

The WR Restoration Planner - 2009

Why a Planner?

I decided to create the planner mainly for customers or potential customers so that they could visualize the various stages during the restoration of a 356, and the hours and general costs associated with each stage. I did not create it as a tool for accurately estimating jobs, but it can be very helpful in understanding the potential cash flow necessary for each stage of your individual project. It is not specifically intended for WR, and can be used for any qualified restoration shop, or even do-it-yourself hobbyists, to plot the costs and hours required for any stage of the restoration process. It is, however, specifically intended to show the time and materials necessary to perform a restoration to the high level done at WR. The use of sub-standard materials, short cuts, and unqualified labor is not considered in this planner.

The Average Cost

Our most common or average price for a complete ground-up restoration as outlined in the planner is about \$150-200K. Some stages have much more variation than others, and the time required can be difficult to predict. The two most critical things to consider when going into a restoration are the body condition, and the completeness of the car. Rusty, accident damaged cars can be very expensive to restore, and a car that has missing parts (especially rare models) that must be sourced can add many hours to the restorer's job. That said, there are many cars that deserve being properly repaired and the challenge of locating the missing parts, and correctly "resurrecting" a car that has been neglected or improperly repaired can be rewarding.

The First Step

The first step in the restoration process at WR is the assessment of the car and all of its components. We make a detailed list of any missing or badly damaged parts, necessary special repairs or improper fitting of trim and accessories. If possible we will drive the car to assess any transaxle noise. When disassembly begins, we take care to bag and note all parts, so that we can accurately determine which parts need to be replaced. We often scribe the last three digits of the serial number onto parts that will be sent out for chroming or refurbishing.

Metalwork

Metalwork is the single most challenging aspect of the restoration of a 356, and forms the basis of the quality and durability of the completed car. If you're going to cut corners on a restoration, use vinyl instead of leather, or hold off on that trick engine rebuild, but don't compromise on metalwork.

You can look at the many pictures on the website to see the extreme measures that we go to in order that our restorations last for many years. Unfortunately, the methods used by Porsche

were sometimes a compromise between speed and quality. It's almost always necessary to replace the door skins because of the lower seam corrosion and normal water drainage through the door. We also almost always replace the rocker panels and butt weld the overlapped, lead filled, seam where the rockers are attached. Many other areas that often require replacement with new metal are the lower valance in the front and rear, the fender openings, and the areas in front and behind both doors. Old, damaged, metal that has already been incorrectly repaired is common, and we always replace those areas with new metal. We also check all seams and old lead for signs of contamination or rust. We use a minimum of lead, and all welded seams are metal-finished smooth. Extreme care is taken that all lights, trim, grills, windows, top, bumpers, etc. are precisely fit, and all bare metal, including the entire chassis and hollow chassis members, are primed with aircraft grade epoxy primer and seam sealed for waterproofing before the body is handed over to the painter.

Paint

Paint is the second most important aspect of any restoration. Correct metalwork, panel fit, and flawless paint, will make a huge difference in the presentation of your car. I promise, you will never regret spending the money necessary to have the paintwork done correctly.

Our paint jobs have set the industry standard in the Porsche community. In this area we also go to extreme measures to insure that our restored cars last for many, many, years. A minimum of lead, and the use of the highest quality materials, insure that the paintwork is flawless and durable. The attention to detail, preparation, and finish polishing is all trusted to our small crew of highly trained technicians. We have no "painter's helpers" at WR. Each finished paint job is the result of hours of initial metal preparation and cleaning, priming and block sanding with all panels and seals in place (requiring assembly and disassembly at each stage), fitting of all lights and trim, and final precise fitting of hood, decklid, and doors.

Assembly

Since the correct fit of trim, top, windshield, windows, etc. has already been confirmed during the metalwork and paint stages of restoration, this stage shouldn't require much extra effort or fitting. Even so, often the thickness of the paint, and the care that must be taken to prevent paint damage, can make this part of the restoration important and tedious work. If all things have been planned correctly in advance, the assembly can be the most rewarding stage, when the car really begins to take shape. This is the pay-off for all the hours of previous effort. *If you're going to bring your wife by for a look, this is the time to do it.*

A note to the do-it-yourselfer, or subcontractor:

If you've paid special attention to the metalwork and paint stages, and required that the shop you're using has followed the necessary steps of pre-fitting panels with all seals and trim as

mentioned above, you will enjoy the assembly stage. If not (which is too often the case), you will understand why shortcutting the metalwork and paint stages was a bad idea. Make sure in advance that your paint and metalwork shops agree to full responsibility for correct fitment of all panels, trim, top, windshield, etc...if they won't, find other shops that will.

Upgrades

There was a time when many 356s were restored as show pieces with little attention to actual function. At WR we have managed to combine both show winning attention to detail with extreme attention to function and performance. Of course, it's completely possible to restore a car to fully original condition, with no upgrades to safety and driveability, but we have found that most customers appreciate improvements that don't compromise the look of originality and can improve the driving experience.

We are able to offer our customers the following options:

- A large selection of engine options that improve power and reliability in single and twin-plug, including displacement increases to 1720cc, 1925cc, and 2002cc in original or tuned appearance.
- Various transaxle upgrades including gear changes for sport or freeway driving, torque biasing differential, carrier bearing modification to tapered roller bearings, upgrade to 12-bolt ring gear and carrier, upgrade of early cars to stronger/faster 741 gear synchros.
- 12V conversions that maintain the original appearance.
- Retractable 3 point seatbelts that function easily.
- Breakerless CDI ignition for improved fuel economy and driveability.
- Dual circuit brake system that maintains an oem appearance.
- Add-on electric fuel-pump for easier starting.
- Sport tuning of suspension for improved handling including sport swaybar, stiffer torsion bars front and rear, specially modified Bilstein shocks, decambered front spindles, harder rubber bushings or bronze bearings for rear spring plates, modifications for lowering and adding wider wheels and tires.
- Short shift kits for B/C or modification of Pre A and A shifter to reduce throw.
- Reproductions of various factory GT options, or a complete conversion to GT specs during restoration including alloy body panels, plexiglass windows, GT bumper trim,

factory removable roll bar, GT/Speedster type bucket seats, deletion of sound insulation and undercoat, instrument options, deletion of body trim and rocker mouldings, 60mm front brakes, vented brake backing plates front and rear,

- Any of the various factory options including leather interior, any factory color, sport seats, fitted luggage and/or luggage racks, leather luggage straps, various wood steering wheels, optional interior and exterior mirrors, optional gauges, etc.

The Final Result

Restoration can be a rewarding experience if done correctly, even if you're having the work done by a shop and not doing it yourself, but it can also be very unpleasant both emotionally and financially. The FOR SALE sections always seem to contain at least a few "restoration in progress" 356's, and most of those owners can tell you what NOT to do. This WR Restoration Planner will hopefully give you some guidance in getting to the "restored" stage with your Porsche.

RESTORATION PLANNER - 2008

<u>STEP</u>	<u>DESCRIPTION OF WORK</u>	<u>HOURS</u>	<u>MATERIALS</u>
1	Disassemble complete car and organize parts	30-60	
2	Strip insulation as necessary, transfer body to dolly or rotisserie, cut-out rusted sections as necessary and prep for blasting	10-30	
3	Media blast body including towing	SL	\$2500+
4	Repair chassis rust/damage as required, epoxy prime and seam seal	<1>	<1>
5	Remove from rotisserie and mount on dolly (when applicable)	8-16	
6	Repair body rust/damage, metalwork and fit panels		<2>
7	Prime and paint body complete including color sand and polish. Metallic colors are slightly more.	400-450	\$3500+
8	Undercoat chassis complete and paint black under dash. Includes black paint on floor of Speedster.	30-50	\$500-700
9	Install factory, tarpaper sound insulation (when applicable)	6-50	\$250-1800
10	Strip and paint all chassis components	20-40	\$225+
11	Strip and paint all engine sheetmetal, including repairs	20+	\$175+
12	Strip, hot-tank, repair, seal and paint fuel tank - T6	10-20	\$185
	Strip, hot-tank, repair, seal and paint fuel tank - A/T5	20-50	\$185
13	Install all chassis components including wiring, suspension, brakes, transaxle, wheels, horns and all dash components (the stage includes rebuilding of steering box and adjustment and setup of brakes and suspension).	80-150	<3>
14	Install hood seal and hood with latches, install stepplate seals and narrow alu. strips, install doorstops and doors with latches and strikers, install rear lid with latch	24-48	<4>
15	Interior complete with all trim and components (price depends on materials selected and model)	<5>	<5>
16	Install windshield on Speedster/Roadster and all side glass on Coupe (door glass is installed prior to door panel/interior installation and is included in the body assembly stage)	6-16	

17	Install bumpers, trim and all remaining exterior body items, including assembly of bumpers and other parts	40-100	<6>
18	Rebuild engine	<7>	<7>
19	Dyno test engine (optional), includes break-in and optimizing of jetting, timing, etc. Also includes all dyno run sheets.		\$1500+
20	Rebuild transaxle	<8>	<8>
21	Install engine in car, test and run	4-25	
22	Roadtest car approx. 50 miles, finish fine adjustments and detail for delivery	5-10	

<u>Notation</u>	<u>Description of work</u>	<u>HOURS</u>	<u>MAT.</u>
1	This includes the repair of all rust and damage to the chassis area of the body. Floor pan, battery floor, longitudinals, jack spurs, and all other seams or areas that may need to be specially fabricated. The cost can usually only be determined after removal of the undercoating. Some approximate costs are listed below. These costs assume that the body has already been blasted and mounted onto a rotisserie.		
	Replace floor pan complete	40-50	\$400+
	Replace longitudinals complete w/jack spur	20-40	\$300+
	Replace longitudinals w/chassis stiffening kit	30-50	add \$70
	Replace battery floor (with usual side damage)	15-25	\$200+
	Replace both front frame struts, inner and outer	15-25	\$125+
2	This includes all repairs to the outer body sheetmetal including door bottoms, fender sections, front or rear clips, bumper repairs, and correct fitting of all panels. Even a very good, undamaged car will usually require about \$10K in metal work to properly fit the panels and check all leaded seams for potential problems. We almost always replace the lower 2/3 of the door skin and the rockers. Our goal is a car that will last for many years without problems and we go to extreme lengths to make this possible. Our metalworking methods can be seen on the website and are at the top of the restoration industry standards.		
	Average cost for metalwork on a car with some damage (it's not uncommon for metalwork to reach \$50K+)		\$25K+
3	Most chassis components are readily available and a price		

estimate can be done using the Stoddard or NLA catalog.

- 4 These are parts that must be installed before the panels can be attached. For body only restorations, these parts can also be estimated using the Stoddard or NLA catalog.
- 5 The average price for a complete interior and top installation is listed below. The price also includes labor for the installation of interior related components. The repairing of seat bottoms, top frames, etc. is additional. Autos International does all our seats and supplies all our materials. We also subcontract all our top installations to them and the transport is done in our enclosed trailer.

Complete interior in vinyl	\$6000+
Add for leather	\$2000+
Top and boot including painting of top frame, Cab/Rdstr.	\$3500+
Top and boot on Speedster	\$2800+
Transport to/from Autos International	\$900

- 6 These parts can be purchased from the usual suppliers or can be restored original parts. Average cost is listed. \$1200+
- 7 Complete engine rebuild using all new parts and modern updates, fully detailed case, etc.
1600 to 1720cc basically stock \$10000+
1925S \$15000+
1925TR \$30000+
2002TR \$30000+
Various combinations are available.
- 8 Transaxle rebuild using all new bearings, synchros, etc \$5000+
Add for GT diff \$1800+
Add for special gears - \$600 each

Estimate your own additional costs.

RESTORATION PLANNER - 2009 SAMPLE ESTIMATE

<u>STEP</u>	<u>DESCRIPTION OF WORK</u>	<u>HOURS</u>	<u>MATERIALS</u>
1	Disassemble complete car and organize parts	30.00	
2	Strip insulation as necessary, transfer body to dolly or rotisserie, cut-out rusted sections as necessary and prep for blasting	10.00	
3	Media blast body including towing	SL	2,500.00
4	Repair chassis rust/damage as required, epoxy prime and seam seal	100.00	1,200.00
5	Remove from rotisserie and mount on dolly (when applicable)	8.00	
6	Repair body rust/damage, metalwork and fit panels		25,000.00
7	Prime and paint body complete including color sand and polish. Metallic colors are slightly more.	400.00	3,500.00
8	Undercoat chassis complete and paint black under dash. Includes black paint on floor of Speedster.	30.00	500.00
9	Install factory, tarpaper sound insulation (when applicable)	30.00	1,200.00
10	Strip and paint all chassis components	30.00	225.00
11	Strip and paint all engine sheetmetal, including repairs	20.00	175.00
12	Strip, hot-tank, repair, seal and paint fuel tank - T6 Strip, hot-tank, repair, seal and paint fuel tank - A/T5	20.00	185.00
13	Install all chassis components including wiring, suspension, brakes, transaxle, wheels, horns and all dash components (the stage includes rebuilding of steering box and adjustment and setup of brakes and suspension).	80.00	7,500.00
14	Install hood seal and hood with latches, install stepplate seals and narrow alu. strips, install doorstops and doors with latches and strikers, install rear lid with latch	24.00	800.00
15	Interior complete with all trim and components (price depends on materials selected and model)	10.00	6,900.00
16	Install windshield on Speedster/Roadster and all side glass on Coupe (door glass is installed prior to door panel/interior installation and is included in the body assembly stage)	6.00	1,500.00

17	Install bumpers, trim and all remaining exterior body items, including assembly of bumpers and other parts	40.00	1,200.00
18	Rebuild engine	60.00	5,000.00
19	Dyno test engine (optional), includes break-in and optimizing of jetting, timing, etc. Also includes all dyno run sheets.	SL	1,500.00
20	Rebuild transaxle	40.00	1,800.00
21	Install engine in car, test and run	15.00	
22	Roadtest car approx. 50 miles, finish fine adjustments and detail for delivery	7.00	
	Total hours and hours @ \$90/hr. labor rate	960.00	86,400.00
	Total parts and materials, and total sublet		60,685.00
	TOTAL RESTORATION ESTIMATE		\$ 147,085.00