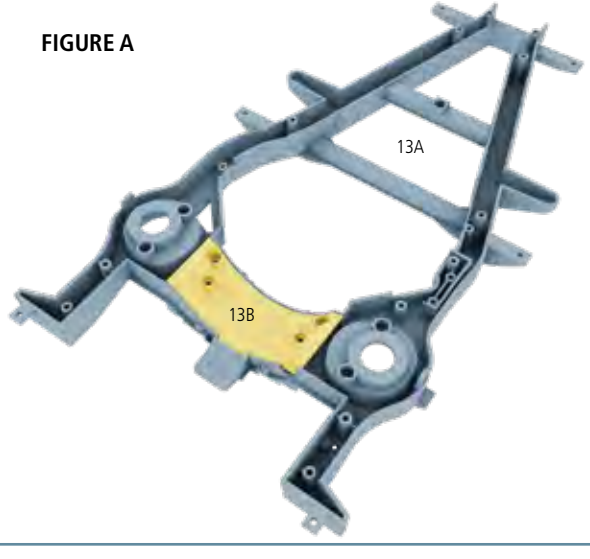
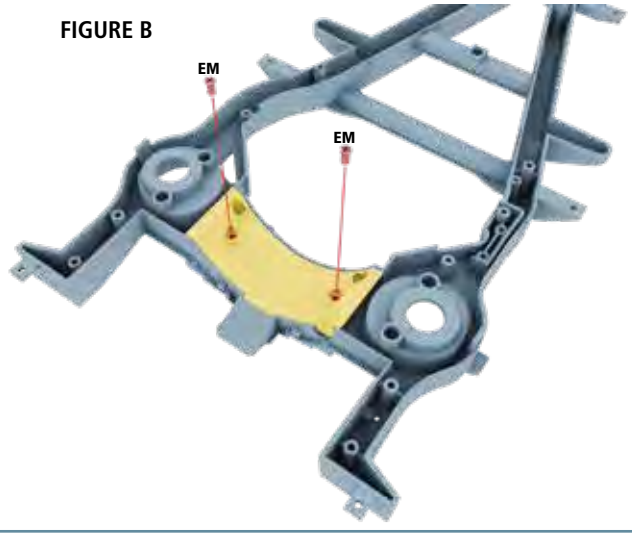
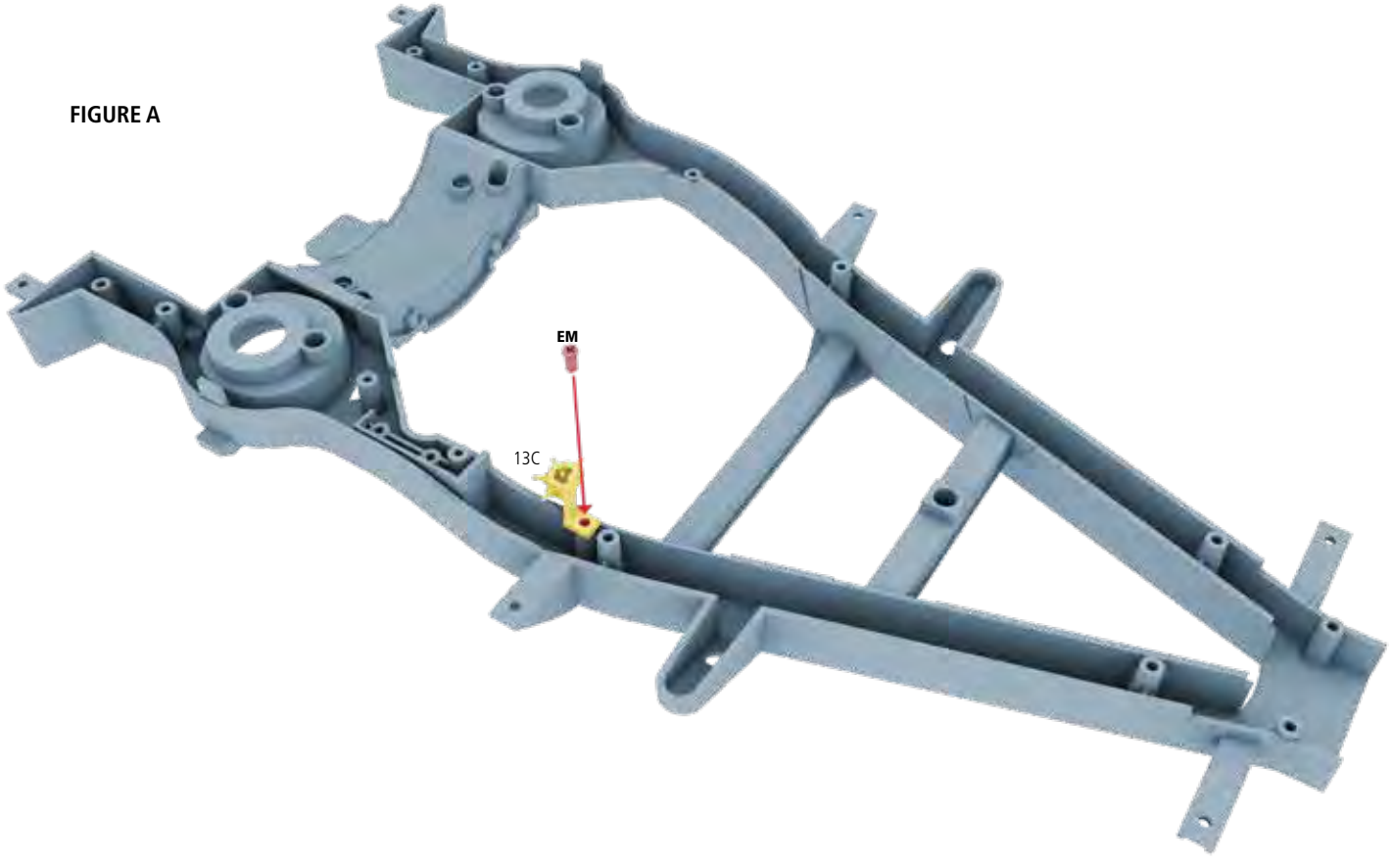


FIGURE B

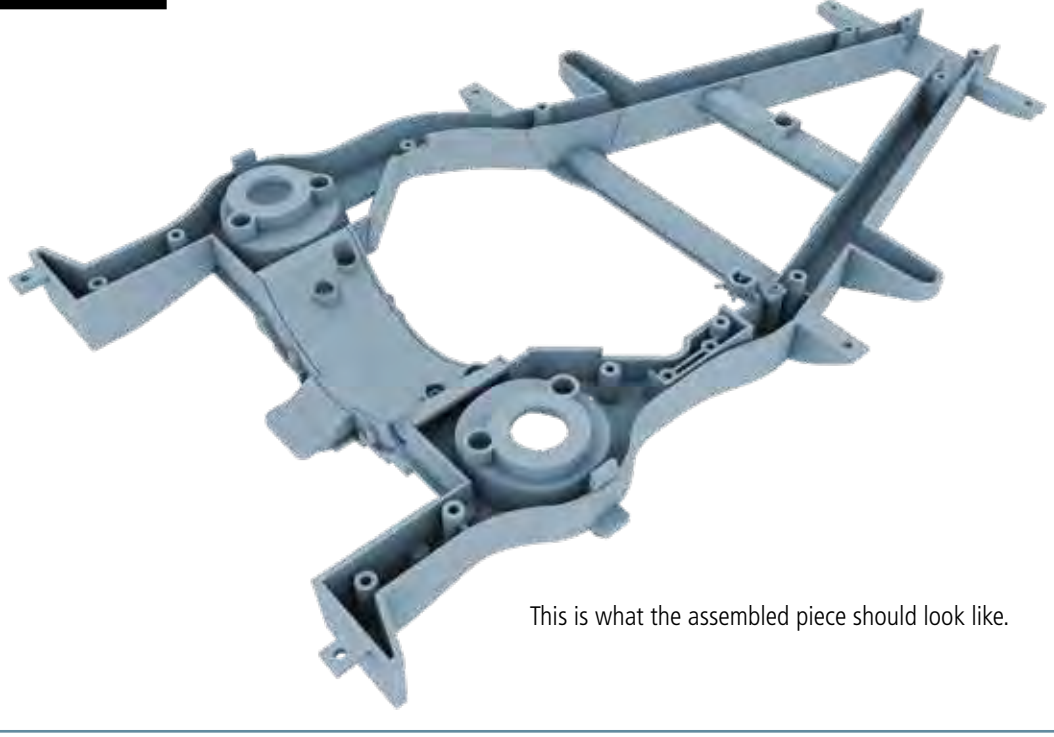


02 **FIXING THE DISTRIBUTOR:** Place the distributor (13C) on the front chassis frame (13A) so that the screw holes on the two pieces are aligned. Use an EM screw to fix the parts together (figure A).

FIGURE A



STAGE 13 BUILD

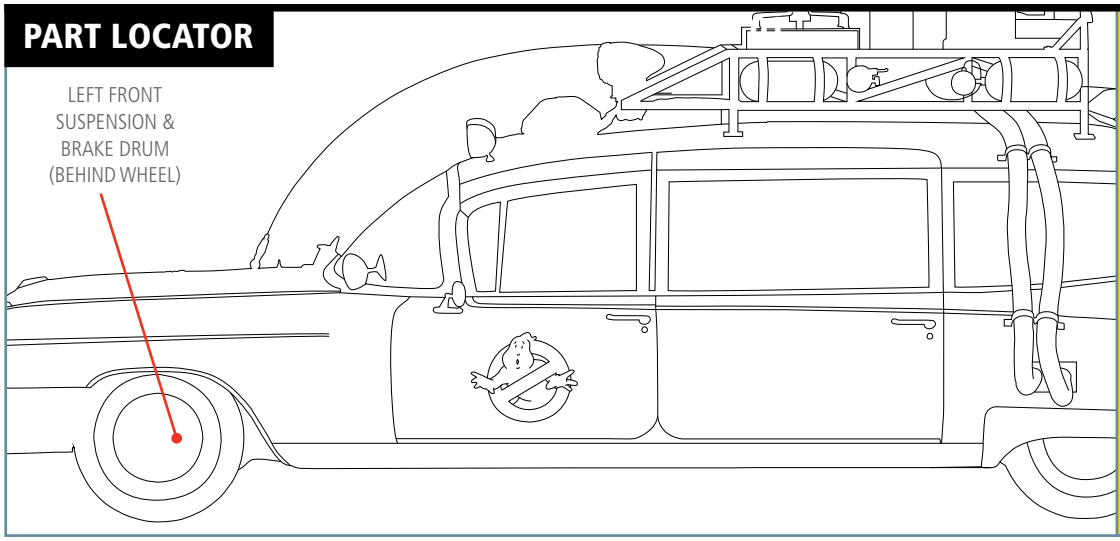


This is what the assembled piece should look like.

STAGE 14
LEFT FRONT SUSPENSION & BRAKE DRUM

In this stage, you assemble the left front suspension and attach it to the front chassis frame, as well as fitting the brake drum.

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 (14E) and insert it into the gap at the end of the lower suspension arm (14A). The "L" inscribed on both pieces should be on the same side. Fix this in place using two EM screws (figure A). Then push the rubber bumper (14H) into place on the lower suspension arm (14A), securing from beneath using one GP screw (figure B).

FIGURE A

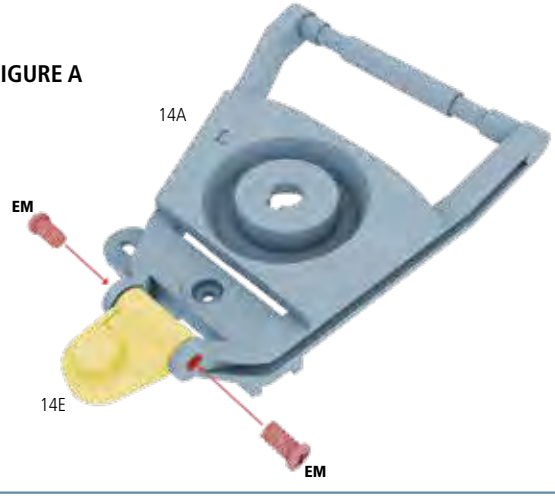
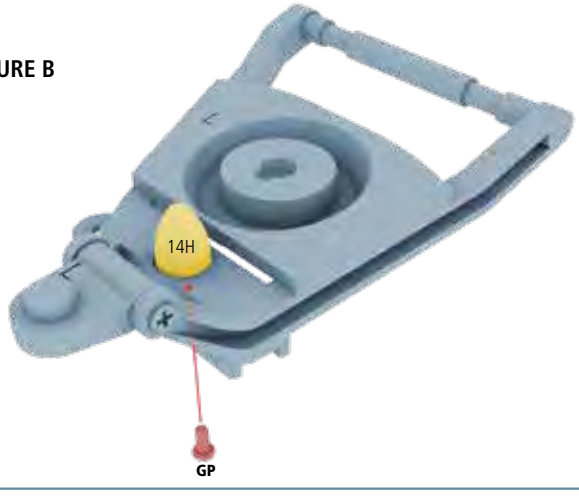


FIGURE B



02 **CONSTRUCTING THE UPPER SUSPENSION ARM:** Slot the upper steering knuckle connector (14D) into the narrow end of the upper suspension arm (14F), securing with two EM screws (figure A). Next, slot the shaft (14C) into the wider end of the upper suspension arm (14F) as shown in figure B. This is also fixed using two EM screws.

FIGURE A

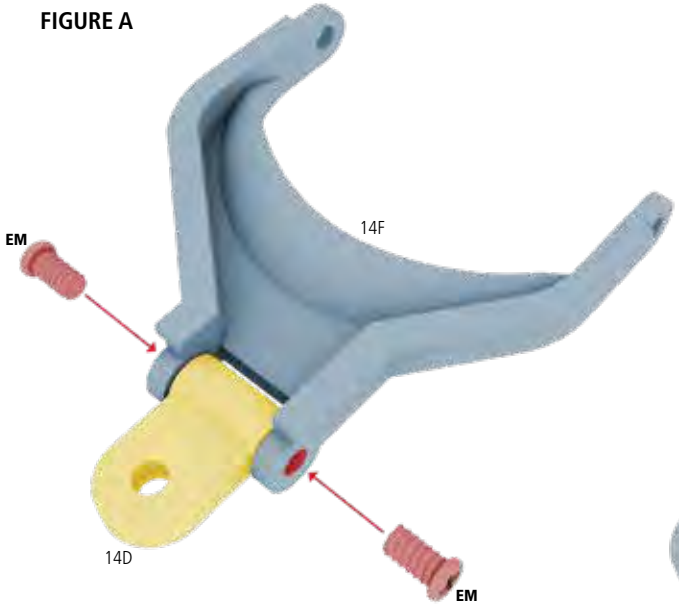
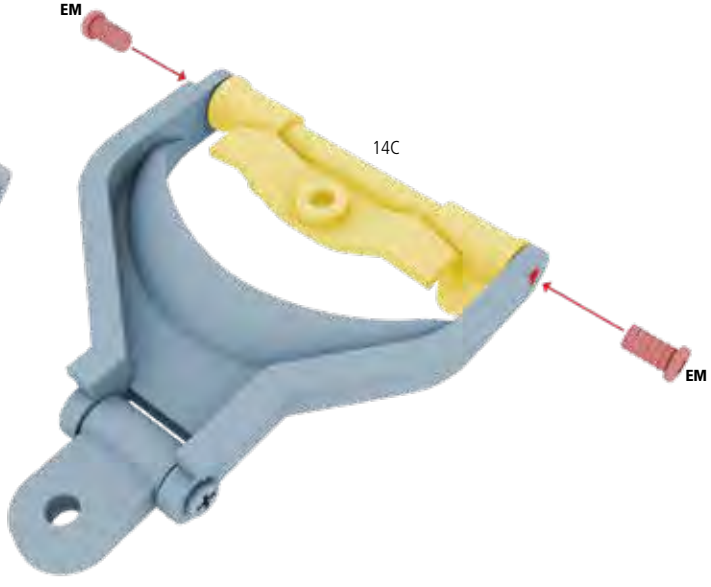


FIGURE A



03 **FITTING THE ARMS TO THE FRAME:** Place the upper suspension arm (14F) on the front chassis frame (13A) so the two pegs on the shaft (14C) go into the slots in the frame (figure A). Then turn this over and secure using two HM screws (figure B).

Lay the lower suspension arm (14A) on the front chassis frame (figure C). Then, place the two mounting brackets (14I) so the cylindrical bar of the suspension arm is clamped to the chassis frame, fixing each mounting bracket with two IM screws (figured D).

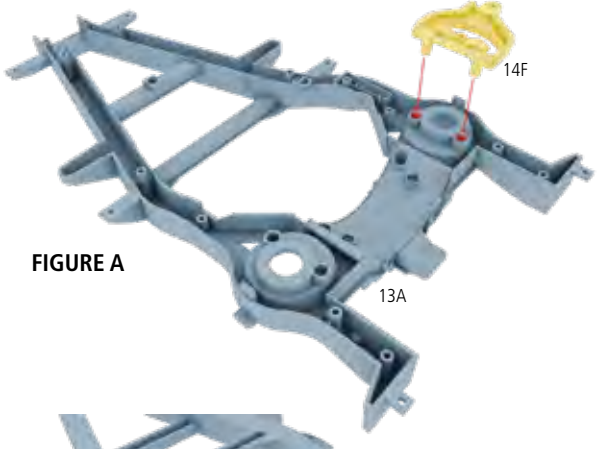


FIGURE A

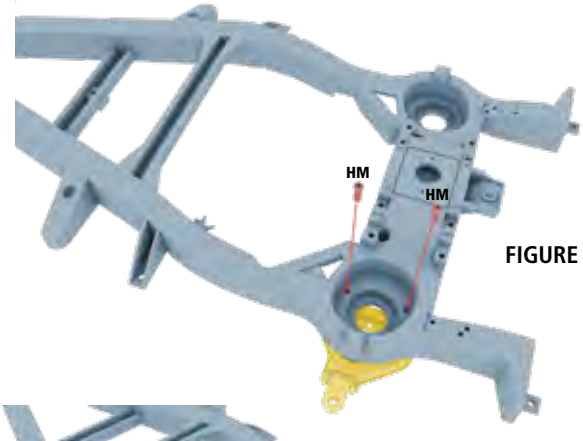


FIGURE B

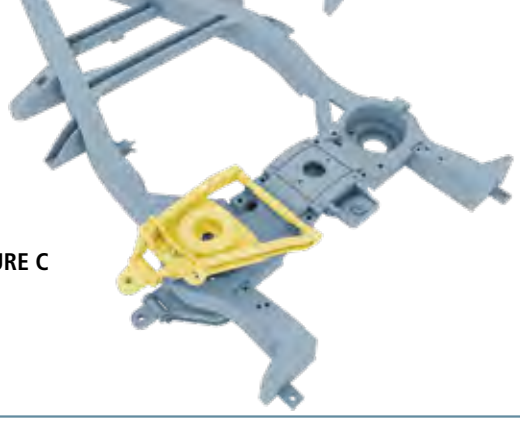


FIGURE C

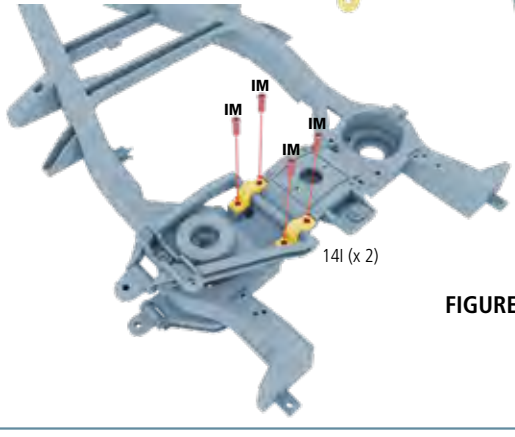


FIGURE D

04 **ASSEMBLING THE BRAKE DRUM:** Push the center of the steering knuckle (14J) through the middle of the backing plate (14K), securing from the other side using two EM screws (figure A). Then, place the brake drum 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 circular screw hole at the top of the steering knuckle (14J) on top of the screw hole at the end of the lower steering knuckle connector (14E). Use a single JM screw to attach the two parts together (figure C).

FIGURE A

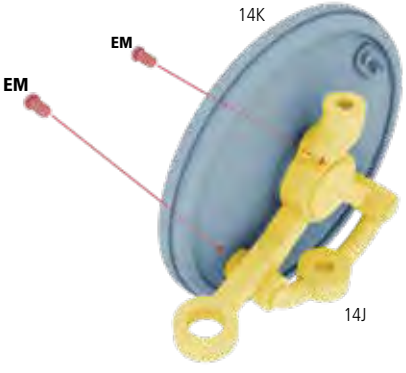


FIGURE B

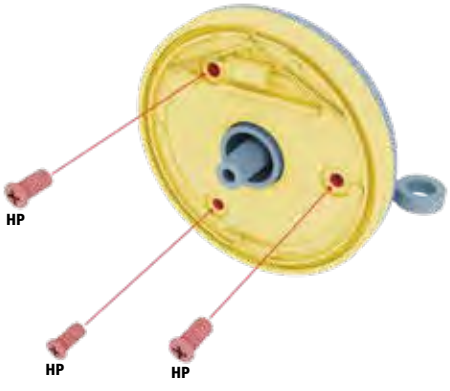
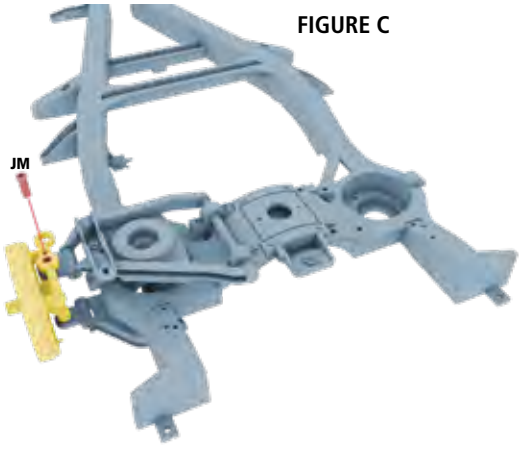


FIGURE C



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 (14G) 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 (14D) to the steering knuckle (14J) using an IM screw (figure C). This will hold the spring in place. Finally, turn the assembly over again and take the shock absorber (14B), 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 (14C) (figure E).

FIGURE A

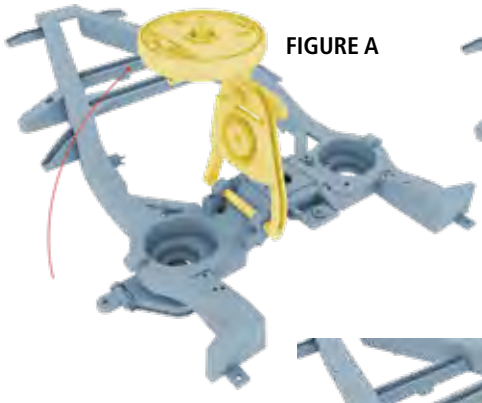


FIGURE B

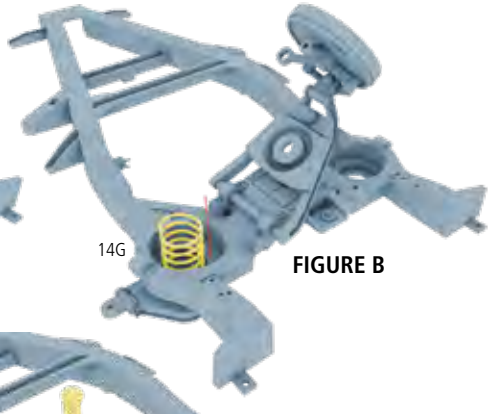


FIGURE C

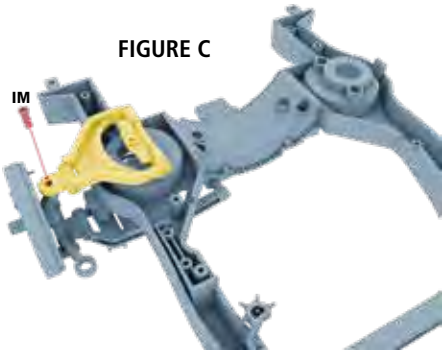


FIGURE D

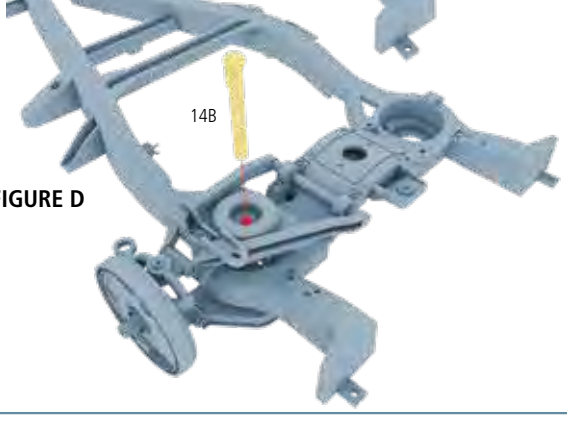
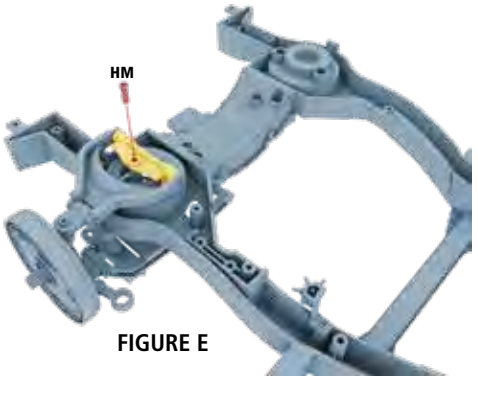


FIGURE E



06 **ASSEMBLING THE STEERING RACK:** Begin by lining up the left tie rod (14M) alongside the steering rack (14N), securing together with one HM screw (figure A). Take this and push the pin at the end of the tie rod (14M) through the round slot in the steering knuckle (14J) (figure B). These parts are fixed together using one KM screw (figure C).

FIGURE A

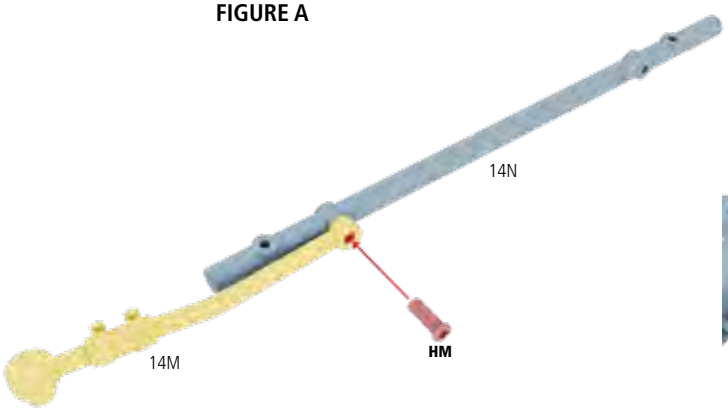


FIGURE B

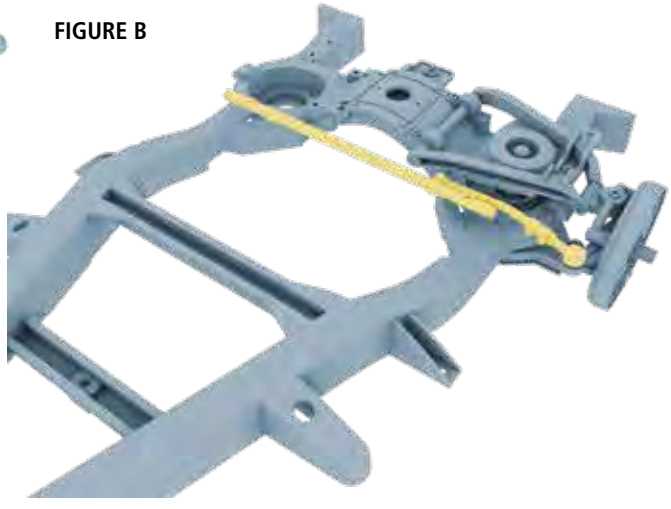


FIGURE C

STAGE 14 BUILD

This is what the assembled piece should look like.

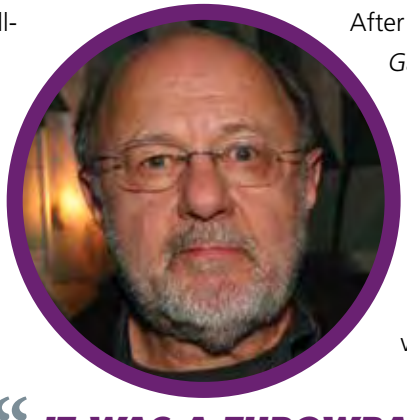
JOE MEDJUCK

THE PHANTOM PRODUCER

Ghostbusters' associate producer recalls naive studio discussions, worried early morning phone calls and on-set magic.

IT WAS A PROTO-*ANIMAL HOUSE* spoof about a college freshman that first brought *Ghostbusters*' associate producer Joe Medjuck and director Ivan Reitman together. "It was 1968 and I met him so he could show me [Reitman's short film] *Orientation*, which we wanted to review for *Take One*," says Medjuck, referring to the well-regarded Canadian film magazine on which he served as associate editor. Fast-forward 12 years to 1980, and Medjuck made a move into the movie industry himself after Reitman asked him to become his director of development. Medjuck took a leave of absence from his graduate teacher job – and never looked back.

In their first year, the pair collaborated on the comedy *Stripes* (where Medjuck acted as associate producer) and the animated comic fantasy *Heavy Metal* (where he was production co-ordinator). After scoring hits with both, they – along with Reitman's other trusted associate, Michael C. Gross – began searching for their next project.



"IT WAS A THROWBACK TO THE COMEDIES THAT WE'D GROWN UP WITH"

However, this could very easily have been a project other than *Ghostbusters*.

"*Heavy Metal* had been quite successful, and Ivan said, 'We've found out a lot about making an animated movie, let's make another one'," Medjuck recalls. "So Michael and I started looking for another animated film."

After reading *The Hitch-Hiker's Guide to the Galaxy*, Medjuck thought he'd found the perfect project. "Michael and I went to meet Douglas Adams, who happened to be in Los Angeles at the time. He said he was interested in the movie but didn't want it to be animated. We began working on a live action version... Then *Ghostbusters* landed on our doorstep."

Medjuck's first thought about the script was, "That's a cool title." He agreed with Reitman's assessment that the 200-page script needed editing, but also shared his friend's enthusiasm for the project. "We loved the concept of the Ghostbusters, which was a bit of a throwback to the comedies of the '40s and '50s that we'd grown up with."

ABOVE Joe Medjuck (center) on set with Harold Ramis, Bill Murray, Dan Aykroyd, Rick Moranis and Annie Potts.

After securing the involvement of Harold Ramis, who had an office across the street on the Burbank lot, *Ghostbusters* started to take shape. However, first they had to pitch the concept to Frank Price, president of Columbia Pictures. "We pitched him the story, and he said, 'How much do you think this is going to cost?' I remember [Ivan] holding up the script as if he was weighing it and saying, '25 million dollars.' That was a lot of money in those days – and they [Columbia] didn't blink. But we hadn't budgeted or anything. I mean, Ivan was guessing at 25 million dollars; an educated guess. I think we

"WE'D NEVER MADE A MOVIE WITH SPECIAL EFFECTS BEFORE..."

budgeted in the low 30s [before production began] and my memory is that we ended up spending around 33 million dollars." Medjuck laughs at the memory of suddenly having so much money to play with. "It seemed like an extraordinary amount of money at the time. We couldn't believe we were spending so much!"

Medjuck says that Columbia wanted the movie finished in a little over a year, leading to the film's notoriously tight schedule. Not that Medjuck or Reitman were worried at the time. "Being completely naive, we said, 'Sure, of course, that's a lot of time – it's more than a year from now! We'd never really made a movie with any special effects before. We didn't know how hard it was."

CONSTANT CHALLENGES

With Reitman focused on directing and producing the picture, Medjuck and Gross divided the other tasks on *Ghostbusters* between them. Former designer Gross remained in California to focus on the special effects and design side of things, while Medjuck helped oversee the casting, scouting and shooting, initially based in New York. Together they were a formidable team. However, Medjuck admits to being daunted at working on what was by far his biggest movie role at that point.

"I'd been on movie sets, but had never really taken the responsibility of being in charge of

CLOCKWISE FROM TOP LEFT Dana's apartment block at 55 Central Block West, which the film nearly lost; construction on the replica building; the heroes at Columbia University.

things," he says. "When there were giant decisions to make, I would talk to Ivan about them, but sometimes I made the decisions so Ivan could concentrate on working on the movie. There were constant challenges. I was the guy people would phone at 6am when they were worried... There are so many things that can go wrong with a film."

One of these things was almost losing the key location of Dana's apartment block at 55 Central Park West, which was run by a housing co-operative. "They threatened to pull out at one point, and John G. Wilson, our production manager, had a big meeting with them. We'd already started building a replica of the first couple of stories back in Burbank! I remember thinking, 'I can't believe any film ever gets finished.' And on the second day of shooting, at Columbia University, a prop man didn't have an important prop – a video recorder that the guys were carrying. So we had to borrow one from some organization at Columbia University."

Another concern was the fact that Columbia didn't yet have clearance on the title '*Ghostbusters*,' thanks to Filmation's 1975 children's sitcom *The Ghost Busters*. When filming began, the studio was considering other titles. Medjuck remembers that they even shot a couple of scenes two different

BELOW Filming in New York City, which ran ahead of schedule; Medjuck (second from right) on set with production designer John DeCuir, associate producer Michael C. Gross, and Ivan Reitman.

RIGHT: Medjuck makes a brief cameo, looking on as Egon emerges with a trap. Medjuck can also be seen walking across the reading room of the library in the movie's opening scene.

ways – one that referred to the Ghostbusters, and one that didn't. "But then I was standing on the street and heard 300 extras yelling 'Ghostbusters, Ghostbusters'... I called the studio, and said, 'We can't do this [consider another title]. We've got to clear that name. And they did."

THE PROFESSIONALS

Despite such challenges, Medjuck says filming largely went smoothly and remained on schedule. He puts this down to a couple of reasons. Firstly, *Ghostbusters* was not a film that suffered from much-dreaded studio interference. "The studio didn't question much," he says. "Not only did it get out of the way, but it was very helpful. They were able to jump in and help set up Richard Edlund's [effects] company, Boss Film."

Then there was the talented cast and crew. "I became aware that you're dealing with incredibly professional people. A film crew is an amazing group... You ask them for impossible things and somehow they do them. Everything was going so well in New York. We had certain cover sets that were only supposed to be in case of rain; we presumed we'd be shooting them back in LA. It never rained and we ended up using the cover sets because we were ahead of schedule in New York. We were going like crazy."

Medjuck adds that he, along with the other key players, also had great faith in the shooting script. "We didn't think it would be the biggest movie of the year; we didn't know it was going to be as big as it was. But we thought it was going to be good and we thought people were going to like it. Not everyone did [think that]. I remember hearing people saying, 'They're crazy! They're making a big-budget special effects comedy! When has that ever worked?'"

"WE DIDN'T KNOW IT WAS GOING TO BE AS BIG AS IT WAS!"

Medjuck and Reitman's faith proved well founded when they screened the film just three weeks after completing principal photography. "We screened the film with only one special effects shot in it to an audience of outsiders, just to see how the humor worked. It went great. It was insane!"

Medjuck returned as executive producer on *Ghostbusters II* in 1989, though filming had to wait until he, Reitman and Gross had finished shooting the comedy *Twins* ("We didn't move anything, we just changed the sign from *Twins* to *Ghostbusters II* on the editing room"). He insists there was no real sense of pressure making the follow-up. "We wanted it to be good, but it felt easier in some ways."

One aspect of the second film that did pose a challenge was for the studio to strike a deal with the principal players. "Dan and Bill and Harold were obviously movie stars [before *Ghostbusters*], but after *Ghostbusters* they were *really* movie stars. And

Ivan was a star director by then, so it was an expensive film for the studio to make. But they were eager to make it because people think it's a sure thing when you're making a sequel."

DEFYING GENRES

Ghostbusters has been a recurring part of Medjuck's career, with the producer also chalking up credits on the animated shows *The Real Ghostbusters* and *Extreme Ghostbusters* and 2016's movie *Ghostbusters: Answer the Call*. He says the longevity of the franchise is largely down to its inventive premise. "The basic concept of *Ghostbusters* is its own genre," he says. "I've never seen another movie where the concept is that people catch ghosts. And the [original] movie really works. It's a little scary, it's got good music, it's got a romance. It's got something for everybody."

LEFT Medjuck returned to produce the 1989 sequel, which he says felt easier than making the original.

THE UNGUARDED ECTOMOBILE

One of the craziest things about Ecto-1, Joe Medjuck says, is that they only had one of the cars. "We were really naive in many ways," he laughs. "If we were going to do a movie now with something like the Ectomobile, I would be saying, 'We need three or four of them.' But we had one! It did break down once, though fortunately it was a second unit shot.

"I remember walking down the street in New York and it was sitting by itself, with no one guarding it, on the side of the street. Are we out of our minds? What's going on here? What if someone stole this thing? It was crazy to me that we only had one of them. We had to ship it back from New York to shoot it in Los Angeles!"

FIRESTARTER!

As mechanical effects supervisor, pyrotechnics expert Thaine Morris was responsible for detonating the Temple of Gozer, amongst other fiery effects. He reveals how to make things go 'BOOM!' without anyone getting hurt.

"IF YOU'RE NOT AFRAID OF FIRE, YOU SHOULD not be in this business," cautions seasoned pyrotechnician Thaine Morris. "You need to think of all the bad things that can happen and try to mitigate for that before you start putting bombs inside whatever you're trying to blow up."

Morris has made a lot of things blow up in his 40-odd years in the business. He has worked as pyrotechnics supervisor and special effects foreman on dozens of blockbusters, including *The Empire Strikes Back*, *Raiders of the Lost Ark*, *Die Hard,* and *The Fifth Element*, and is co-owner of MP Associates, the largest manufacturer of motion picture pyrotechnics in the world. As *Ghostbusters'* mechanical effects supervisor, he was also the man who made Gozer's Palace detonate and, along with fellow

LEFT Pyrotechnics expert Joe Viskocil prepares to light up Stay Puft. The scene in which the flaming character climbs Dana's apartment took two stuntmen, three suits and thousands of dollars.

pyrotechnics specialist Joe Viskocil, he toasted the Marshmallow Man.

Morris, who doubled up as stage manager, was part of the talented visual effects crew at Boss Film Studios, where he worked closely with the studio's model shop. The shop had created a detailed miniature of Dana's apartment block, and Morris needed to work out how the upper stories beneath the Temple of Gozer could detonate in a cruciform pattern, while the rest of the building remained standing. To ensure that the entire miniature wouldn't simply collapse, Morris asked model shop supervisor Mark Stetson to construct a steel framework. "Mark made the outside of the building out of high-temperature epoxy, very thin so it would fracture easily," recalls Morris. "For the actual shot, there was about one pound of black powder in it. Then there were a lot of other chemicals put in it to make the color and the fire."

The explosion itself was shot in a parking lot beside one of the buildings at Boss Film. "We didn't have a whole lot of room," says Morris. "The explosion itself had arms on it of about 15 to 20 feet long. I was tucked up underneath the scaffold where we had put some lighting equipment. I was probably, oh, 25 feet from that building under the platform when it went off."

As usual, Morris protected himself from the blast with his trademark gear – "a leather jacket and a motorcycle helmet to protect my face." While the blast looked intense, Morris insists that the sequence was not particularly dangerous or loud as far as explosions go. "It went 'BOOM!' but it wasn't totally deafening. If you make things terribly loud, you're using up energy in sound. You want to use as much energy as you can in taking whatever it is apart. And it was not terribly dangerous. The nice thing about working with miniatures is that the explosions are relatively small. With that being said, they can also put you in hospital…"

The detonation of Gozer's temple, which was shot in slow motion at 360 frames per second, went so smoothly that only one take was required. However, the lighting up of the Stay Puft Marshmallow Man proved a trickier proposition.

TOASTING MARSHMALLOWS

Though Stay Puft was played by Bill Bryan, the flaming sequence required a stuntman to take over the role in a fire-retardant version of the suit covered in flammable liquid. Once the stuntman had been set alight, his job was to approach the Temple, step up onto an apple box, slap the top of the miniature building, and then lay down so the fire could be extinguished.

"Because the foam rubber we were using [in the flaming suit] would create a toxic gas, I had rigged up a supplied air system for the stunt guy," Morris

ABOVE The Marshmallow Man's head was melted by a heater that caused the gelatine to melt and flow. Unfortunately, the heater also melted part of the pioneering camera!

says. "He was breathing through a scuba thing with a hose that went down one of his legs. It had a nose plug and glasses to protect his eyes, and he could look through the mouth of the Stay Puft [suit]." The stuntman was also protected by an inner layer of pyrothane and a flame-resistant Nomex suit.

The sequence was safe and appeared relatively straightforward. The main worry was the fact that there were only three suits, each costing around $20,000 – meaning there were only three chances to get it right. "Day one, we light him up, he walks towards it [the building]... and lays down for us to put him out [before he gets there]. There goes the suit!" recalls Morris. "Day two, same thing. In discussing it with the young man [inside the suit], he admitted he was afraid of fire and had never done burns."

Rather than risk destroying the final suit, Morris and Viskocil turned to stuntman Tony Cecere who, says Morris, "made his living by setting himself on fire in movies." As Cecere was much smaller than the Stay Puft Marshmallow Man suit, he wore lift shoes to make him the right height. However, while Cecere was comfortable around fire, Morris says the stuntman had another concern.

"An argument ensued about the supplied air," Morris remembers. "He said that it took all the challenge out of it! I explained that there were two challenges – for him to come up from under the stage [on fire] and for us to get the shot. So he agreed to the supplied air."

Cecere successfully squatted down next to the building and then, after being set alight, stepped onto the apple box and slapped the top of the building – a move Morris says he repeated three or four times while wearing the flaming suit. "It seemed like a week and a half that he was on fire! Then we yelled 'Cut!', put him out and got him out of the suit. He said, 'I could have gone on quite a bit longer!' But it wouldn't have made any difference – the pink skull of the Stay Puft guy was already showing. It had completely burned away. He [Cecere] was quite a guy!'

The melting of the Stay Puft head required a separate effect, and Morris was able to bring his prior experience to the sequence. "I'd done it before on *Raiders of the Lost Ark*," he remembers. "For this we used a gelatine head on a fiberglass skull. The head was mounted sideways against black with the camera mounted up close to it. We put a

BELOW Tony Cecere was brought in to play Stay Puft during the 'fire burn' sequence after things didn't work out with the original stuntman.

heater on it that would cause the gelatine to melt and flow when shot at very low film rate."

Unfortunately, the melting effect proved *too* effective. "We were using the first ever 65mm mirror-reflex camera, which we had just finished making. And the heater melted the lab box off the camera! I got in quite a bit of trouble for that. I didn't think I was responsible for the camera, but it was quickly explained to me that as stage manager I was responsible for *everything*. From then on I watched out for camera guys putting them [cameras] too close to things…"

Despite such minor hiccups, Morris stresses there were no scary or dangerous incidents on the film, and the pyrotechnics were more straightforward than some effects he has been involved with (he cites the famous rooftop helicopter explosion in *Die Hard* as being one of the trickiest).

Even in the digital age, pyrotechnics remains big business today, with many filmmakers favoring the realism offered by practical explosions (though Morris adds that CGI has "added an eraser to our pencil" by allowing them to wipe out detonation wires). In fact, Morris's company supplies two to three thousand pounds of explosives for entertainment purposes per day.

So, what's the key to a successful career in pyrotechnics? "I studied to be a chemist – never actually worked as one – so I understand the chemical formulation for pyrotechnics. That makes it a little easier for me than a lot of other people. And you've always got to be careful when you're dealing with energetic materials; it's not a case of 'if' it goes off when you don't want it to, it's 'when'. But the thing about working in the motion picture business is you're *simulating* explosions rather than doing them [for real]. It looks a whole lot worse than it is."

RIDDLE OF THE SANDS

In addition to supervising the movie's pyrotechnics, Morris had a variety of other roles on *Ghostbusters*, including aiding the stop-motion team and drawing on his former job as a television engineer to flip screens on TV sets so the Slimer puppeteers could see what they were doing. He also assisted in some of the film's other "gimmicks," including the moment where Stay Puft kicks over the fire hydrant and water blows everywhere – a sequence that was not easy to pull off convincingly. "One of the more difficult things to do was getting that water to look correct in miniature, because the fire hydrant was only about three inches tall," he remembers. "The model shop came up with the idea of using sand and blowing it out with water. It worked great! It looked exactly like water coming out of that thing when filmed at high speed."

ECTO-101

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

#5 NATIONAL LAMPOON

The humor magazine *National Lampoon*, and its radio, theater and movie offshoots, played an important role in the lives of several of *Ghostbusters*' key alumni.

The magazine, which evolved from the long-running undergraduate comedy title *Harvard Lampoon*, was launched in 1970 and founded by Henry Beard, Doug Kenny, and Robert Hoffman. Wilfully combining the highbrow and lowbrow, the title's blend of fiction, comic strips, funny photos, and sharp satire soon won a devoted readership. Issue eight saw the magazine take a leap forward with the addition of art director Michael C. Gross, who refined its visual style and created some of its most famous covers. Gross would later bring his visual panache and extensive contacts list to his role as Associate Producer on *Ghostbusters*.

When *National Lampoon* spun off into the short-lived but influential *National Lampoon's Radio Hour* and its theatrical *Lemmings* offshoot in 1973, Harold Ramis, Bill Murray and Ivan Reitman all became involved, along with other top comics such as John Belushi and Chevy Chase. *National Lampoon* subsequently made the move into movies, including *Animal House* (produced by Reitman and written by Ramis with *National Lampoon*'s Douglas Kenney and Chris Miller) and *Vacation* (directed by Ramis).

Along with the Second City troupe and *Saturday Night Live*, the zany humour and camaraderie of *National Lampoon* had a huge impact on the cast and crew of *Ghostbusters*. The magazine itself folded in 1998 and was the subject of the 2015 documentary *Drunk Stoned Brilliant Dead*.

> *The first draft of* Ghostbuters *was pretty wild. I went to a quarry and got a big hunk of granite, if you know what I mean... Michael Ovitz, the agent, read it in the raw granite form and said, 'This is going to be amazing. Let's get Ivan.'*

▲ Dan Aykroyd recalls his first draft of the movie in a 2016 issue of Empire magazine.

> *We had hundreds of extras and we were causing traffic jams and people were trying to close us down. It was just going to war every day. But in an exciting way!*

▲ Associate producer Joe Medjuck talks about the challenges filming in New York in a 2014 interview with SFX magazine.

> *The last thing you want to do is start thinking of yourself as some kind of legend. There's nothing you've done in the past that says anything about your immediate future.*

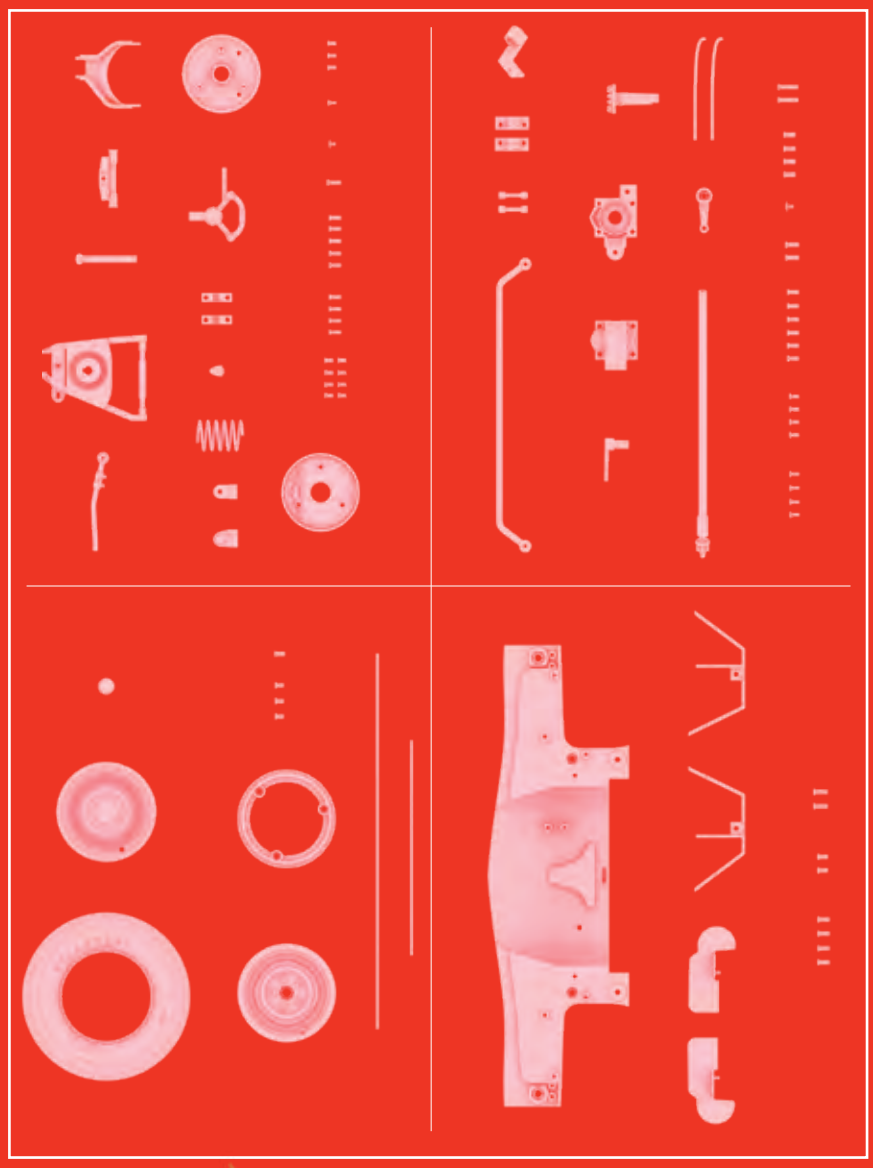
▲ Harold Ramis tells Games Radar how each project has to be taken on its own merits in a 2009 interview.

COMING IN ISSUE 6

TERROR DOGS
The story behind the horror hounds.

THE BIG SCORE
Peter Bernstein on the music of *Ghostbusters*.

YOUR PARTS



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