ISSUE 4

BUILD THE GHOSTBUSTERS™ ECTO-1

FANHOME

BUILD THE ICONIC ECTO-1 CAR FROM GHOSTBUSTERS™

BUILD THE GHOSTBUSTERS™ ECTO-1

CONTENTS

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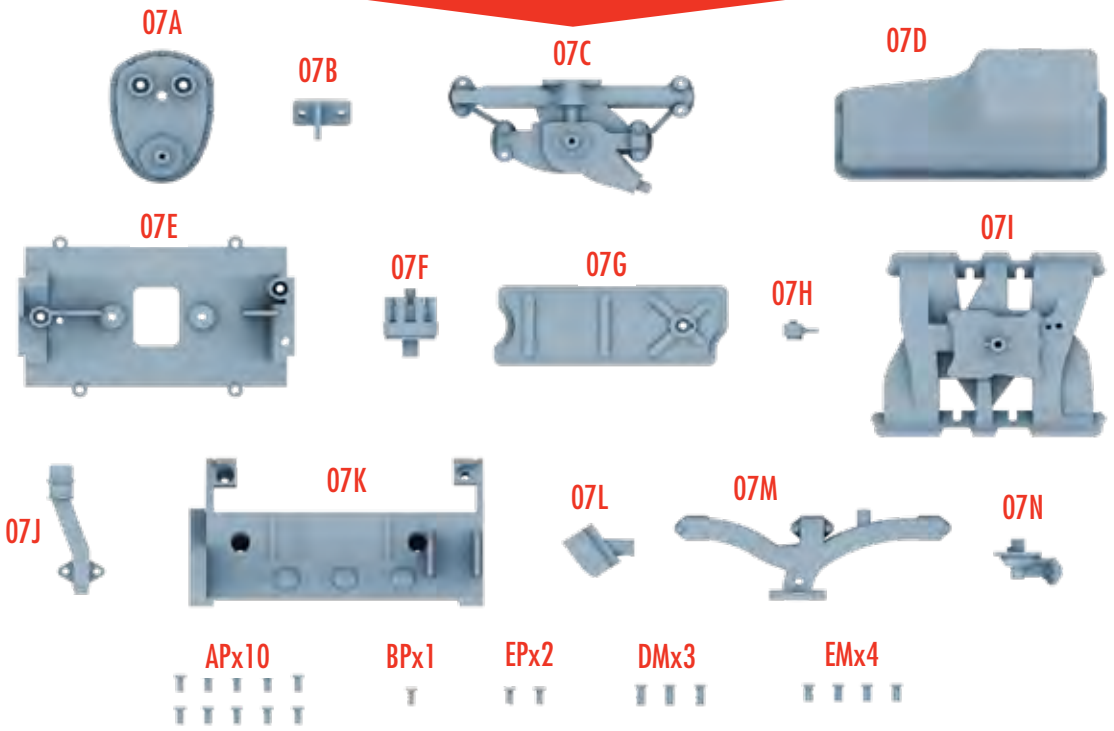
The price of this issue includes the magazine and the attached pieces for model assembly.

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 7

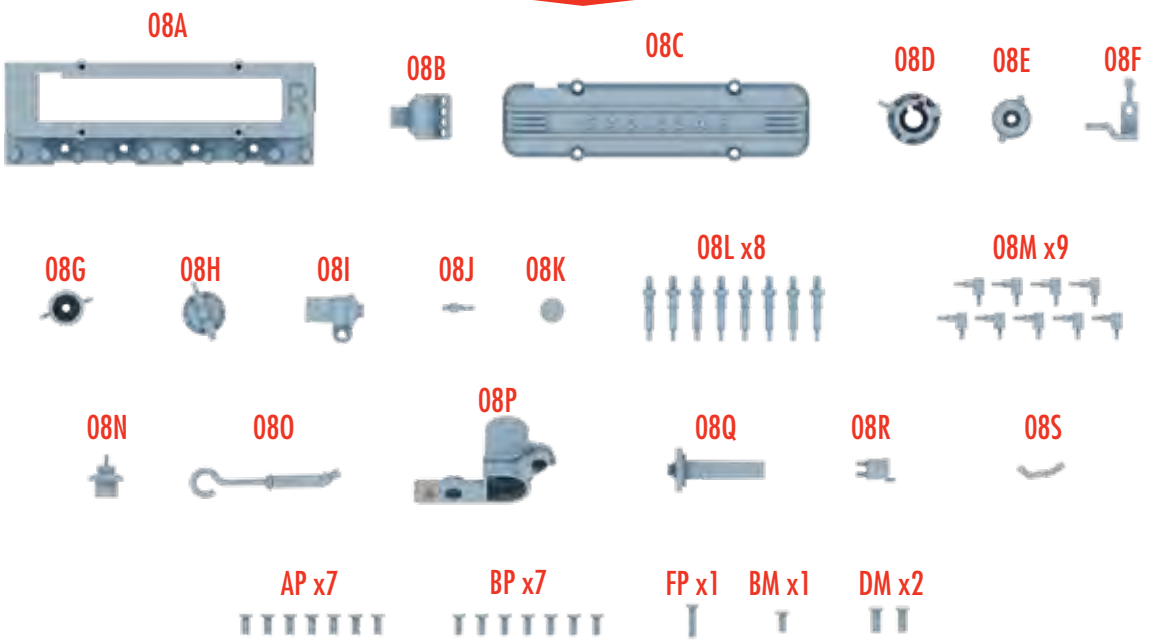
The seventh components include parts for the right-hand side and middle parts of the engine to add to the left-hand side parts that you received in the previous issue.



PART NUMBER	DESCRIPTION	QUANTITY
07A	TIMING BELT COVER	1
07B	TIMING BELT COVER CONNECTOR	1
07C	COOLING SYSTEM	1
07D	OIL SUMP	1
07E	ENGINE BLOCK TOP	1
07F	DISTRIBUTOR ASSEMBLY	1
07G	ENGINE BLOCK COVER	1
07H	PIPE JOINT	1
07I	INTAKE MANIFOLD	1
07J	BREATHER CAP	1
07K	RIGHT ENGINE BLOCK	1
07L	RIGHT ENGINE SUPPORT	1
07M	RIGHT EXHAUST MANIFOLD	1
07N	FUEL PUMP LOWER	1
AP	1.7x5mm	10 (+2 SPARES)
BP	1.5x4mm	1 (+1 SPARES)
EP	1.7x4mm	2 (+1 SPARE)
DM	2x5mm	3 (+1 SPARE)
EM	2x4mm	4 (+1 SPARE)

CAR PARTS STAGE 8

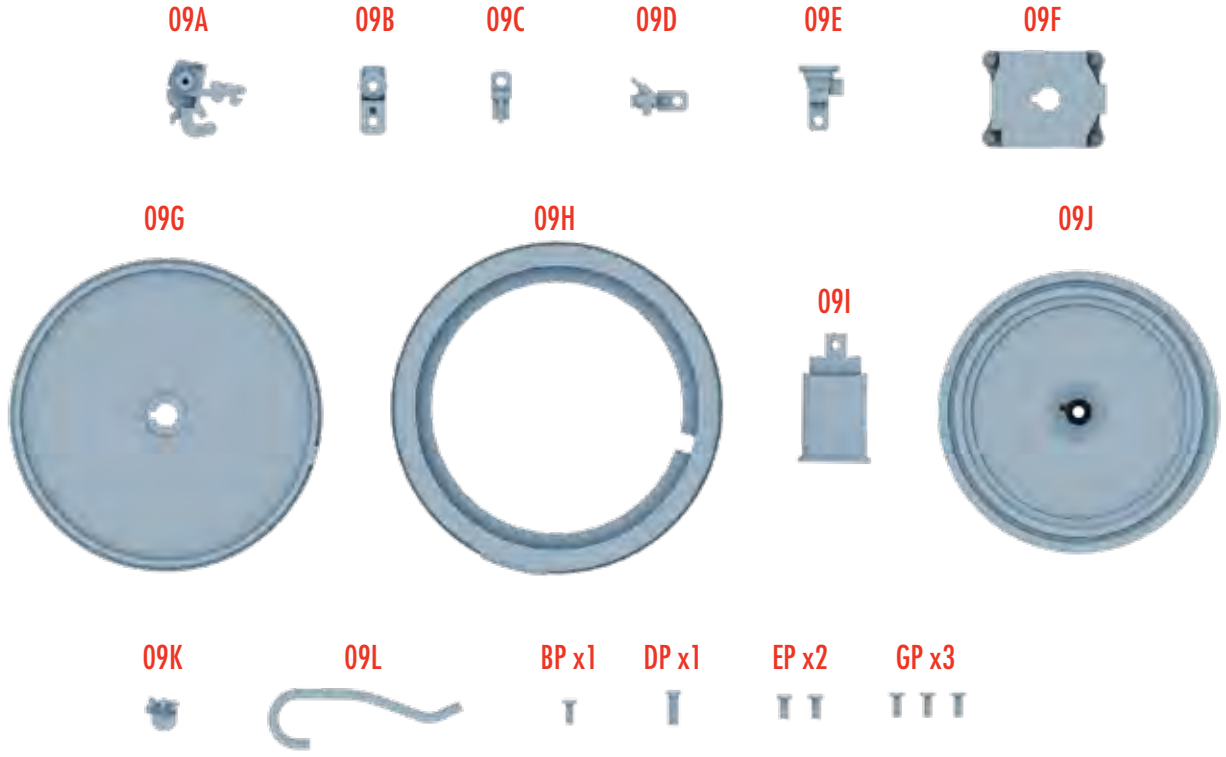
The eighth components consist of the right cylinder head and other parts that fit to the block.



PART NUMBER	DESCRIPTION	QUANTITY
08A	RIGHT CYLINDER HEAD	1
08B	IGNITION WIRE JUNCTION	1
08C	RIGHT CYLINDER HEAD COVER	1
08D	FUEL PUMP	1
08E	FUEL PUMP COVER	1
08F	FUEL PUMP BRACKET	1
08G	FUEL FILTER	1
08H	FUEL FILTER CAP	1
08I	IGNITION COIL	1
08J	IGNITION COIL PLUG	1
08K	IGNITION COIL CAP	1
08L	SPARK PLUG	8
08M	DISTRIBUTOR CAP PLUG	9
08N	VACUUM ADVANCE UNIT	1
08O	DIPSTICK	1
08P	STARTER MOTOR	1
08Q	DRIVE PINION	1
08R	STARTER SOLENOID	1
08S	COIL WIRE	1
	TWEEZERS	1
AP	1.7x5MM	7 (+2 SPARES)
BP	1.5x4MM	7 (+2 SPARES)
FP	1.5x7MM	1 (+1 SPARE)
BM	1.7x4MM	1 (+1 SPARE)
DM	2x5MM	2 (+1 SPARE)

CAR PARTS STAGE 9

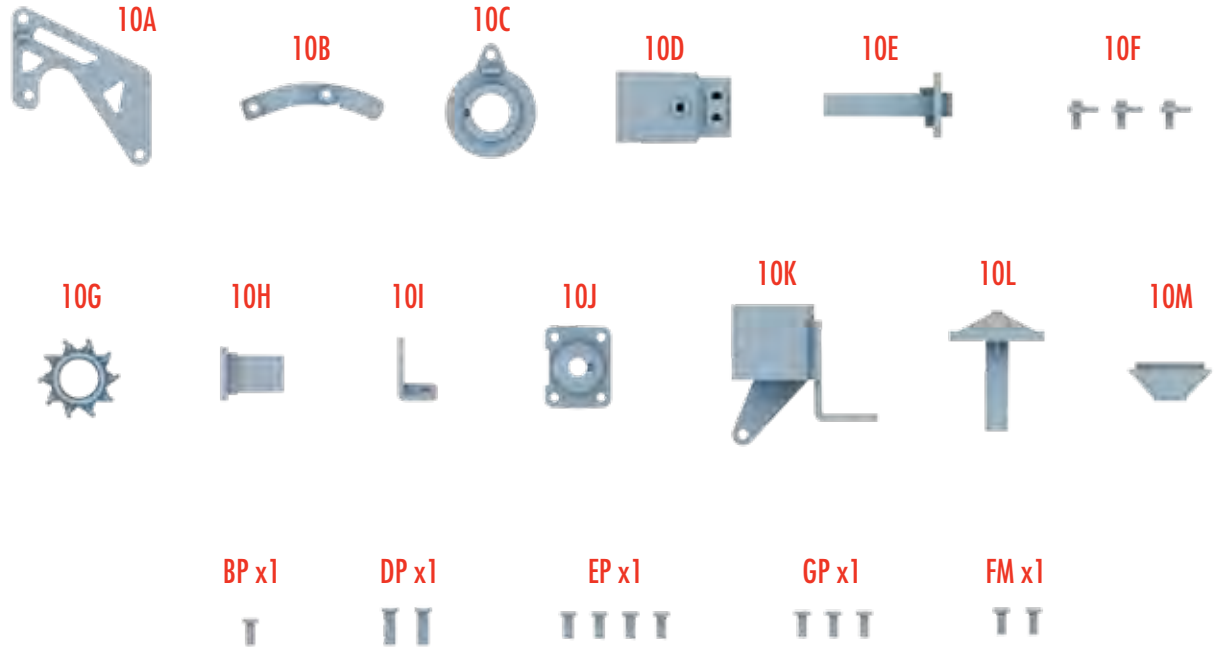
The Cadillac engine under the hood of the Ecto-1 features an enormous air filter, which you will now assemble and fit.



PART NUMBER	DESCRIPTION	QUANTITY
09A	FAST IDLE CAM	1
09B	FAST IDLE CAM BRACKET	1
09C	FAST IDLE CAM SUPPORT	1
09D	FUEL INLET	1
09E	CHOKE CAP	1
09F	CARBURETOR	1
09G	AIR FILTER	1
09H	AIR FILTER SIDE	1
09I	AIR FILTER INLET	1
09J	AIR FILTER COVER	1
09K	AIR FILTER SCREW	1
09L	FUEL PIPE	1
BP	1.5x4MM	1 (+1 SPARE)
DP	2X6MM	1 (+1 SPARE)
EP	1.7x4MM	2 (+1 SPARE)
GP	1.5x3MM	3 (+1 SPARE)

CAR PARTS STAGE 10

Bring some power to your Ecto-1's electrical system as you add the generator to the engine assembly.

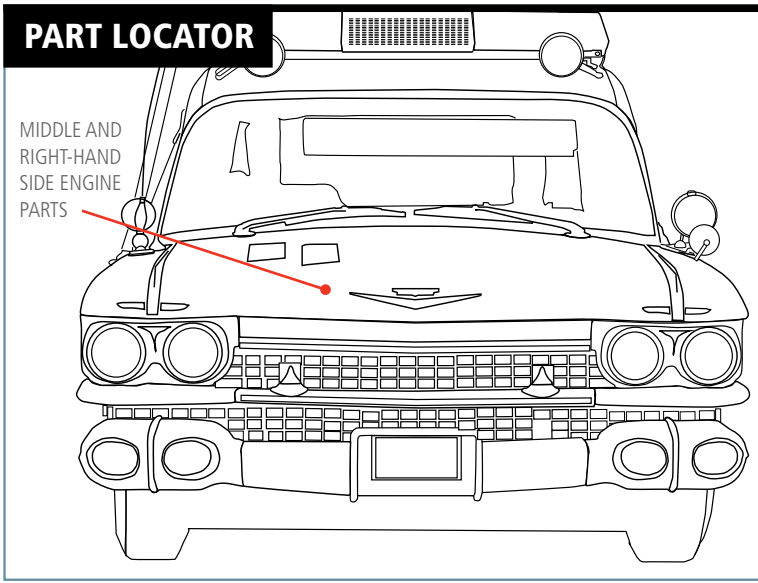


PART NUMBER	DESCRIPTION	QUANTITY
10A	GENERATOR BRACKET SUPPORT	1
10B	GENERATOR FRONT BRACKET	1
10C	GENERATOR END	1
10D	GENERATOR BODY	1
10E	GENERATOR INNER	1
10F	GENERATOR PLUG	3
10G	GENERATOR PULLEY INNER	1
10H	GENERATOR PULLEY OUTER	1
10I	GENERATOR REAR BRACKET	1
10J	WATER PUMP HOUSING	1
10K	OIL FILTER	1
10L	OIL FILTER HEAD	1
10M	OIL FILTER BASE	1
BP	1.5X4MM	1 (+1 SPARE)
DP	2X6MM	2 (+1 SPARE)
EP	1.7X4MM	4 (+1 SPARE)
GP	1.5X3MM	3 (+1 SPARE)
FM	1.5X3MM	2 (+1 SPARE)

STAGE 7
MIDDLE ENGINE BLOCK

In this stage, you assemble the middle parts of the engine block, fitting them to the left-side parts you received in the last issue.

PART LOCATOR



TIP: SPARE PARTS
Keep hold of the bags that the parts come in. You can use them to store any spare parts that need to be kept safe for use in a later part of the build sequence.

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 TIMING BELT COVER AND COOLING SYSTEM: Place the timing belt cover connector (07B) on the back of the timing belt cover (07A) so that the notches on the cover match up to the screw holes on the connector. Secure in place using two EM screws (figure A). Then place cooling system (07C) on the timing belt cover and fix the two parts together by driving two AP screws between them (figures B and C). Finally, secure the assembled parts to the left engine block (06A) using a DM screw (figure D).

FIGURE A

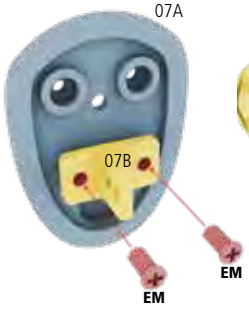


FIGURE B

FIGURE C

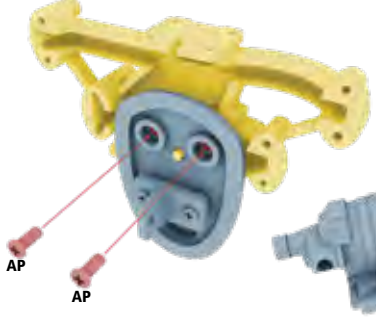
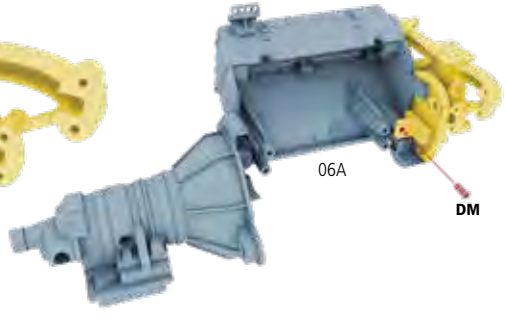


FIGURE D



02 **BUILDING THE TOP OF THE ENGINE BLOCK:** Push the pin at the bottom of the distributor assembly (07F) into the molding in the engine block top (07E), keeping it in place with an AP screw from the underside (figures A & B). Put this part aside briefly and push the pipe joint (07H) into the screw hole in the top of the engine block cover (07G), securing with a BP screw (figures C & D). The pin at the end of the pipe joint should be facing the end of the cover nearest to it.

Take the engine block cover that you have just assembled and place it on top of the engine block top (07E), securing from beneath with two AP screws (figures E and F). Finally, set the intake manifold (07I) on top of the other parts, securing it to the engine block top (07E) using four AP screws (figures G & H).

FIGURE A

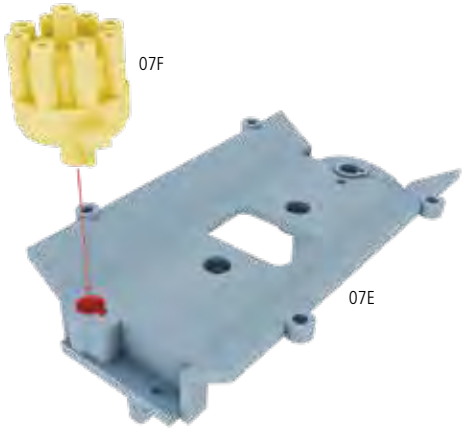


FIGURE B

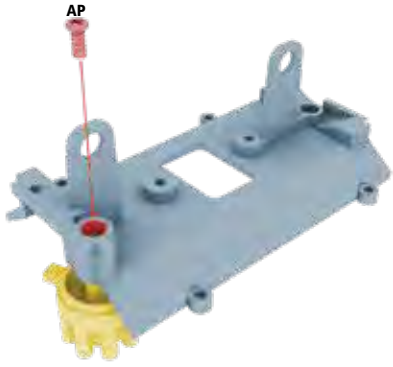


FIGURE C

FIGURE D

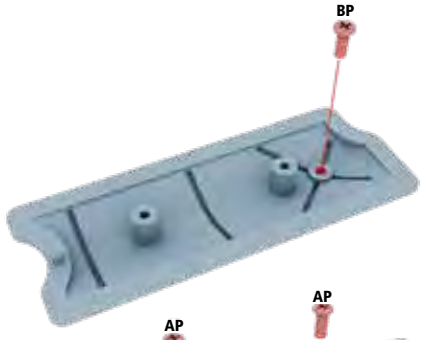


FIGURE E

FIGURE F

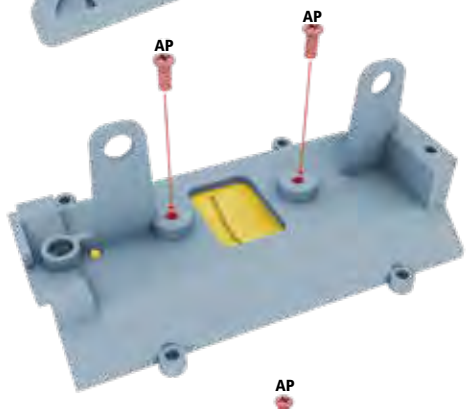
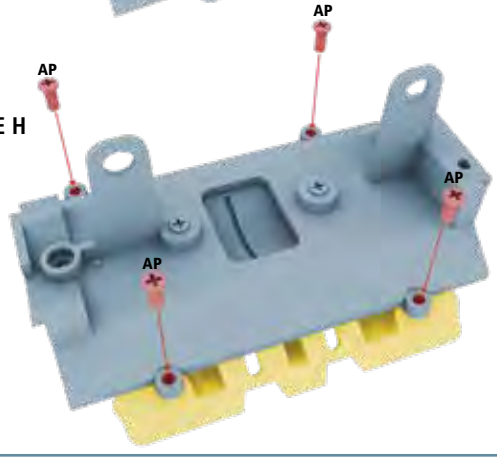


FIGURE G

FIGURE H



03 **FITTING THE BREATHER CAP:** Locate the breather cap (07J) and fix it to the fuel pump lower (07N) using two EP screws (figure A). Push the bottom of the breather cap (07J) into the round molding on the engine block top (07E), securing the parts together with an AP screw (figure B).

FIGURE A

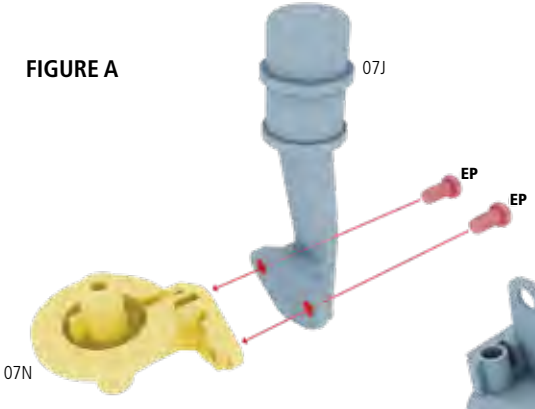
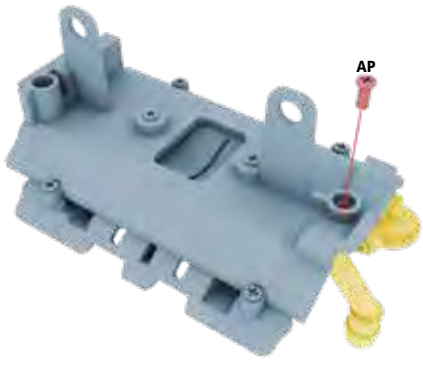


FIGURE B

FIGURE C



04 **FITTING THE OIL SUMP AND ENGINE BLOCK TOP:** Line the screw holes at the end of the flanges of the oil sump (07D) with the screw holes at the bottom of the left engine block (06A), affixing the parts together using two EM screws (figure A).

Then using the tabs at the bottom, slide the engine block top (07E) onto the left engine block (06A) (figure B).

FIGURE A

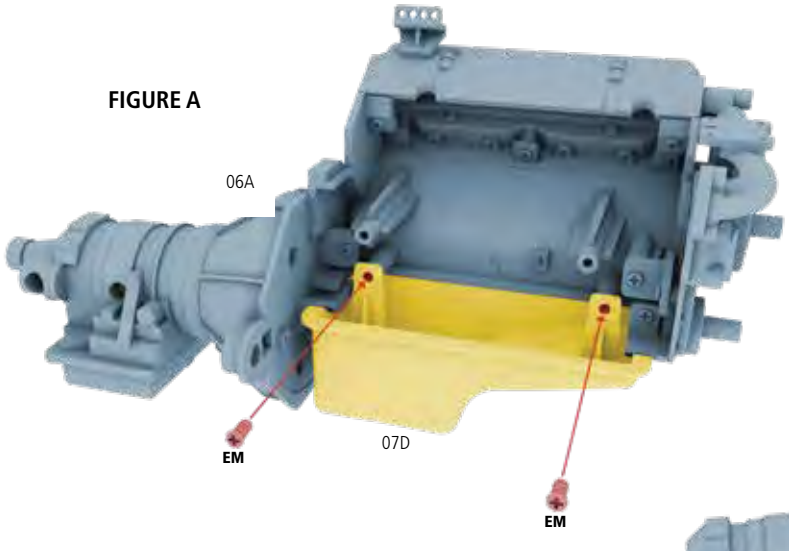
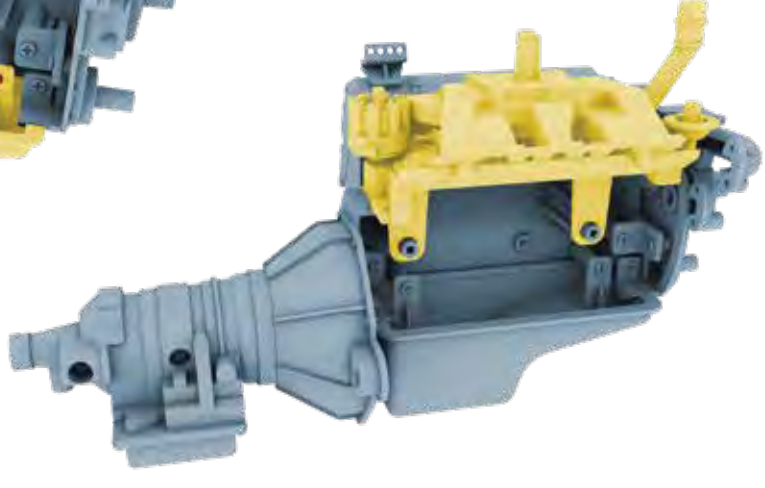
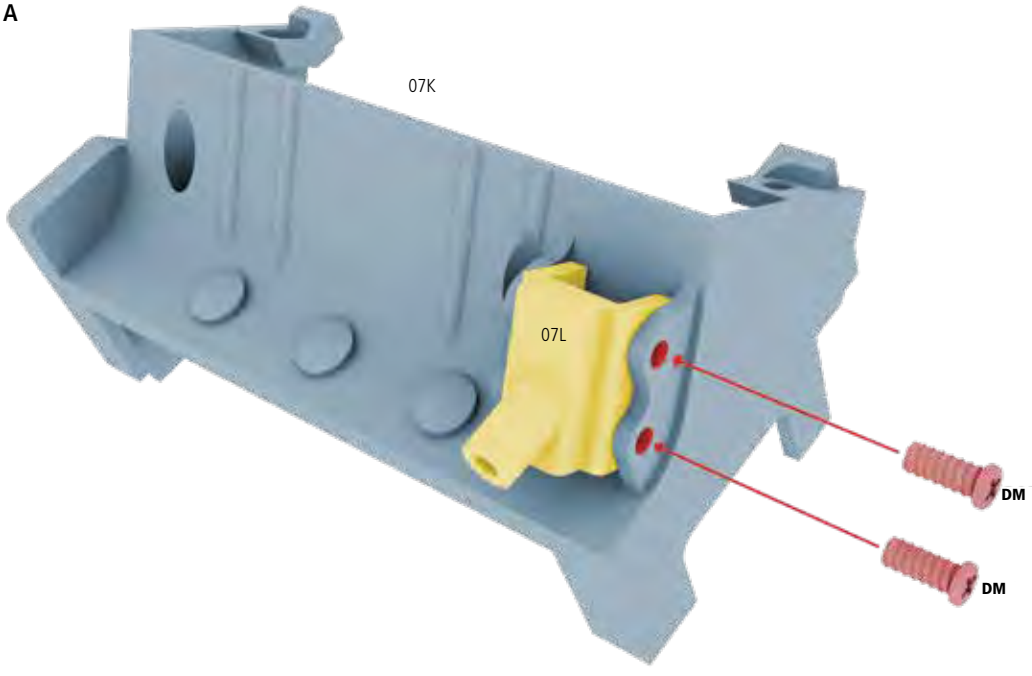


FIGURE B

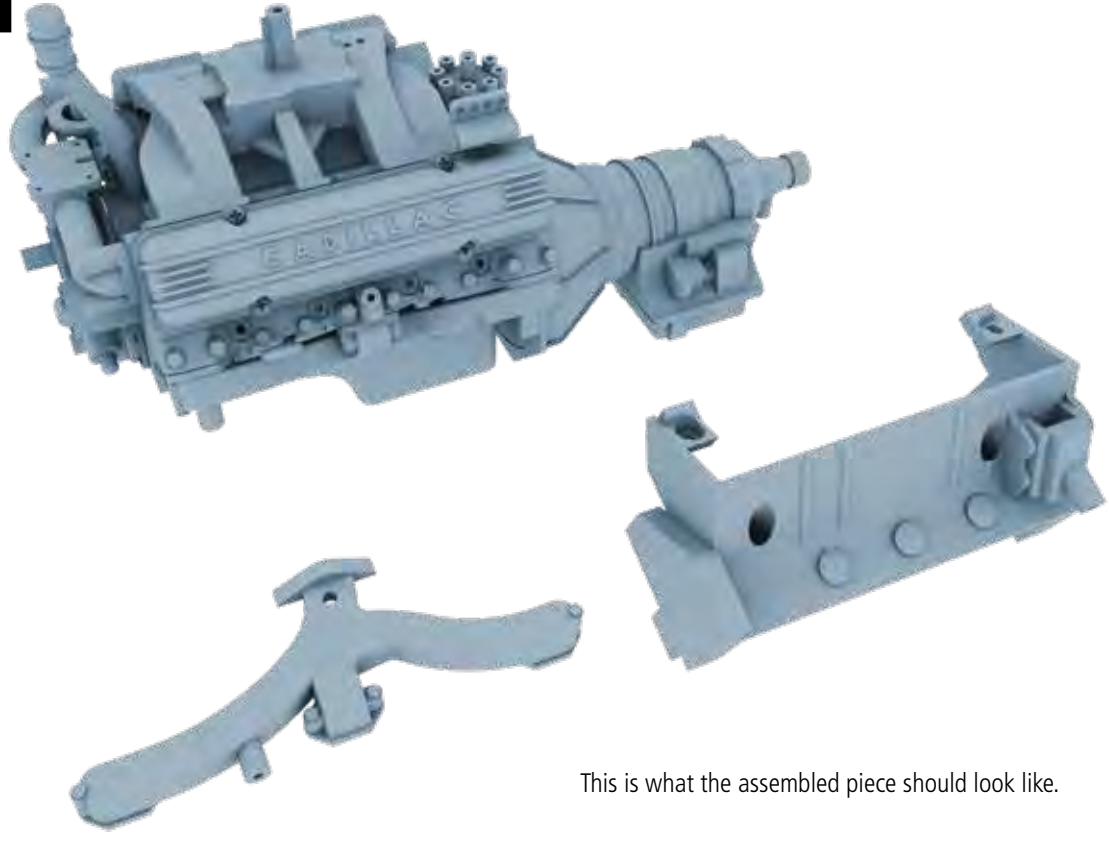


05 **AFFIXING THE RIGHT ENGINE SUPPORT:** Push the right engine support (07L) into the bracket on the outside of the right engine block (07K) so that the pipe on the support is facing downwards. Secure from the side using two DM screws (figure A).

FIGURE A



STAGE 7 BUILD

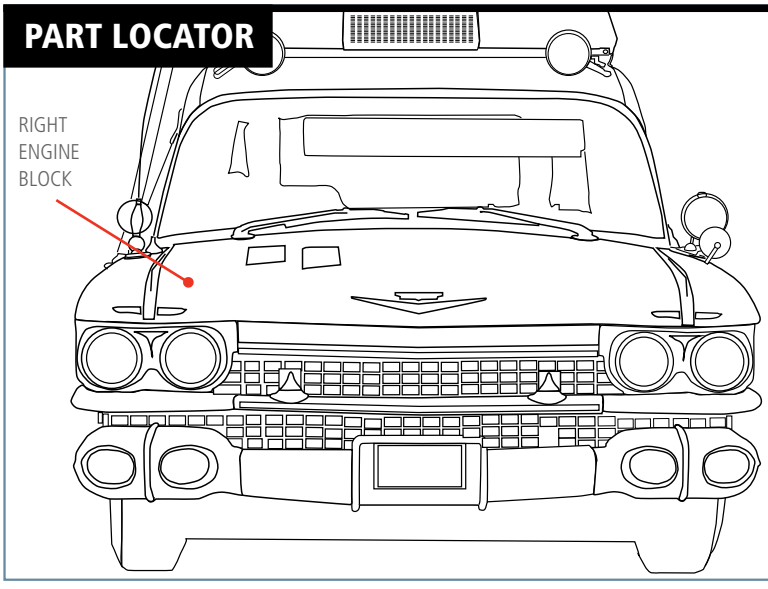


This is what the assembled piece should look like.

STAGE 8
RIGHT ENGINE BLOCK

In this stage, you will fit the right cylinder block to the rest of the engine, and assemble and fit the fuel pump, fuel filter, starter motor, and ignition coil.

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 RIGHT CYLINDER HEAD: Slot the three flanges of the right exhaust manifold (07M) into the corresponding gaps in the right cylinder head (08A) (figure A). Affix with three AP screws (figure B). Then rest the ignition wire junction (08B) so that the tab sits over the edge, into the middle of the right cylinder head (08A) (figure C). Finally, screw the right cylinder head cover (08C) to the top of the right cylinder head using four BP screws (figure D). This will keep the ignition wire junction in place as well.

FIGURE A

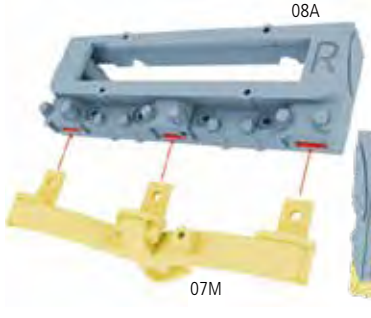


FIGURE B

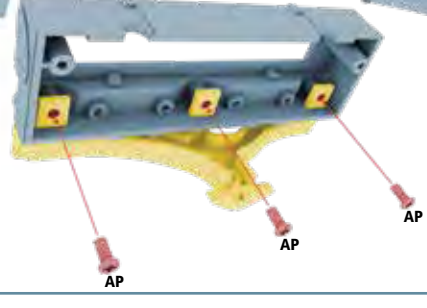


FIGURE C

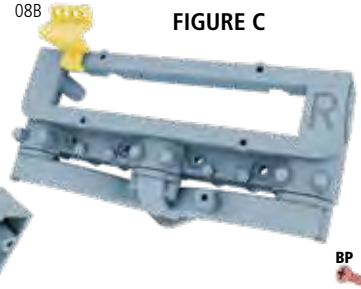
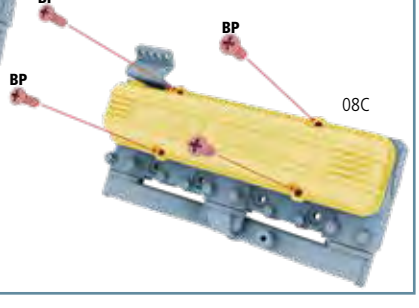


FIGURE D



02 **FITTING THE CYLINDER HEAD AND ENGINE BLOCK:** Place the right cylinder head assembly from step 1 on top of the right engine block assembly from issue 7. Fix the two parts together using two AP screws (figure A). Push the assembled left engine block into place on the left-hand side of the engine, securing with two DM screws (figure B).

FIGURE A

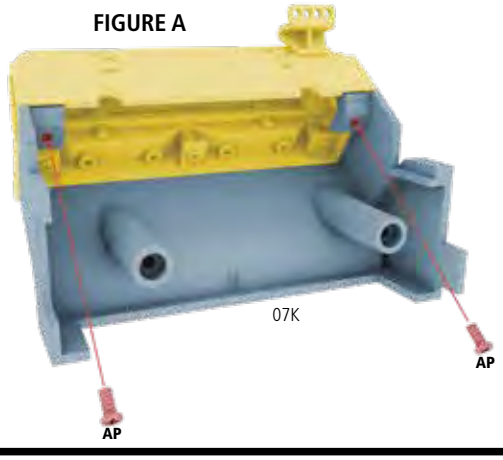
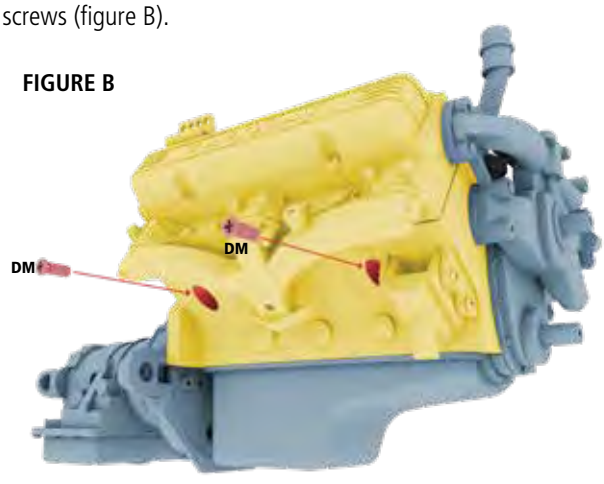


FIGURE B



03 **ASSEMBLNG THE FUEL PUMP AND FILTER:** Affix the fuel pump (08D) to the fuel pump bracket (08F) using an AP screw (figure A). Then push the fuel filter cap (08H) into the round part at the top of the fuel filter (08G). This fits together without the use of any screws (figure B). Finally, place the assembled fuel filter on the fuel pump bracket (08F), securing from the underside with an FP screw (figure C).

FIGURE A

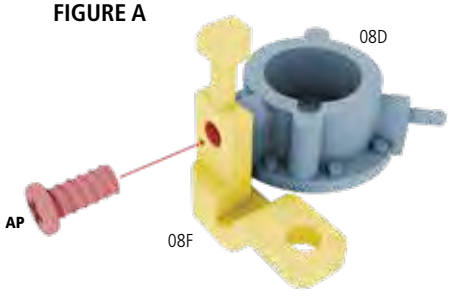


FIGURE B

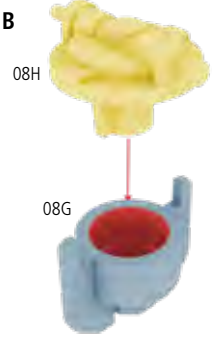


FIGURE C

04 **FITTING THE FUEL PUMP AND FILTER:** Take the fuel pump and filter that was assembled in step 3 and place it on the fuel pump lower (07N) (figure A). Then place the fuel pump cover (08E) on top, using one BP screw to fasten these pieces together (figure B).

FIGURE A

FIGURE B

05 **BUILDING AND AFFIXING THE IGNITION COIL:** Push the ignition coil cap (08K) onto one end of the ignition coil (08I). Then drive the ignition coil plug (08J) into the pin hole at the other end of the ignition coil (figure A). Take this assembly and fix it to the top of the intake manifold (07I) using a BP screw (figure B).

FIGURE A

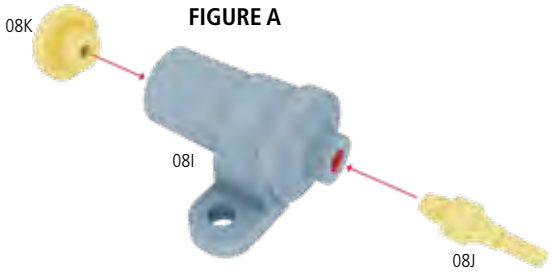
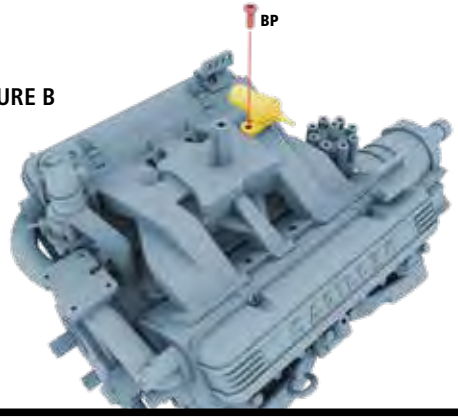


FIGURE B



06 **INSERTING THE SPARK AND DISTRIBUTOR CAP PLUGS:** Locate the spark plugs (08L) and insert one into each of the four holes in the right cylinder head (08A), just above the right exhaust manifold (figure A). On the other side of the engine, push four more spark plugs (08L) into the corresponding holes in the left cylinder head (06F) (figure B). Then push the vacuum advance unit (08N) into the side of the distributor assembly (07F) (figure C), before pushing the dipstick (08O) into the engine block (07E) (figure D).

Next, identify the nine distributor cap plugs (08M) and push them into place using the pinholes in the distributor assembly (07F) (figure E). Finally, push one end of the coil wire (08S) onto the end of the ignition coil plug (08J) and the other end of the wire onto the distributor cap plug (08M) situated in the middle of the distributor assembly (figure F). You may find it useful to use tweezers for this step.

FIGURE A

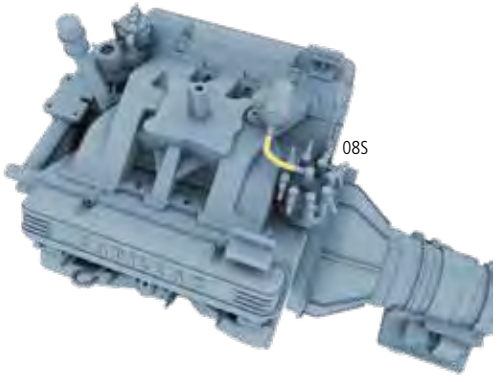
FIGURE B

FIGURE C

FIGURE D

FIGURE E

FIGURE F



07 **FITTING THE STARTER MOTOR:** Secure the starter motor (08P) to the bell housing plate (05B) using a single BM screw (figure A). Then insert the drive pinion (08Q) into the starter motor (08P), fastening the pieces together with an AP screw (figure B). Finally, the starter solenoid (08R) is affixed to the starter motor (08P) using a BP screw (figure C).

FIGURE A

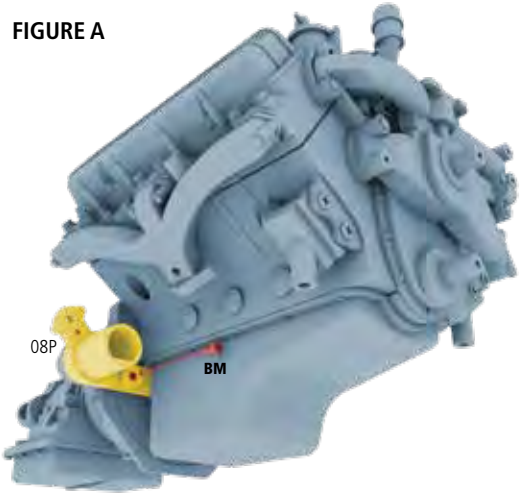


FIGURE B

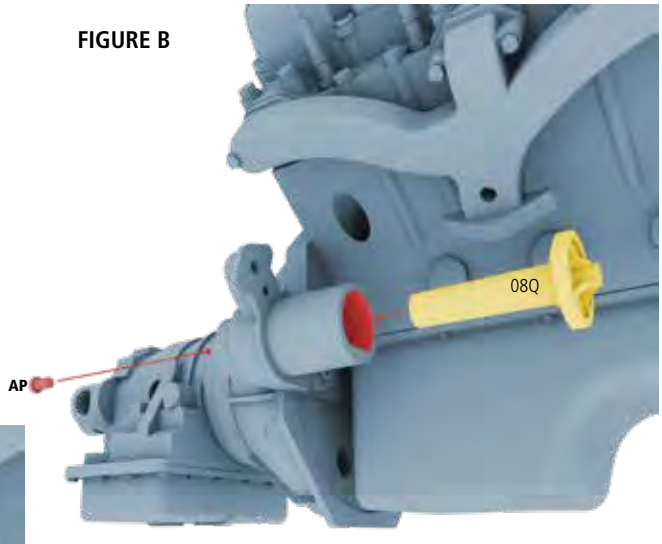
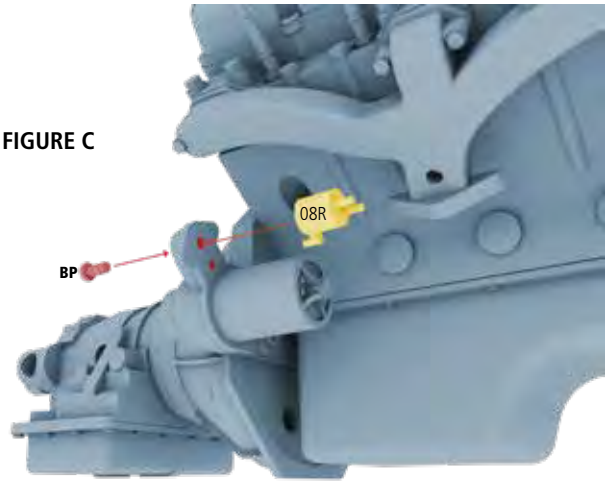
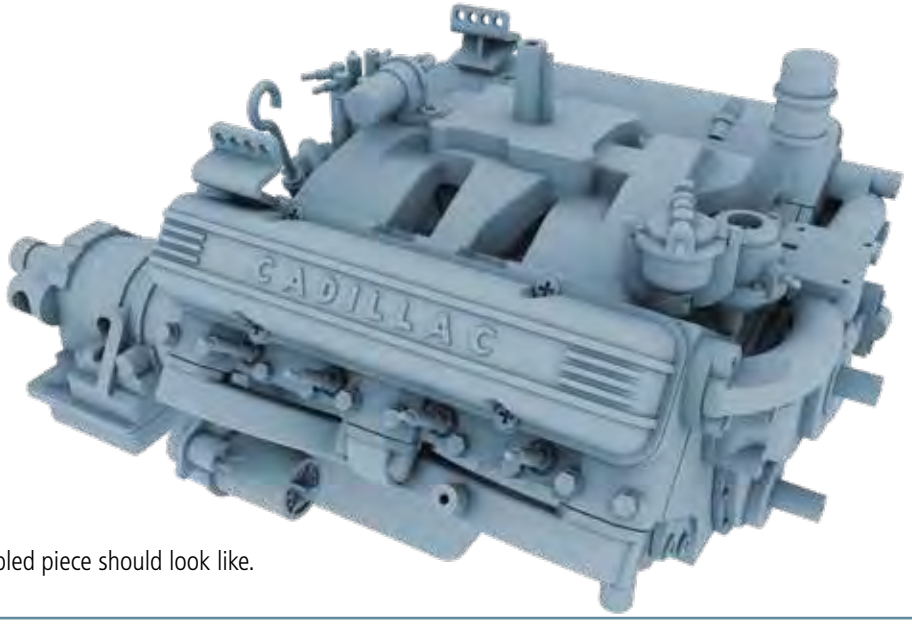


FIGURE C



STAGE 8 BUILD

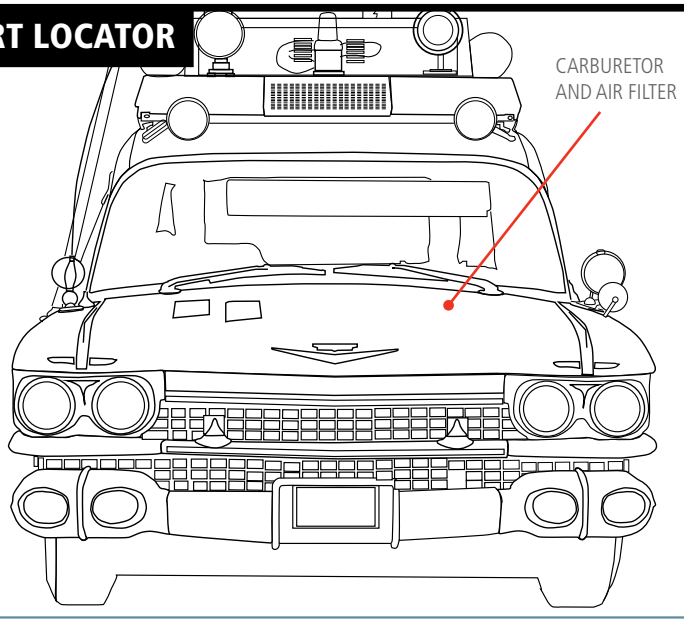


This is what the assembled piece should look like.

STAGE 9
CARBURETOR AND AIR FILTER

In this stage, you will assemble the carburetor and associated parts, as well as building and fitting Ecto-1's air filter.

PART LOCATOR



TIP: HANDLE CAREFULLY

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

A small artist's brush may be useful to assist with sliding the decals onto the model. You will also need a pair of tweezers.

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 FAST IDLE CAM: Take the fast idle cam bracket (09B) and attach it to the fast idle cam support (09C) using a BP screw (figure A). Then line up the screw holes in the bracket and fast idle cam (09A), securing together using an EP screw (figure B). Finally, slot the support into place as shown on the underside of the carburetor (09F) and affix with a GP screw (figure C).

FIGURE A

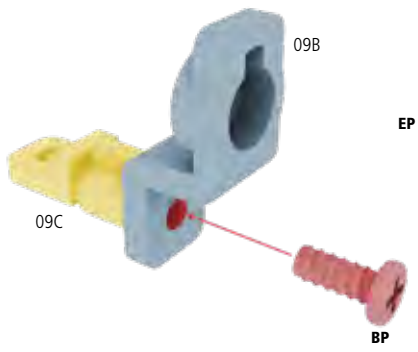


FIGURE B

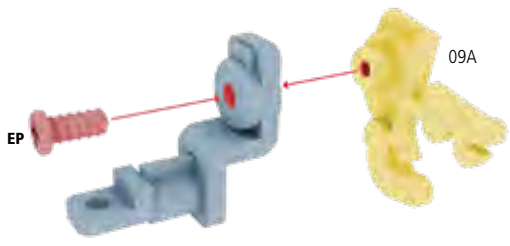
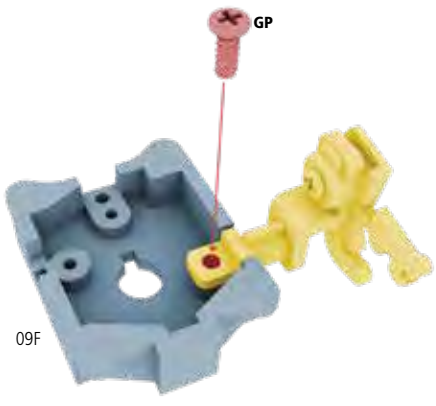


FIGURE C



02

AFFIXING THE FUEL INLET AND CHOKE CAP: Place the tab at the end of the fuel inlet (09D) on the underside of the carburetor (09F), fixing in place with a GP screw (figure A). Slot the choke cap (09E) at the opposite end of the carburetor (09F) to the fast idle cam. Again, use a GP screw to fix the pieces together (figure B).

FIGURE A

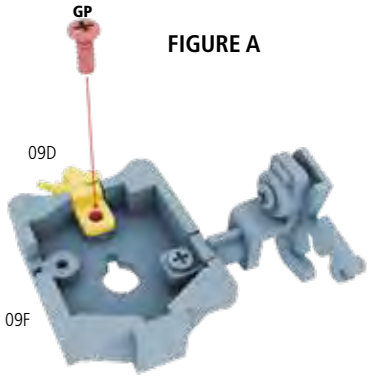
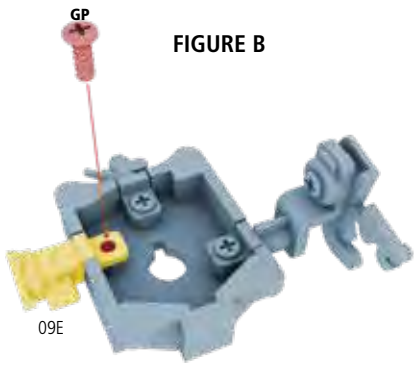


FIGURE B



03

FITTING THE CARBURETOR AND FUEL PIPE: Push the carburetor (09F) onto the intake manifold (07I) (figure A). It will be held in place by the air filter later in this issue's assembly. Push one end of the fuel pipe (09L) onto the pin on the fuel inlet (09D), and the other onto the pin on the fuel filter cap (08H) (figure B).

FIGURE A

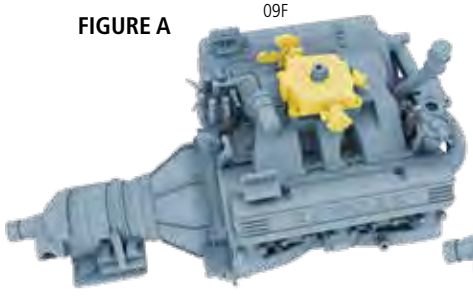
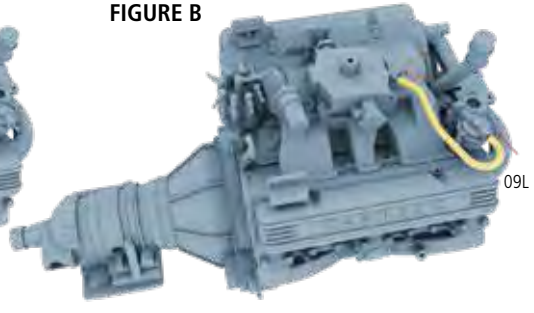


FIGURE B



04

ASSEMBLING THE AIR FILTER: Slot the tab at the end of the air filter inlet (09I) through the opening in the air filter side (09H), securing with an EP screw (figure A). Place the air filter (09G) on the intake manifold so it sits above the carburetor you fitted earlier (figure B). Put the air filter side (09H) on top of the air filter, so that the small oblong tab on the filter fits in the recess on the air filter side (figure C). Affix the air filter cover (09J) on top of these using a DP screw (figure D). Finally, push the air filter screw (09K) into the top of the cover, concealing the DP screw you just fitted (figure E).

FIGURE A

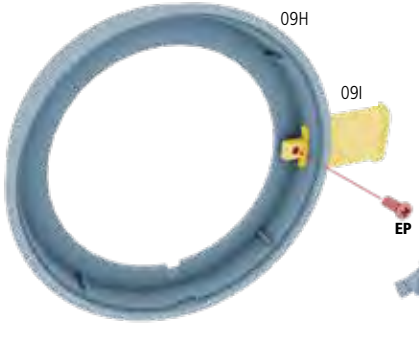


FIGURE B

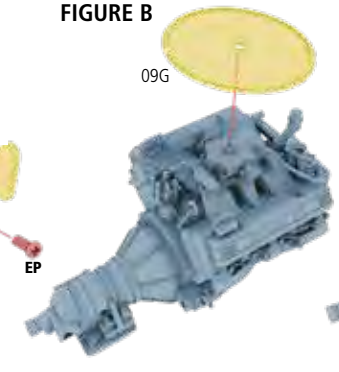


FIGURE C

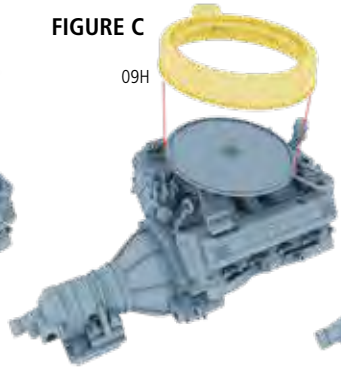


FIGURE D

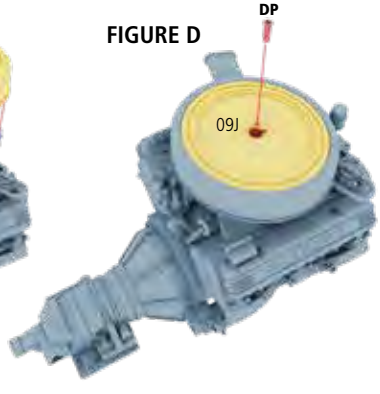
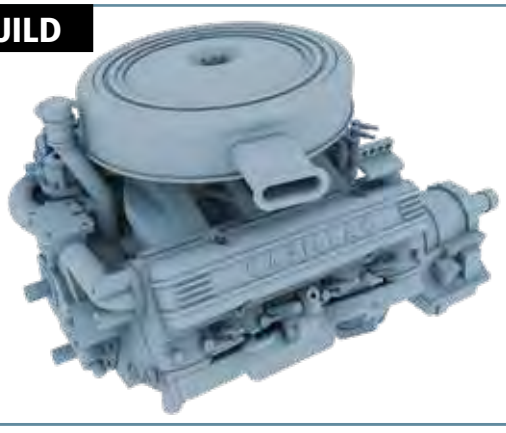


FIGURE E

STAGE 9 BUILD

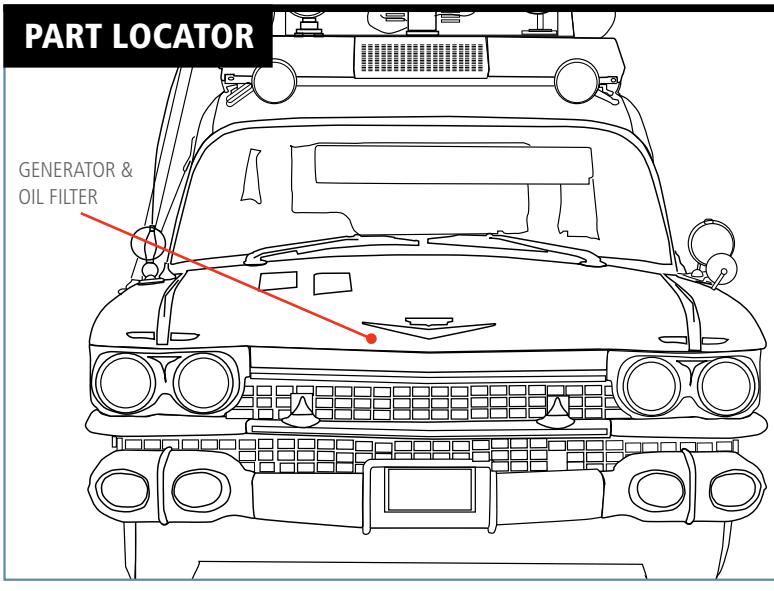


This is what the assembled piece should look like.

STAGE 10
GENERATOR AND OIL FILTER

In this stage, you assemble and fit the generator and the oil filter and begin to put the cooling system together.

PART LOCATOR



TIP: TIGHTENING THE SCREWS

Screws with codes ending in the letter M drive into metal; those ending in the letter P 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 halfway 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.

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 GENERATOR FRONT BRACKET: Fix the generator front bracket (10B) to the generator bracket support (10A) using an FM screw (figure A). Take these parts and secure them to the cooling system using two EP screws (figure B).

FIGURE A

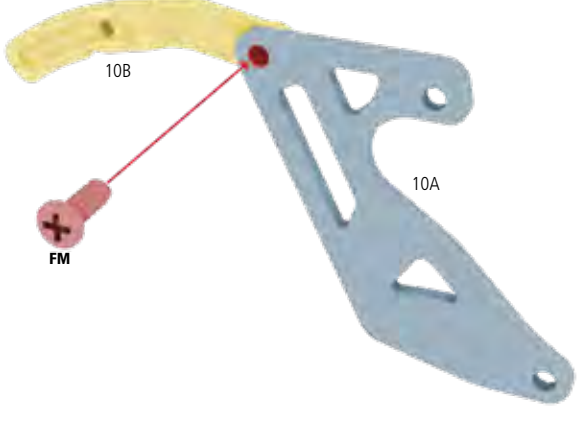
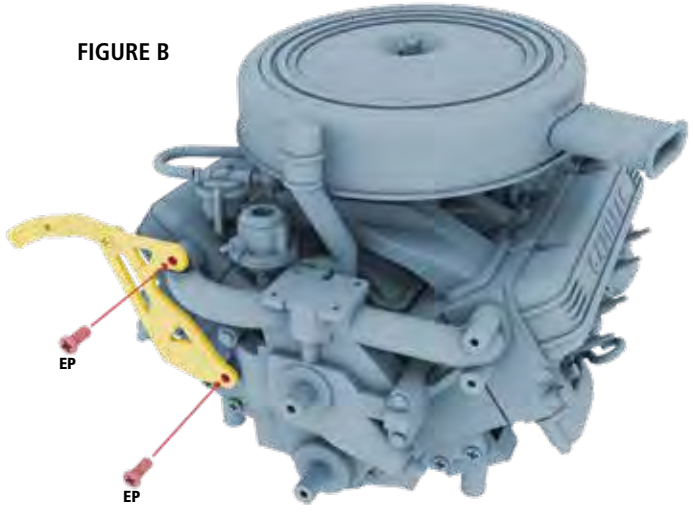


FIGURE B



02 **BUILDING THE GENERATOR PULLEY:** Push the generator inner (10E) inside the generator body (10D). This should be the end of the generator body that has three pinholes on top. Place the generator end (10C) at the other end of the generator body (figure A). Then insert the cylindrical part of the generator pulley outer (10H) through the center of the generator pulley inner (10G) (figure B). Secure this assembly to the generator inner (10E) with one DP screw (figure C). Finally, insert the three generator plugs (10F) into the top of the generator as shown (figure D).

FIGURE A

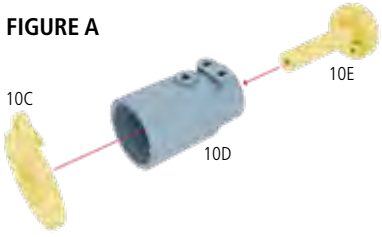


FIGURE B

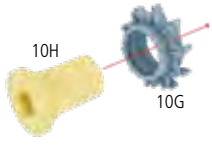
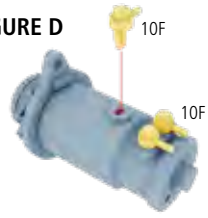


FIGURE C

FIGURE D



03 **AFFIXING THE GENERATOR TO ITS SUPPORTS:** Firstly, attach the generator rear bracket (10I) to the rear end of the generator, securing with an EP screw (figure A). Next, affix the generator end (10C) to the generator front bracket (10B) using an FM screw (figure B). Lastly, fix the generator rear bracket (10I) to the right exhaust manifold (07M) using an EP screw (figure C).

FIGURE A

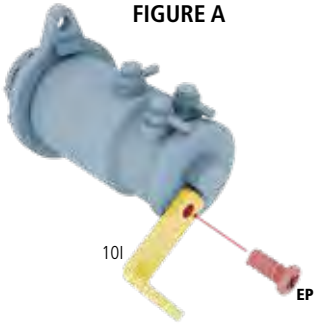
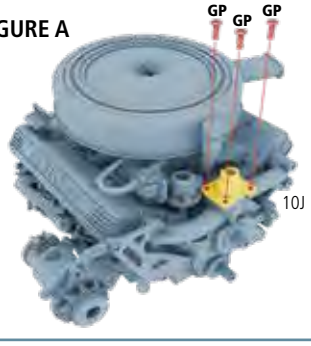


FIGURE B

FIGURE C

04 **FITTING THE WATER PUMP HOUSING:** Place the water pump housing (10J) on top of the cooling system (07C), securing in place with three GP screws (figure A).

FIGURE A



STAGE 10 BUILD

This is what the assembled piece should look like.

05 **ASSEMBLING THE OIL FILTER:** Insert the long cylinder at the bottom of the oil filter head (10L) through the corresponding opening in the oil filter (10K) (figure A). Place the oil filter base (10M) at the other end of the oil filter and secure the parts together using a DP screw (figure B). Fix the oil filter to the engine assembly, driving a BP screw through the brace and into the cooling system (figure C).

FIGURE A

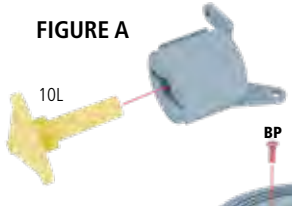


FIGURE B

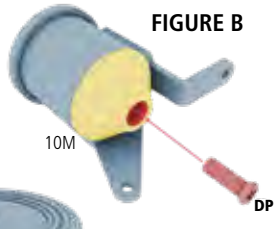
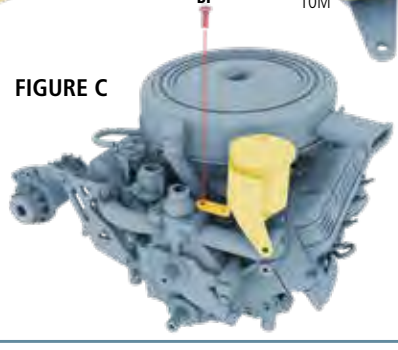


FIGURE C



ANNIE POTTS

"GHOSTBUSTERS. WHADDYA WANT?"

The actress behind *Ghostbusters*' sardonic secretary Janine Melnitz on big glasses, the anxieties of improv, and being mistaken for a genuine New Yorker.

ANNIE POTTS THOUGHT SHE STILL HAD days to prepare. Arriving in New York for costume fittings a week before shooting on her scenes was due to begin, she decided it would be fun to head downtown to watch filming on one of *Ghostbusters*' early sequences. "I was there to visit – just to visit! – but Ivan saw me and said, 'Oh, you're here! Let's put you in the scene,'" Potts laughs. Her protestation that she wasn't in costume did not, it seems, overly concern Ivan Reitman. "He said, 'Oh, you're good, let's just go with it.' So I took the very thick glasses off of the costumer who was next to me and went with those. And then I was kind of stuck with these glasses that were not my prescription and which I could barely see through. Trial by fire!"

Being thrust prematurely into a scene proved a fair indication of the spontaneous approach taken by Reitman and especially Potts's co-stars – a way of working that was in direct contrast to Potts's own style of acting. "I didn't come from improv, I came from theater," she says. "Not that improv isn't theater, but it's a different kind of theater. I never liked improv. And I thought the script was so good. Sometimes when I saw them improvising it would be like, 'The script is so good, why don't you just say what's there? We should rehearse with that!' That kind of made me anxious."

"HAROLD AND DANNY WERE NOT PARTICULARLY TIED TO THE SCRIPT..."

Yet Potts soon began to appreciate Murray, Aykroyd, and Ramis's very different approach to comedy. "I came to understand that they were always looking for something funnier. The *funniest*. Harold and Danny – unlike a lot of writers – weren't particularly tied to it [the script] necessarily. They were like, 'Well, if you've got something better, let's hear it.'" Potts remembers that Bill Murray had a particularly loose approach to his lines. "It seemed to me that Bill had never actually read the script," she laughs. "He would just kind of wander into the scene and be like, 'What's going on here?'"

THE NASHVILLIAN NEW YORKER

Though Sandra Bernhard was initially considered for the role ("She would have been wonderful at it, just different"), it's difficult to imagine Janine played by

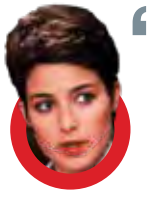
ABOVE Potts in action as the Ghostbusters' sarcastic secretary Janine. Potts was influenced by the roles played by the actresses Eve Arden and Thelma Ritter.

anyone else. Potts was hardly an unknown when *Ghostbusters* was released – alongside her theater work, she'd starred in the hit comedy *Corvette Summer* alongside Mark Hamill, as well as appearing in the dramas *King of the Gypsies* and *Heartaches* – but *Ghostbusters* made her instantly recognizable. For a long time, the Nashville-born Potts was so synonymous with Janine that many viewers assumed she was a native New Yorker. "A lot of people thought it was my natural accent, and I think it actually stopped me being considered for other roles in the wake of it," she recalls.

While in the process of fleshing out the character, Potts drew on memories of her favorite black-and-white movies from childhood. "There were character actors who always played the B-role, always played the secretary. One was an actress named Eve Arden. The other was Thelma Ritter. They were just fantastic at playing those characters. I like to think of Janine in that way, that she was cast in that kind of role model. Of course, it's a modern piece and they were from a different period altogether, but I admired them as actors, and that's where my mind went."

Though Potts recalls the script as "one of the funniest, most original things I had ever read," she was still surprised at just how successful – and enduring – *Ghostbusters* turned out. "[When we saw it] with all the special effects in place and everything, it was so hilarious. I thought it was executed beyond anybody's wildest expectations. You go in thinking you'll make the best movie you can but an *iconic* movie… that's kind of a bridge too far to hope for, you know?"

In between 1984's *Ghostbusters* and 1989's *Ghostbusters II*, Potts landed another one of her



"IT WAS ONE OF THE FUNNIEST, MOST ORIGINAL THINGS I HAD EVER READ"

BELOW The famous glasses that Janine wears in the first film were swiped from a costumer at the last minute – and were not Potts's prescription!


SPENGLE

RIGHT Annie Potts on set with Bill Murray, Harold Ramis, Rick Moranis, and Dan Aykroyd. Potts began shooting her scenes earlier than she'd anticipated.

best-known roles, as head designer Mary Jo Shively in the CBS sitcom *Designing Women*, which ran for a mighty seven seasons from 1986 to 1993. Did Potts ever hesitate about returning as Janine? "Oh no," she insists. "The problem was really just working it out because I was in the middle of my season shooting that [*Designing Women*], and of course it was a live audience show so it's not like they could shoot me out or include me later. Luckily, [most of *Ghostbusters II*] was actually shot on the Warner Bros lot and I shot *Designing Women* there as well, so I was running from one end of the lot to the other."

The sequel saw an expanded role for Janine, with

"I WAS PLEASED TO HAVE A LITTLE MORE CONTROL OVER WHO SHE WAS"

the love interest switching from Egon to Louis and a funky new look (including a red bob and rounded, though equally oversized, glasses). Potts says she was pleased to be given a say in updating Janine's appearance. "I had absolute input into it. I mean, people change in five years. I don't look like I did five years ago – I don't wear my hair as I did or anything. I thought it was entirely valid [to update Janine's look], and they supported me on that. I was

very pleased to have a little more control [over] who she was and how she dressed. And I was able to think about it beforehand instead of, 'Hey, you're in this scene, what you've got on is fine!'"

PROOF IS IN THE PUDDING

Though the schedule on the second film was once again tight, Potts recalls a more relaxed atmosphere on set. "Ivan at that time was a very seasoned director and very sure comedically, and the proof was in the pudding of the first one. So all we had to do was make the best film we could. Everyone was just building on the strongest elements of the characters. I believe there was a little more time, so I think they [the cast and crew] were a little more leisurely."

Three and a half decades on from Janine's debut – during which time Potts has taken on other high-profile roles, including voicing Bo Peep in the *Toy Story* movies and appearing in *The Big Bang Theory* spin-off *Young Sheldon* – Potts is pleased to see how much life *Ghostbusters* has left in it. "More time has passed since we started shooting that film than I was old at the time! No matter how distant the first ones were, they're still very much present. These movies – and people's interest in them – keep on going."

ABOVE *Ghostbusters II* introduced a relationship between Janine and Louis, and featured expanded roles for both characters.

VANESSA THE DESK CLERK

Twenty-seven years after *Ghostbusters II*, Potts returned to the franchise, along with several of her fellow cast members, for a cameo in 2016's *Ghostbusters: Answer the Call*. Her brief role as Vanessa the desk clerk (who echoes Janine's famous line "Whaddya want?") proved a return to the spontaneous way of working that she'd experienced on the first film. "I didn't know until the day I got there what [part] it was going to be!" she laughs. "I didn't know what they were up to. But I was game. I liked Paul Feig and the girls were just wonderful and very funny. It was a fun day."

ABOVE Ronald B. Moore on a line-up bench in the optical department during the making of *Ghostbusters*. Years later he would become VFX supervisor of multiple *Star Trek* series.

OPTICAL ILLUSIONS

The optical department was key to assembling *Ghostbusters*' complex special effects. VFX veterans Ronald B. Moore and Bruno George explain the magic behind the process.

BACK IN THE EARLY 1980S, THE LANDSCAPE of visual effects was very different. Not only did everything from monsters and spaceships have to be created practically rather than on computers, but the job of assembling the various elements involved in effects shots was done on optical printers. These machines, which boasted a projector at one end and a camera on the other, had been in operation since the early days of cinema, and worked by duplicating the original footage with visual effects sliced in. While optical printers have long since been phased out, they – and their highly skilled operators – were vital in making movies like *Ghostbusters* look as spectacular as they did.

It was the optical department at Boss Film Studios, headed up by Mark Vargo, that seamlessly blended the likes of Slimer and Stay Puft into real-life environments, effects that still hold up today.

Visual effects veteran Bruno George was optical printer operator on the movie. He had the job of making sure the various elements were correct before they reached fellow operator Chuck Cowles, who created the final composites. "Oh boy. How to explain what an optical printer operator does in this day and age!" George laughs. "To put it simply, you operated a camera that was designed for rephotographing film, and you would combine different strips of film, called mattes, into layers."

"It was an organizational job," adds Ronald B. Moore, who was optical line-up technician on the film years before he became visual effects supervisor on multiple *Star Trek* series. "When shots were designed, it was up to us to put all the pieces together."

Optical printing was the forerunner of digital compositing that is created today using packages such as After Effects, and the process wasn't entirely dissimilar. Firstly a key visual effects element, such as Slimer, would be shot against a blue (sometimes black) screen, creating a clear outline. This element was known as the 'foreground matte.' Anything extraneous (like puppeteers or rigs) could be removed by rephotographing the sequence in the optical printer, using 'masks' to block out unwanted objects. Through further rephotographing, the foreground matte could be aligned with the background matte (such as the ballroom in the Slimer sequence). The process was more complicated when foreground mattes, like Slimer or Stay Puft, were moving, or when there were multiple elements, and it took real precision to avoid misaligning the mattes. Luckily, the optical department on *Ghostbusters* was up to the task.

DEPARTMENT OF MAGIC

George recalls that in the years before *Ghostbusters*, people didn't always view optical departments fondly. "People had a pretty low opinion of it, because a lot of times there seemed to be compromises when it went through the opticals. I was dead set on making sure that my role and my department was not going to be seen as a place to compromise. It was going to be seen as a place where magic was breathed into the movie."

One of the sequences where this magic happened was in the sequence featuring Slimer (or Onionhead, as he was known at the time). "We shot most of him against black, but they also shot a couple of him

LEFT Elements for optical effects, such as Slimer, were shot against a black or blue screen to create a clear outline. They were then spliced together with the background matte using an optical printer.

ABOVE Some of the talented optical team. Back row (left to right): Dan Kuhn, Mary Mason, Mark Vargo, Chris Regan. Middle row: Pat Repola, Chuck Cowles, Brad Kuehn. Front row: Alan Harding, Ed Jones, Mary Walter.

against a blue screen, which is a different technique for making a matted element," says George. "So I had to do as much as I could to make sure that those two photographic techniques matched visually when it was composited on the screen. Consistency is the name of the game."

The Stay Puft Marshmallow sequence was also extremely complex, according to Moore, not least because it featured so many layers. "The first shot I did was of the Stay Puft Marshmallow Man walking behind the building," he says. "I remember thinking, 'I'd like to get this shot done, then I'll be ready for anything else.' So much for that plan! That shot was one of the last ones I finished. It was a complicated visual effect because so much was added once we started."

UNDER THE GUN

Working on the same shot over and over to take in changes could sometimes be exasperating, Moore admits. "You'd think, 'Are you kidding me? They want to change it *again*?'. So many people are involved in every single shot in a movie like this, and no one cares if a change sets you back by three weeks – but you shouldn't either. This is your job. Yes, it could be frustrating when we were under the gun, but as [fellow optical line-up technician] Phil Barberio said, you know that [if there was an imperfection] you'd end up watching the movie one day and saying to yourself, 'If only I'd have stayed 10 minutes longer, that wouldn't have happened!'"

The nature of the work, combined with an extremely tight schedule and the high cost of film effects, inevitably meant incredibly long working days. "It was always on the agenda to do things as quickly as possible," says Moore. "And we were kind of the last people in line – once our work was done, the film just went back to the director and the studio for approval. As a consequence, the hours we worked were exceptionally intense. If you left before you'd done 18 hours, you felt guilty!"

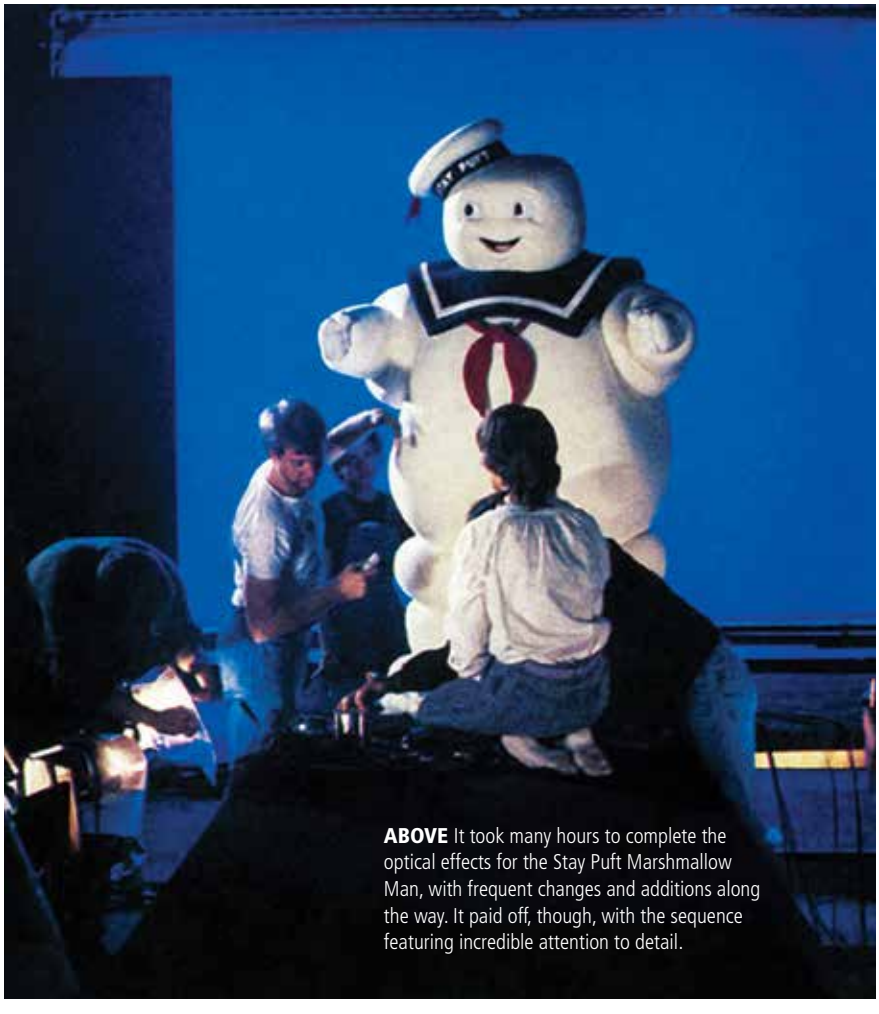
However, Moore emphasizes that these hours of hard work more than paid off. "When you see what they did... *Wow!* They added people in each of the windows in the buildings [during the Stay Puft sequence]. Inside one window you can see someone playing pool; over there you have a family eating dinner. And adding that water tower in the background gave it so much depth. When I see the movie, there's such a pride that I was a part of that team and that we were able to add so much to it. That sequence has a lot of meaning for me."

Both Moore and George went on to become heavy-hitters in the effects world in the years that followed. Amongst other projects, Moore became visual effects supervisor on *Star Trek: The Next Generation*, *Voyager* and *Enterprise*, winning five Emmys in the process, while George became one of the first digital department managers at ILM and visual effects supervisor on the likes of *In the Line of Fire*, *Hook* and *The Nutty Professor*. Though clearly fans of optical effects, both men embraced the transition to digital. "When I was at Boss Film, someone mentioned that doing things optically was

going to go away one day," remembers George. "It stuck in the back of my head, so I kind of decided well, dammit, maybe I should be the one who helps make it go away! So I started focusing a lot of my early supervisory work into doing things digitally."

The industry may have changed drastically, but *Ghostbusters* – and the positive, collaborative atmosphere that Richard Edlund fostered at Boss Film Studios – remains close to both men's hearts. While neither knew what to expect when they signed up to work on the film 35 years ago ("*2010* was the one we were all looking forward to," Moore admits, referring to the other movie that Boss Film took on alongside *Ghostbusters*), Moore remembers when it first dawned on him that they were working on a potential classic. "There was a day when Dan Aykroyd and Harold Ramis came in and we saw a piece of the film. And we realised, 'Holy mackerel. This is something special!' It came out so well."

"I think as a department we did a beautiful job," agrees George. "I take pride in knowing everybody who was in that team and I was proud to say I worked with those people. I look very fondly at the optical work we did on *Ghostbusters*."



ABOVE It took many hours to complete the optical effects for the Stay Puft Marshmallow Man, with frequent changes and additions along the way. It paid off, though, with the sequence featuring incredible attention to detail.

Pops, Zaps and Dupes

On some pre-digital effects films, you may be able detect what Moore calls a "pop" in the quality of an effects shot as it moves from the original negative to a 'dupe' (ie, the duplicated piece of film with the visual effect sliced in). However, in *Ghostbusters,* the opposite was true.

"The majority of *Ghostbusters* was shot in 35mm, but our work was done in 70mm, which Richard Edlund's ZAP printer would eventually reduce down to 35mm," explains Moore. "So even though we were dealing with a dupe, the quality of the dupe was pristine. In fact, the producers were concerned because when they cut the effects in, they would 'pop' because they were sharper and better quality [than the rest of the film]!

So Richard went back and tweaked the printer to make it a better match. The quality of what we were doing was incredible and it was a thrill to work with."

ECTO-101

A MONTHLY LIST OF ALL THE THINGS THAT MAKE GHOSTBUSTERS GREAT

#4 THE SECOND CITY

Improv comedy troupe The Second City played an important role in developing the comic skills of several key *Ghostbusters* cast members.

The Second City Theater was established in Chicago in 1959 by Paul Sills, Bernard Sahlins, and Howard Alk, with the playhouse influenced by the 'Theater Games' exercises devised by Sills's mother Viola Spolin. After seeing a Second City show in 1967, Ramis enrolled in the troupe's 12-week workshop. Initially he wasn't selected for a spot in its touring company, but in 1969 Sahlins replaced the resident company with Ramis's Old Town Players. On returning from a period travelling in 1971, Ramis found that John Belushi had joined the company.

Brian Doyle-Murray was another key player at Second City in the early 1970s, inspiring his brother Bill to sign up to the troupe. In 1973, Bill Murray joined the troupe's mainstage cast. Elsewhere in 1973, The Second City established a theater in Toronto. Both Dan Aykroyd and John Candy joined the Canadian branch, with Aykroyd later becoming part of the Chicago cast. While many Second City alumni went on to join *Saturday Night Live*, Ramis became head writer on Second City's TV offshoot *SCTV* in 1976. In the 1980s another future *Ghostbusters* cast member, Rick Moranis, joined the show. The Second City is still going strong today, and it also runs the Harold Ramis Film School which focuses on collaborative comedy.

The Second City
HAROLD RAMIS FILM SCHOOL

> *There's a* Wizard of Oz*–like thing about it – the combination of scariness and comedy and the charming band of characters. Their sophistication worked for adults, and the silliness of trapping ghosts made it delightful for younger people.*

▲ *Ivan Reitman tells entertainment website* Vulture *why he thinks* Ghostbusters *has such broad appeal.*

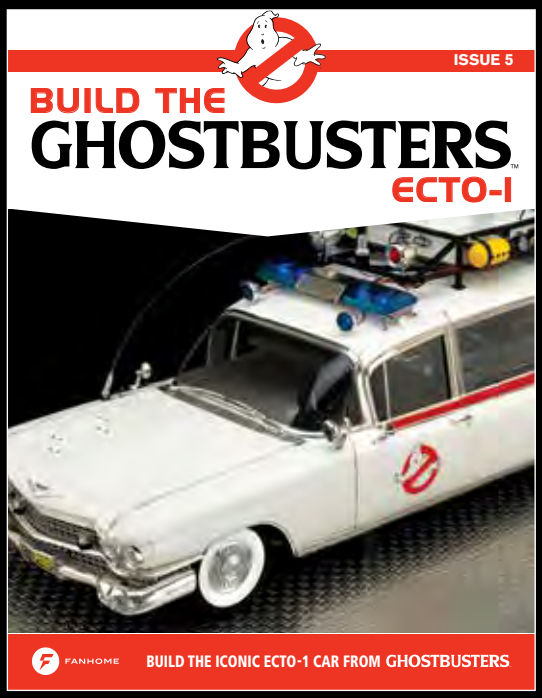
> *I remember going for lunch with the guys in their Ghostbusters outfits. They didn't want to take them off, even in restaurants! People didn't know what the hell was going on.*

▲ *Associate producer Joe Medjuck remembers how Dan Aykroyd, Bill Murray and Harold Ramis were reluctant to take off their costumes.*

> *It was really the chance to be possessed by a dog. I thought that would be fun. I love the idea that a cellist would turn into this crazy ghoul.*

▲ *Sigourney Weaver speaks to fashion magazine* Harper's Bazaar *about one of the reasons she signed up for* Ghostbusters.

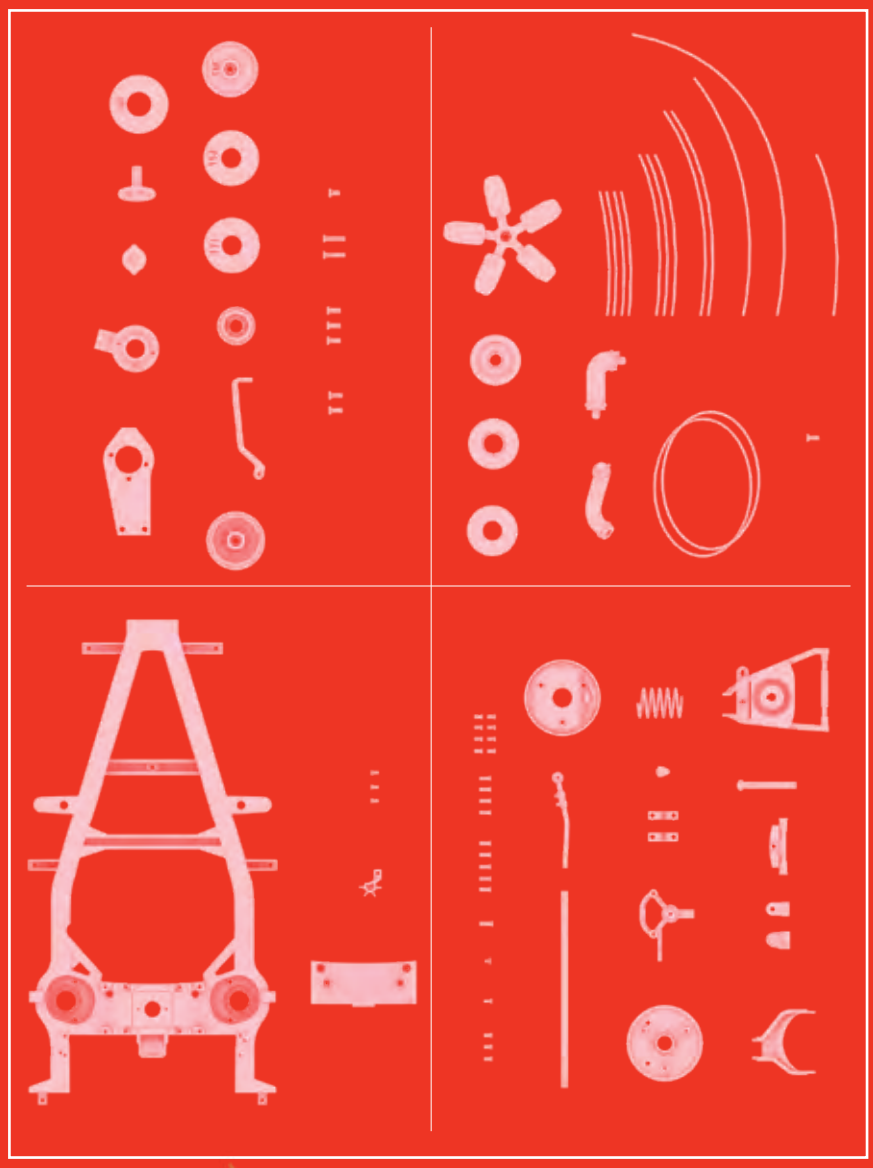
COMING IN ISSUE 5



FIRESTARTER!
The pyrotechnics of Ghostbusters.

JOE MEDJUCK
Ghostbusters' associate producer.

YOUR PARTS



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