

26 Restoration Tips

Several tricks of the trade to help you achieve a better, more efficient result for the project car in your garage



BY MATTHEW LITWIN • PHOTOGRAPHY AS CREDITED

Classic car restoration seems like an easy process: Find a car, assess its needs, dismantle it, find parts, repair metal and other components, repaint it and reassemble. Though it sounds simplistic, these stages are the basic stepping stones for a start-to-finish process that turns a forgotten four-wheeled relic into a better-than-new gem. It's a course of action that we've outlined 112 times—including multi-part adventures—over the last 140

issues of this magazine, highlighting the work done to no fewer than 30 different makes from nine different decades. While the realities of a restoration can be daunting, the results are often very rewarding. This month, let's take a closer look at some of the secrets (in no particular order) to a successful restoration.

FINDING THE RIGHT CAR

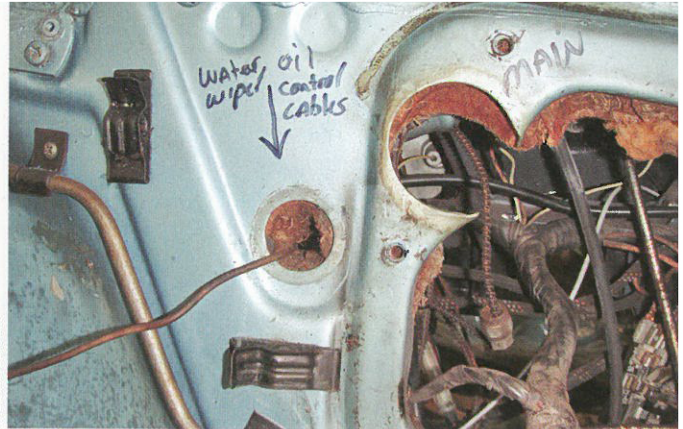
Making a deal may seem easy on the surface, but there is a lot to consider before

rushing in. Whether you're eyeing a car from the 1930s or the 1960s as the subject of your first attempt at a restoration, it's important to take the time to immerse yourself in that particular car's production history. When the time comes to move towards its purchase, you will have a better understanding of what standard-equipment components may have gone missing since it was delivered new. Be sure to carefully inspect the undercarriage; rust has a habit of hiding in difficult-to-

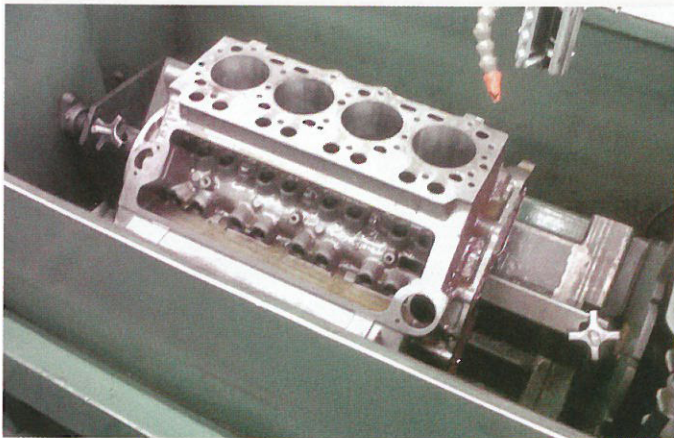


THOMAS BROWN

1 Disassembling a car is the easiest part of a restoration; it is also a critical phase. Take notes concerning how the car was assembled, such as the number of shims used to properly align the fenders. This will save time during reassembly.



2 As cars evolved and amenities were added, a growing maze of wires, hoses and tubing began to pass through several purpose-drilled holes in the firewall. Documenting the routing during disassembly eases rerouting new or restored parts later on.



MATTHEW WENDT

3 More often than not, owners will have a specialist rebuild their car's engine. An experienced machine shop will strip and clean it before inspecting for hairline fractures. In most cases, the cylinders will receive a .020 overbore during the rebuild.

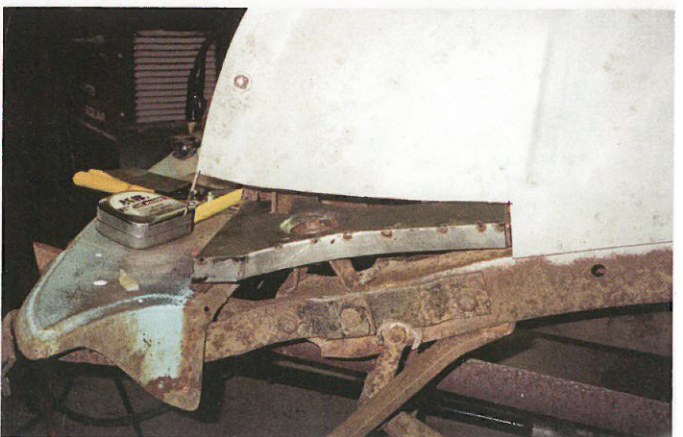


4 Convertible bodies lack the structural rigidity of fixed-roof cars. If you plan on removing the body shell from the frame, weld several braces within the body—especially the door openings—to prevent unwanted twisting.



RICHARD KOCH

5 If part of the floorpan needs replacing, it is usually done with the body still bolted to the frame. To prevent the new panel from warping, it will first need to be tack-welded in several spots before filling in the gaps one small section at a time.



6 The rearmost body mounts on this car were badly rusted through. The corroded sections were cut out and retained as templates for new patch panels. Fitting the new panels in sections ensures that the factory body geometry is maintained.

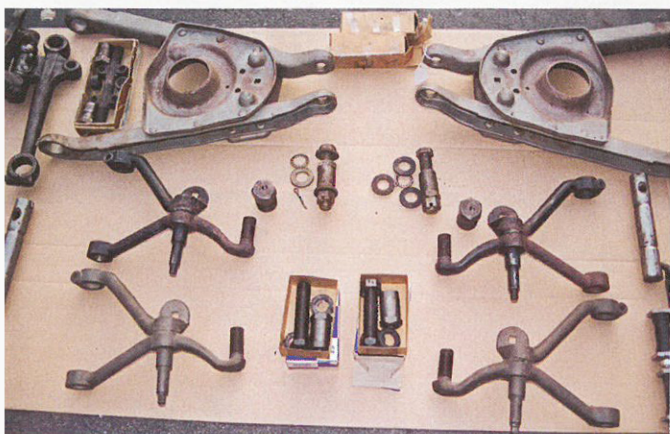


JIM FINNANCE

7 Fabrication work, such as reconstructing mounting lips on hard-to-replace fenders, is usually a requirement. Creating a template from the original aids the process, but be sure to save as much of the original parts as possible to verify your work.



8 Some restorers prefer to media blast, chemically strip or sand off the body's finish all at once, while some have adopted the method of stripping "working" sections to bare metal, protecting areas yet to be worked on from flash rust.

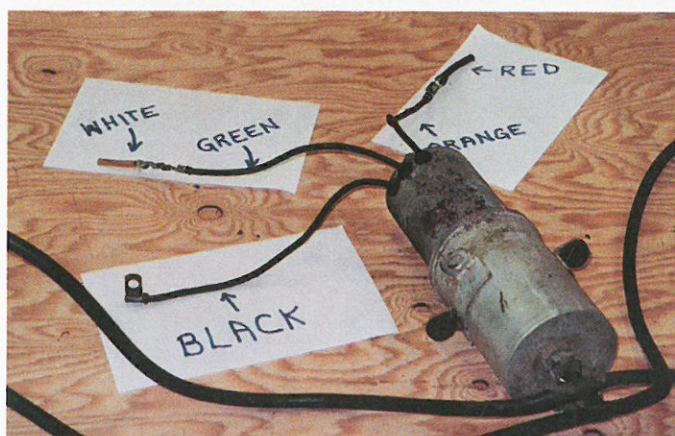


JIM FINNANCE

9 Keep things organized. Here, original suspension parts have been laid out alongside NOS replacements, ensuring that nothing is missing. Compare replacement parts against the originals; slight differences or damage could lead to trouble later.



10 One of the best things you can do during a restoration is to use the "bag-and-tag" system. It's easy to lose track of hardware; placing it in well-labelled resealable bags takes only a few moments and keeps them well organized.



RICHARD MAXCY

11 Continue documenting parts after disassembly. Affordable digital cameras and a supply of notecards are your best allies. Labelling wire colors and locations on parts, such as this convertible-top motor, will help guide reconstruction.



12 Don't be afraid to use every tool at your disposal. Replacing lengthy sections of sheetmetal, such as this outer rocker panel, is easier with a series of clamps. In this case, the replacement panels won't slip or warp while welding.

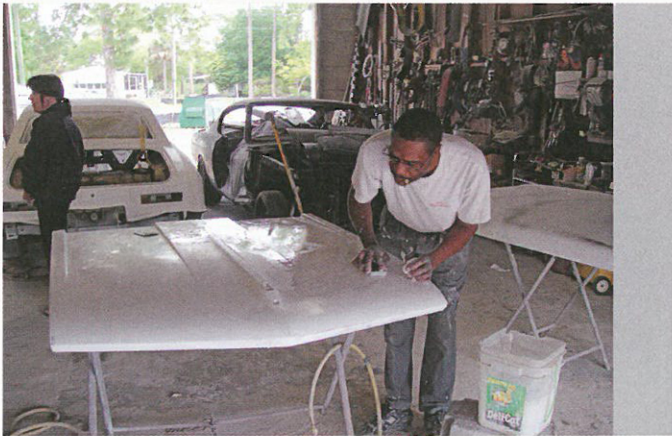


RICHARD KOCH

13 To prevent moisture from finding its way into odd corners and panel joint crevices, many restorers use a thick application of seam sealer throughout, even if the car didn't rely on seam sealer when it was first built.



14 Once the bodywork has been completed, several layers of epoxy primer are usually applied. Black paint is "feathered" onto the surface during sanding to identify low points that will need additional attention to even them out.



BILL MAYS

15 Wet sand the final layer of primer once it has properly cured. Allowing cure time will prevent shrinkage cracks from forming in the paint. The water will stop the sandpaper from clogging while providing a superior surface.



16 Many truck beds were finished with wood flooring. Replacement wood kits are offered for many models. Test-fitting the wooden slats while the bed is in primer allows you to make adjustments without damaging new paint.

see locations, such as within a frame rail, behind the undercoating that covers a floor pan, at the base of the cowl, and also under the carpets or a vinyl roof. Then, if you can, consult with a marque expert. With a known list of problem areas that will need to be addressed, take the time to begin a preliminary search for replacement parts—whether used, NOS (new old stock) or reproduction—and their costs, and start factoring these into your budget.

DISASSEMBLY

Taking the car apart is arguably the easiest step of a restoration. Remove the doors, hood, fenders, trim, interior and

seats, and before long, you've created a pile of metal, bolts and other associated hardware, and with so much more yet to be dismantled, you'll soon run out of space in which to put it all. What's worse, the fender bolts have been inadvertently kicked across the garage. The first critical step to disassembly should be creating organized storage and work space. Keeping track of hardware and its relation to the parts it holds together will have its benefits once the restoration begins to proceed toward its conclusion. Another important aspect that should not be overlooked is documentation. Do not attempt to rely on your memory. An inexpensive

digital camera (or the camera in your cell phone) enables you to take hundreds of photographs from multiple angles as the disassembly unfolds, which can then be used as valuable reference material when you start to reassemble the car months, or even years, into the future.

WORK WITHIN YOUR MEANS AND TIME FRAME

One of the worst crimes against a restoration is working beyond your ability and rushing through the process. Metalwork, for instance, is critical. If it's done poorly, rust will quickly ruin the time you have spent on repairs, to say nothing of the



GORDON APKER

17 Whether you are restoring a hand-built Italia, or a mass-produced car from Detroit, it's wise to test-fit trim items such as a grille or headlamp bezel, as it's easier and less expensive to make corrections at this stage.



18 Before reuniting a rebuilt engine with the chassis, try to arrange to have the engine tested on a static stand or on a dyno. Even a brief round of testing can reveal potentially time-consuming issues, including faulty seals.

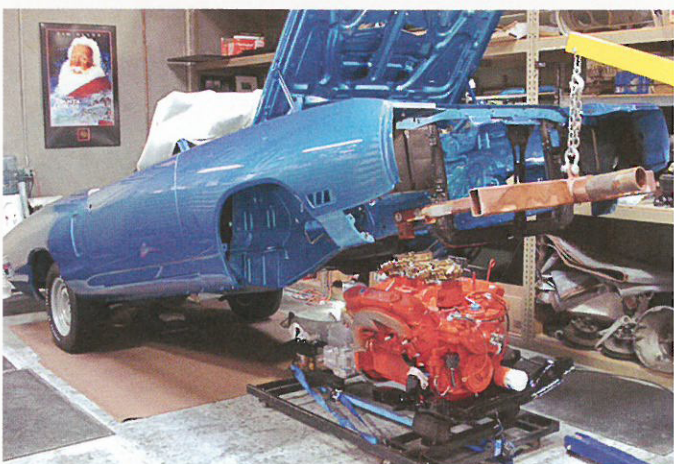


BILL INGLER

19 While disassembly is generally a top-down process, reassembly should occur in reverse order. By restoring the chassis first, you can more easily reinstall the engine and transmission before the body is lowered into place.

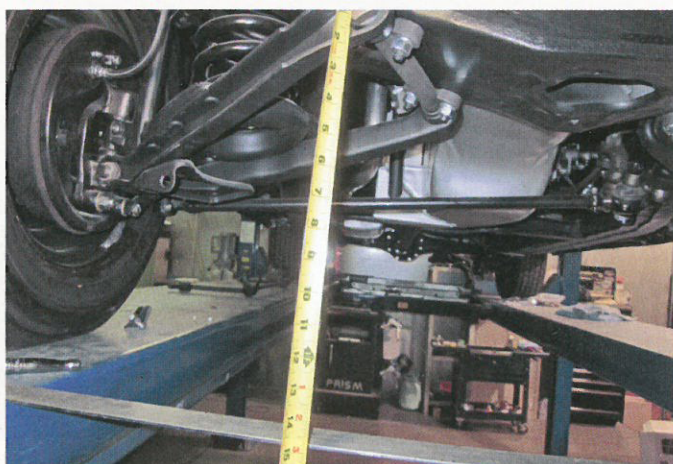


20 If using a basecoat/clearcoat system, it is best to allow the base color to cure and then to wet sand every surface using the step process of ever-finer grades of paper. This process removes subtle imperfections.



MIKE ROSS

21 Restoration methods for automobiles employing unit-body construction can differ from their full-frame counterparts. For instance, Dodges and Plymouths have engines bolted to a K-frame, which is then bolted to the chassis.



22 Budget time for the final adjustments that will need to be made. For example, after consulting factory service manuals, suspension geometry—including proper ride height—should be checked with the car fully assembled.

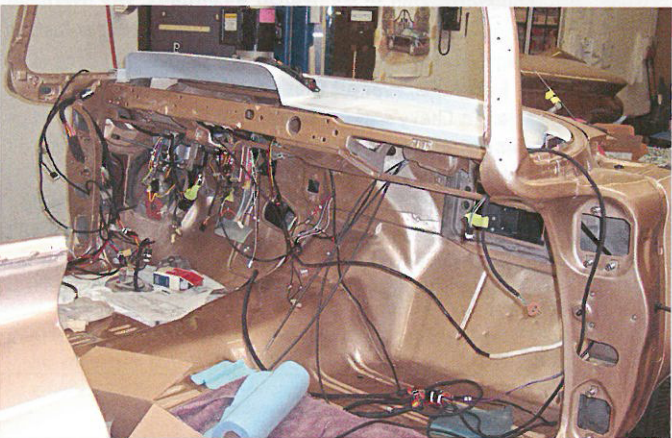


THOMAS BROWN

23 Compartmentalizing a restoration speeds up final assembly. For example, applying reproduction Di-Noc and securing rechromed trim and refinished gauges is a lot easier now than with this panel installed inside the car.



24 Paint is one of the more expensive aspects of a restoration. Once applied, care should be taken to not mar the surface. As seen here, painter's tape was used to protect the finish before the brightwork was reattached.



JOHN DETULLO

25 This may seem like a tangled mass of wires, but if you look closely, neon tags indicate each wire's intended destination. Advanced planning such as this saves time and eliminates guesswork later on.



26 When replacing the upholstery, use a top-down method, allowing gravity to work in your favor to help material remain taut while trimming for window openings. Seats and side bolsters will hide many of the seams.

traces that will appear in the finish. Spending time learning tools of the trade, be it via classes or knowledgeable friends, may prolong your timeline, but the end result will be far more rewarding and will likely result in your completed project outlasting your stewardship of it. In addition, set daily, weekly and/or monthly goals. Saving tasks you are more comfortable performing for smaller windows of work opportunity will both help you maintain interest and keep your project on schedule. Speaking of schedule, it's okay to overestimate how long tasks will take, keeping your own expectations in check.

REASSEMBLY

The key word here is patience. Once you have reached this step, it's easy to get over-ambitious. Rushing through the process of reinstalling trim could lead to accidentally damaging the expensive paint finish, or worse, breaking a hard-to-replace part while over-tightening its fasteners. Carefully reading wiring schematics while connecting the wiring harness to electrical equipment will prevent shorts in the system, which would increase costs while delaying the completion date. Once the car has been finished, don't rush off to the nearest car show. A thorough check of the engine, transmission, braking and suspen-

sion systems, both in the garage and within a few miles of your home, will determine whether or not the car is ready for a cruise down the open road. Also, be sure to follow all break-in procedures, especially when new camshafts are involved.

Having consulted with restorers during the last 11 years, we've accumulated several in-depth tricks of the trade, 26 of which we present here accompanied by detailed photographs. Combined, these tips and techniques should help you achieve a show-winning result with a little time and patience. As for specific restoration tools needed to help get the job done, refer to *HCC* #86 (November 2011). 📷