

## **#68 Build History**

### **The complete history of the car's build!**

So here it is, November of 2005 and we have this historic race car back home in the garage. Andy & I look at each other: what have we done now? This is the timeline for the build of the car, over about 8 months time.

#### **November 6<sup>th</sup>, 2005:**

Bob B showed up today, so there was no way we could sit in the kitchen with all the toys calling to us. With all the race gear put away and organized, we were able to get some work done on the Schimberg car. Bob & Andy cut off the front end while I removed seam sealer and held parts being removed. Great to see some progress! By progress, I mean the car is starting to look worse each minute!

#### **November 12<sup>th</sup> & 13<sup>th</sup> 2005:**

We finished up the insulation of the garage roof on Saturday, and were finally able to get started on the Schimberg car. First thing we needed to do was to evaluate which panels we would need from the donor shell. The roof and pillars of course, but in addition we will use the cross member, wheel wells, quarter panels, door step bits on the left side, and misc. other panels as needed.

First we removed the roof, taking care to measure the difference between the MKI & MKII lines on the back window area. Once the roof was off, the rest of the panels were much easier to access. I used a die grinder with a carbide burr to remove spot welds in areas where we didn't want drill holes. Andy used the air chisel, drill, & zip cut to remove the rusted areas and get the rear quarter panels out. The rear quarters were removed with the wheel wells attached, as we plan on welding them in place together. Today we finished up with removing the good bits from the donor car, and almost finished the prep work on the left hand quarter panel. Monday we might even get some of this sheet metal welded in to the race car! Next update tomorrow evening!

#### **November 14<sup>th</sup>, 2005:**

Today was a big day: the Schimberg car had some major surgery! It is always exciting when you work on the larger sections, as it really looks like progress.

We decided to remove the left-hand quarter panel and rear wheel well first. It took far longer than the mirror removal in the donor car, since we needed to preserve most of the surrounding metal for the assembly process. The larger areas Andy used the zip cut, and in some places we used the spot weld drill and the die grinder. We carefully removed the layers of metal around the pocket, wheel well, and rear panel so that we would not end up with any extra metal (weight!). The donor piece is ready to go in.

Still a bit of metal trimming here and there, as well as some dent removal prior to installing the quarter panel.

#### **November 26<sup>th</sup>, 2005: Topless!**

Today we really made significant progress on the shell. Andy finished welding up the LH quarter panel, and then we got started on the roof swap. There was a lot of measuring and double checking before we started to cut! One of the main problems is a lack of reference points, but having the other S shell really helped us get the basics. Andy also made some cardboard templates, which are a boon for projects like this. The measuring done, we welded in some cross-bracing so that the shell would not flex too much.

After lunch we cut into the original roof: No turning back now! Deep breath....

Without a roof, the car looked very much like a parts car...what a sight. We then spent the remainder of the afternoon prepping the replacement. By 4:30 we were welding the new roof on! Very exciting!

Quite a bit of time to get everything lined up and fitting just the way we wanted. We tested a front and rear window, as well as the doors before final welding. There is of course lots more welding to do, but at least at this point we are ready for Tony to dip the shell. Now in the trailer and ready to ship!

**December 3<sup>rd</sup>, 2005:**

The shell and associated panels were given the spa treatment at Metalwork's in Eugene OR. Andy and I were able to watch the shell being placed in the tank, as well as tour the facilities. It is a very interesting process that takes a few days to complete. More pictures next week after we pick up the shell! No more orange and beige!

**December 10<sup>th</sup>, 2005:**

The now completed shell is the first to get a ride in the new TPD trailer. Thanks Tony for an excellent job with the stripping process. Next step is some primer to prevent rusting, and of course more welding....

**December 13<sup>th</sup>, 2005:**

M-Machine panel order arrives!

Isn't it always fun when packages arrive? Even more so when the packages are Mini related! 4 large and well packed boxes arrived today from M-Machine. These guys know how to ship stuff, and don't skimp on the packing material or tape. All the contents were in perfect condition.

We are set to go for a welding marathon!

**December 27<sup>th</sup>, 2005:**

Today we took the shell and a bunch of other parts down to the Harbour Air paint shop. As usual this time of year, most people are enjoying time off with their families...a perfect time to get some work done!

The metal needed a good sanding to improve primer adhesion and remove any contaminated areas. Doing a shell, doors, two boots, 3 subframes, and assorted bits took the better part of a day. Once this was completed, we rubbed down the bare metal with PPG wax/grease remover. Then two coats of PPG self etching/wash primer fully coated the surface. The result was Gold! Well, not really, but the primer is a gold colour.....

Tomorrow's project will be to organize and set up for welding....

**Sheet Metal: January 23<sup>rd</sup>, 2006:**

Finally, after much delay Andy started on sheet metal prep! Now that the roof is on, we plan on starting from the bottom up. The LH inner/outer sill assembly was cut out, with a good deal of prep work done on the edges and metal shaping. Should have the replacement part installed tomorrow!

**Fitting: January 24<sup>th</sup>, 2006:**

Today the LH sill was all prepped and cleaned for welding. Nice to see parts going back ON the car!

**February 2<sup>nd</sup>, 2006: Welding**

Today the left hand sill was welded in. Clecos & vise grips are great! Still a good deal of grinding to do. A few areas could not be completed due to other panel work. More tomorrow!

**February 3<sup>rd</sup>, 2006: Welding....**

Today most of the sill is welded in place. Work started on the l/h quarter panel area.

**February 5<sup>th</sup>, 2006: Welding**

Today we both had a chance to work together on the car, getting a good 8 hours in. Andy finished all the test-fitting of the l/h quarter panel repair piece, and all the subframe closing panels. The front section of the wheel arch required some mending, which was taken care of too. Rachel worked on removing all the

extra metal from the old rear valence, and prepping the cross member for removal. Also started on removal of the r/r wheel well. Overall a very good day!

### **February 9<sup>th</sup>, 2006: Welding**

February 8th & 9th the l/h inner sill closing panels installed, and the join between the inner sill and the floor panel is seam welded and ground clean. That side is close to complete, with the rear pocket and seat pan still to install.

The next step was addressing the r/h quarter panel and wheel arch areas. Right now the damaged parts are removed, and the cleanup started to complete the test fitting.

### **February 11<sup>th</sup>, 2006: Welding**

The main objective this weekend is to complete the r/h quarter panel and wheel arch. While Andy did the tedious fitting of the quarter panel repair, Rachel cut out numerous small "plugs" to close up some of the larger holes in the floor, seat pan, and seat back. We need to get this area finished; as it will not be very easy to get at once the cage is in place.

The plugs were made by holding a scrap sheet of steel to the opening and scribing it. Then it was cut out with shears, and finished on the bench grinder. The plug will be held in place with duct tape, which will last long enough to get a tack weld in place before it melts. Thanks Marcel for this idea! By holding a light on the opposite side of the panel, you can center the plug with ease.

Once Andy had the panel fitting well, Rachel held a wet towel on the opposite side while the tack welds were being made. This really helped keep the panel cool, and the finished product has little distortion. Given the lumpy state of the quarter panel to begin with, we didn't want to make it any worse. This process was time consuming, as the towel had to be cooled many times. We also used the towel during grinding. Excellent results so far!

### **February 12th 2006**

Today everything went according to "plan", and we finished welding in the r/h wheel arch, plugging a zillion holes, and installing the l/h wheel arch stiffener. Also lots of grinding where we left off yesterday. What's left is to finish grinding the plugs in the seat back, weld in the repair section to the seat pan, some touch ups around the arches on the inside, and install the companion boxes. The floor still needs some work with the hammer and dolly to get it looking acceptable.

### **February 18<sup>th</sup>, 2006:**

Project for the day was to get the cross member installed, and to fabricate a way to mount the race seat and still be able to mount stock ones if required. Of course we had to do a mock up with the seat in place, and the steering column. We need two seating positions for the race seat, so that will require two sets of mounting brackets. The frame inside the cross member is 1" steel tubing, with 5/16" nuts welded inside. This really stiffened up the cross member, while maintaining the stock appearance. The completed cross member weighs in at 12lbs.

### **February 19<sup>th</sup>, 2006:**

A long but productive day! Lots of fiddly fitting work to get the seat pan and the companion boxes just so. It was important to get the floor to meet the companion boxes well, without any extra space between them. Also, the replacement seat pan required a lot of work to have it fit properly. The replacement companion boxes come just a tad too long, and so we had to do some nip and tuck to get them right. For example, on the first fit, the ashtray holder would have had to be on an angle to get it to meet the companion box, so many adjustments were required.

Overall excellent results and everything is super strong. Tomorrow we will finish up the grinding, as today we were into curfew hour by the time we were done!

### **February 23<sup>rd</sup> to 25<sup>th</sup>, 2006:**

Not too much to report this time period. We tried out the "unispotter" for the first time. Verdict: awesome! It really is the ticket for pulling out dents, in particular when you can't reach the back of them to work on it.

Our date with Specialty Engineering was postponed, as they were smoking busy trying to get a few cars ready to race in March. We are on the call back list. Meanwhile, lots to do so this won't be much of a setback. Andy started today welding up all the holes in the firewall and dash area. Also, we hauled out the front clip on the donor car and removed a chunk of the dash to fit in the former carb box area.

### **February 26<sup>th</sup>, 2006:**

Today we continued with welding up holes on the front, and got a good start on the replacement firewall. It is all cut to fit and just needs some bead blast to clean it up a bit. More work with the Unispotter, removing dents.

One of the other items cut out for the carb box was the dash pad retaining strip. We had to cut this off the donor car. It was sad to cut up a perfectly good dash, but the location of the part and it's relation to the other panel's would mean that something would have to be sacrificed. It just needs a bit of bead blasting to remove the paint in the grooved area and it will be ready to weld in.

Just for a little self-gratification, we set the fenders and nose up. Looks cool!

The day closed early due to a trip out to the Tradex to pick up the race car. Somehow we even won a prize-second in the race car class!

### **February 27<sup>th</sup>, 2006:**

Today's project: A-panel replacement. First up was to remove the inner A-panel, which involved drilling out the spot welds. After some clean up of the surface inside, fitted the outer A-panel. The join at the top is right under the hinge, since above that was in beautiful condition, and that area is very hard to work on. This allows the correct shape to remain above the door hinge. Then the outer A-panel was welded into place, and the welds ground smooth. Looks great! Tomorrow a trip to the welding shop is in order, since the bottle of Blue Shield is all gone. After that will concentrate on the inner A-panel.

### **March 2<sup>nd</sup>, 2006:**

The A-panel project continues. The l/h side is now complete, and the r/h side requires the inner A-panel to be welded in place. At this stage it is possible to test-fit the doors. Some minor adjustments, but overall very pleasing.

### **March 4<sup>th</sup> & 5<sup>th</sup>, 2006:**

A productive weekend, even though there was a surprise visit by the 4 year old nephew, and Andy was working on Saturday. The repair to the instrument binnacle is now complete, the A-panels finished, and the r/h inner fender is done. And assorted holes filled, as usual!

### **March 13<sup>th</sup>, 2006:**

First up today was to finish up the repair to the l/h inner fender, which was halted by the Memphis trip. Given the access required to that area, we decided to roll up the edge of the repair piece, and enlarge the existing opening. It had been rudely hacked out, which left the edge very sharp.

Another snag developed later in the day, when it was discovered that the front subframe was bent. It is out by at least 1/2", which may explain why the front end would not line up properly! Too bad, since it was in great shape. Specialty Engineering called in the afternoon, and said they were ready to get the cage underway! So, after work we took the run out to New West to drop it off. Very cool shop!

Specialty Engineering

The highlight of the day was a visit to Specialty Engineering, to check on the progress of the cage install. To our delight, there was considerable progress (they just started on Tuesday), with the basic shape and

lines of the cage done. In many places the cage was just tacked in, so that we could go over placement prior to the "commitment" welding being finished. The upper door bars were bent up and ready to weld in place. There will also be a lower door bar on the driver's side, running just above the cross member. The bar running underneath the parcel tray was beautifully done, and required a mod to the pedal box. About 3.5" was cut off the 'nose' of the pedal box, and a tab welded on to allow it to be bolted to the bar. Very cool!

We then set the seat in the car, to check for the placement of the bar to attach the shoulder belts to, and some upper and lower measurements. Everything looks great, and there will be lots of room to move the seating position to allow both of us to drive in comfort.

It looks like production is right on schedule, and we should have the car back in a day or two. Saturday morning started off great, with a trip to pick up the tub from Specialty. Finished product is on time, on budget, with exceptional workmanship. Thanks guys for a great job!

### **March 27<sup>th</sup>, 2006**

Today was a big day! Andy finished welding the front end on the tub. Lots of test-fitting did happen over the weekend, resulting in an acceptable finished product. Not much welding left to do, so the end is in sight!

### **March 28th, 2006**

After installing the front end, today didn't feel like much progress. Lots of little areas to weld, which are slow and rather unrewarding. Bob B stopped by in the late afternoon, so we closed up shop a little early!

### **March 31st, 2006**

Yesterday Andy picked up the chrome from [Electroshine](#). Very nice! The process is expensive, but nothing beats the look of beautiful chrome! Perhaps a good thing Minis don't have much of it compared to other cars...

One day closer to having the metal work completed! Today's projects: drip rails and rear valence. Hopefully we will wrap up the welding tomorrow, and get a start on the mock-ups, door fitment, and associated items.

### **April 1st, 2006**

A full day of grinding, welding, and fitting! Today was one of those days when lots were accomplished, but it does not show well in pictures. The remaining welding is 99% done, with just a few small pinholes and other areas to do. I actually was able to put away the vice grip collection, which was fantastic!

We started off with grinding and smoothing previous welds. Some of these were in the boot, an area that falls into the "hard to reach" category! Andy got busy laying down some molten metal on a few areas that we missed previously. The next big step was to fit the doors. The doors we are using are not the originals, so we correctly anticipated a fair amount of work to fit them. Results however are encouraging, with proper alignment and gaps without any problem areas. Then it was on to some panel shrinking (Unispotter rules!) on the L/H quarter, which turned out very well.

### **April 6th to 8th, 2006:**

Days have gone by without an update, but I just have not had time to get the pics uploaded or any words written.

Once the welding was finished, it was time to do a complete cleaning of the shop. All the metalwork tools put away, and a few intense sessions with the shopvac were in order. In preparation for sanding and painting, we put up heavy vapor barrier plastic from ceiling to floor. This will also keep the heat localized, to warm up the body when priming.

Andy did a few minor finishing welds on the car Thursday, including welding the extra door handle holes in the doors.

Saturday, the first project was to remove contaminants from the roll cage (grease, dirt, oil, etc.), and then sand it down with 120 grit sandpaper to smooth out the surface. I used PPG DX330 wax & grease remover, plus lots of soft flannel cloths! Amazing how much crap is on that metal.

After cleaning, everything was sanded. Then another round of the cleaner, to make sure the surface is spotless. I also removed all the "temporary" primer on the drivers' side of the car; as we will re-spray it with the metal etch primer. I also used a soft disc on the die grinder, which really cleaned up any uneven welds and nicks in the metal. This was really handy around the doors and the sill area, which had a few marks from the grinder or previous abuse. Then a smoothing with 80 grit, followed by 120 grit and cleaner. By the time Andy got off work, I had everything ready for the primer coat. As we were setting up for priming, our transmission arrived! A BIG thank you to Bob Beauchemin for building it up for us! And, thanks to Corey for the delivery from Kamloops.

#### **April 9th & 10th, 2006:**

Sunday was a full day of body work. The l/h quarter panel is looking good, and the windshield posts are improving. Still more work required of course. We also test fit the quarter windows, as we had welded up the holes (they are always stripped out!). Once they were in the correct position, we re-drilled the mounting holes. Andy also rebuilt the gauge cluster. Looks great and now ready to install!

#### **April 11th & 12th, 2006:**

Well, no exciting pictures...really how interesting can bondo work be? It is that stage of the project that is hard to capture the progress on film. Mostly because it all look similar! We need to install a water separator prior to shooting the primer. 4 days of madness will commence on Friday! Look for more updates then.

#### **April 14th to 16th 2006:**

So, three days of work on the car! So much time in the garage that updates were just out of the question. Things are really coming together, with about 75% of the worst body work done. In addition to lots of filling and sanding, we also test-fit the grille and surround, and drilled the holes for the "wisker" ends, and the front/rear bumper. A big disappointment was the fit/finish of the nose panel. Not only was it hard to fit during the welding process, but the metal is much softer than for example the wings. The area that was bent down to mount the oil cooler warped most of the panel, and the spot welds are crap. This added considerable time and effort to get it looking acceptable. The bumper fits poorly, but once bolted down it will work. If only you could buy quality! Ah, well you work with what you can get!

Since it will be a few days until the next opportunity to work on the car, all the work so far was covered in high-build primer. Nice to cover up the gold, black, grey, and assorted other colors!

#### **April 19th, 2006:**

Today Andy worked on the roof. Although the roof its self was in good condition with only a few dents, the edges were previously damaged with a chisel when the former owner removed the drip rail. This was tough to fix, as getting a dolly in the drip rail was next to impossible. However, a few hours of work with several implements had things looking better, and a thin skim of filler will do the rest. Roof now ready for the next round of high build primer, with a few more hours of sanding on the drip rail area.

The next update will be Monday PM, as other commitments demand attention.....work, and down to Seattle to pick up more parts shipped to Chuck's place!

#### **April 22nd, 2006**

Over the last few days Andy rebuilt the Longman head at Mike's in between flying runs. Thanks Mike for the ongoing shop access! One more part ready to bolt on.

Saturday Andy was working, so I took the opportunity to get some more bead blasting done, and clean up the hydro displacers. I took in a big box of assorted parts over to the hangar, and went through a 60lb bag of bead to clean what I had brought.

Once that was done, I used the bench grinder with a wire wheel to clean up the displacers. I had already scraped off all the gooey undercoating, which is a must prior to wire wheel use. Once the rust and old paint was removed, I gave them a good cleaning with Castrol Super Clean to bring the hoses up to par. What an improvement! They are now ready to paint with all the bead blasted stuff.

Tomorrow we will pick up more parts that have been waiting at Chuck's place. Looks like the weather will be perfect for a blast in the MINI, which I washed and detailed up today. Clean cars always look so nice!

#### **April 27th, 2006:**

Mostly work and no play this week! However, Andy spent time on the drip rail, trunk fitment, and associated surfaces. Progress is slow, as none of these areas are flat and require lots of sanding...

Dyrk arrived today also, with the fuel cell and Rose Petal rims. Very cool! The rims will need painting, but will look very nice on Schimberg car or the other two S's.

#### **May 2nd, 2006:**

After all the racing fun on the weekend, it was time to get back to the race car. Today was more sanding (how did you guess?), and some uni-spotter work to pull the dents out of the trunk lid. Close to 20 of the weld pins were needed, but results in far less filler required. The original badge holes had to be welded up, as they were off by quite a bit (not the original trunk lid). First coat of filler on it to end the day, which will be ready to sand tomorrow.

#### **May 3rd, 2006:**

More work today on the trunk lid, and it is starting to look great. It should be ready for primer by the end of the day tomorrow. There was also time to lay a coat of primer on the roof and rear panel. Nice!

#### **May 6th, 2006:**

First up today was sanding the engine bay, boot, interior, and removing the spare tire bracket. Andy was off to work, so these simple tasks were within reach, albeit with three cups of coffee first!

To remove the spare tire bracket, it was a simple matter of carefully grinding the metal away, until the spot welds were ground through. A good quality table knife came in handy too (don't tell mom!) to pry the bracket away from the boot floor one side at a time. When the metal starts turning blue during grinding, you know it is very thin and ready for the knife. Once it was off, all that was required was to sand away the scale and prime with metal etch primer.

There was some doubt if the hangar would be available this weekend, but being an optimist I loaded the van and went over there to check things out. Turns out all was clear, and Marcel (the God of the Hangar) stopped by and told me if I was willing to un-mask the aircraft parts that were taking up space, I would be given the all-clear to occupy the booth. Deal!

I spent some time getting all the parts ready for Andy to paint when he got off work. The subframe needed a good going over with a scotch brite pad. Although the factory paint was nice, it would not match with the Endura that would be sprayed on all the other parts. While doing the primer coat, some of the parts fish-eyed like crazy. I took those back to the bead blaster, and cleaned them up again. On the next round no problems! We will pick up the bits in the am, after they have had a chance to dry overnight. Endura is slow to kick.

Later in the day, it was time to test-fit the fuel cell. While not exactly ideal, given the time constraint it will do nicely.

### **May 7th, 2006:**

First up on the to-do list was to modify the rotisserie to move the mount from the instrument hole to the front subframe mounts. A few welds, some muffler clamps, and ready rod, and we were all set. This will allow us to paint the interior of the car without having to touch up the area behind the dash. Also, the car is getting heavy, and we don't want to damage the newly replaced firewall area!

Then the entire floor, inner fenders, engine bay, trunk, and interior were seam-sealed. Messy work! First we had to sand down the floor, and then a good vacuum followed by surface prep with the degreaser. Then the cage had to be masked, to avoid overspray.

While I went and picked up the black parts we painted on Saturday from the hangar, Andy put a few coats of hi-build on the engine bay, trunk, and interior. All in all, a very productive weekend!

### **May 8th & 9th, 2006:**

Monday Andy spent most of the day designing & fabricating a mount for the fuel cell. This is now pretty much finished, and will be included in our next batch of black painting. Also, after inspecting the metal tabs that hold the rear wiring harness, the metal was so fatigued that replacement was the only option. This is now completed, and ready for paint.

The next step was to mask off the body, in order to paint the roll cage. Given that the cage is very close to the body in many areas, the masking had to be as thin as possible to allow for the most paint coverage. Also, as the car would be rotated during painting, the masking had to be held down securely to avoid any movement. Most race cars have the cage painted with the interior, but we really wanted it to be black. The penalty was 3 solid hours of careful masking for two people, but the end result is stunning! Andy painted two coats of epoxy primer, followed by four coats of PPG Concept. We opted for a satin finish rather than gloss, as we felt it would look too stark if it was really blingy. End result: perfect! The paint will cure for the next 4 days, during which time we will not remove the surrounding masking to avoid scratching the surface. In many areas the masking is ultra close, so we don't want to chance undoing any of this hard work!

Meanwhile, the boot and engine bay can be sanded, as the hi-build has had plenty of time to cure. Saturday we are shooting for paint of the underside and interior, depending on paint booth availability. Of course that means masking up the cage to avoid any white overspray.....:) 3M Rules!

### **May 13th, 2006:**

Today the booth was available, so we got down there early. The shell needed time to come up to painting temperature (70 degrees), so while that was warming up we got started on masking. This project needs to be painted in stages, to avoid overspray. We decided to do the floor, engine compartment, and inner fenders all in one go. The cage was also completely masked, as we will be doing the interior and boot tomorrow.

First two coats of epoxy primer, followed by three coats of color. We used PPG Concept Urethane for the top coat, and PPG DP50LF Epoxy Primer. Nice stuff. Finished product really looks good, with no dirt, runs, etc. Having the right temp, humidity (less than 60% today), booth, and ultra-clean surface produced excellent results. In the booth the color looks really beige, but a sample out in the sun is perfect. We compared it to the 67 S to be sure. Oh, and I forgot to use a flash, so the pics are a little on the dark side!

All in all very exciting to see some color going on the body at last! Next update tomorrow.....

### **May 14th, 2006:**

With most of the complex masking done yesterday, all we had to do was tape up the holes in the body and cover the underside & engine bay area. Two coats of primer, and then on to paint. Painting inside the car is tough, with the roll cage in the way most of the time. It is hard to get all the areas covered, while keeping the airline and gun from touching anything (not to mention your head!). Andy did a great job, with the end result really looking awesome.

We had started early, and by 14:30 the last coat was on and the equipment cleaned. The shell will sit overnight, and we will pick it up in the am.

### **May 15th & 16th, 2006:**

Today and Monday were spent getting the block ready for the machine shop, rebuilding the rear hubs, a little tinkering on the rear subframe, and unmasking of the cage. Andy also took the front subframe and swing arms to be sandblasted. These should be done by Friday.

The block is in great shape, standard bore. All the oil galleries required cleaning, as well as drilling out the old brass plugs and tapping in new threads. The Chevy orange has to go, so it will be hot-tanked. It will require boring to .020 over, deck surface refinished, and new cam bearings installed. Of course it will be balanced too. Bob Beauchemin's "special" S rods and a new EN40B crank await.....Thompson Machine in Nanaimo will be doing the machine work.

The best part of the day was un-masking the roll cage! Pure beauty.....obviously worth all the extra effort.

### **May 17th, 18th, & 19<sup>th</sup>, 2006:**

Wednesday through Friday was limited to a few small things. Andy had been working on the carbs at Mike's shop, and these are almost finished (parts on the way from Marcel-thank you!).

The rear swing arms and front subframe were finished being sandblasted, and are now ready for paint. The swing arms received a good cleaning to remove any sand, and then overhauled with kits. These kits come with a new shaft, bushing, needle bearing, seals, etc. After installing the bushing, it has to be line-reamed with the needle bearing, and a final hone to size. Now they just require masking and a rub down with cleaner prior to paint.

The front upper suspension arms are also rebuilt and ready to bolt on. These were in the first batch of black paint, which is well cured now.

We hunted out more bits and parts that will require bead blasting and paint, as it looks promising to get access to the paint shop on Sunday. We hope to finish up painting any parts that need to be black, as well as paint the rose petal & minilights. Lots of wire wheel, sanding, cleaning, and bead blasting to do!

Tomorrow, a break for the Van Dusen show!

### **May 21st, 2006:**

After a day off at the ABFM, it was time to get back to work! Andy repaired the front subframe (it needed some holes filled where a skid-plate had been installed), and added a few welds for strength. I took another two boxes down to the hangar for bead blasting. We have a 24 hour window for the paint booth, so not enough time to get any more paint on the shell. Perfect however to get another round of black done, and the rims. The remainder of the day was spent painting the bits, Minilites and the rose petals. I forgot to bring the camera and was too busy to go back for it, so the pictures will come tomorrow!

### **June 1st, 2006:**

After a relaxing weekend of racing, it is time to get back to reality! Bunch of little things accomplished over the last few days, with the engine parts now at the machine shop, the seat in for recovering, and a few other bits cleaned up.

Today Andy started on the body work for the doors, one of which is now ready for a coat of hi-build primer. The hood and boot are also ready, with one door to go. I sanded out the front end after work, which is looking really nice. The fancy sanding blocks that Mike Owen (thanks Mike!) lent us work awesome! A huge difference from regular sanding blocks, in the quality of finish & speed. Very impressive.

### **June 3rd, 2006:**

Andy had to work today, but managed to rebuild the door hinges at Mike's before coming home. Meanwhile, my task was to have the remainder of the car sanded down when he returned. The inside of the doors and hood also got a quick sand, as the metal etch primer has sat for a long time. There was a lot of hand sanding, but the areas that were big enough for the AFS sanding boards went quickly. Andy brought the largest one home from Mike's, which made short work of the roof. It is amazing how awesome these things are-once you have used one you will toss all your other sanding blocks/boards away! We also tried out the 3M dry guide coat, which confirmed that we were good to go for the second coat of hi-build. We also set up the hood latch, and the leather retaining strap. All the doors, hood, trunk, and hinges are now ready to prime, so that will be up for a first coat tomorrow.

We loaded the car into the trailer and dropped it off at the paint shop, so we are ready to go first thing tomorrow. It was a great feeling to know that when the car returns to the garage, it will be PAINTED! Some serious clean up will be required first, as the grinding and sanding dust has found it's way into every corner. The goal for Sunday is to do one last check over on the body and fix any thing required, and have the car, doors, hood, trunk, and all the bits in the box primed.....

#### **June 4th, 2006:**

Happy Birthday Andy!!! What better way to spend the day: masking and painting a car?

Today's project was to get another coat of hi-build on the body, as well as a first coat on the doors, trunk, hood, hinges, seam covers, etc. The body needed masking up, which of course is a time-consuming process. This time we tried out masking-specific cling wrap plastic, which works awesome. Really no comparison between this and regular plastic. This stuff clings to the body, as well as sticking to the tape. Excellent!

Everything is now primed, and we will start the next round of sanding, which starts on Tuesday.

#### **June 5th, 2006:**

With the body shell off at the paint shop, now was an ideal time to clean up the garage. Months of grinding, sanding, and body work have really made a mess. Shop vac's rule! Every surface was coated in dust, even with the plastic curtain. It was a great feeling to finally be able to remove the plastic, mostly because it made the shop so much bigger, and it signals the end of the nasty work! Once everything was clean, we put down some white masking paper on the shelves and tables, and set about organizing the parts. Not only does the masking paper provide an ultra clean surface for the parts to rest on, but it also prevents any of the small bits from "hiding" in the shadows. With so much black, small parts get lost very easy!

#### **June 7th, 2006:**

After much prep and careful work, today the outer body was painted! Andy did an awesome job, and the results are beautiful. The temperature today was ideal at 22 degrees C and low humidity. Andy also used a new air line off the regulator, and a desiccant "snake" by DeVilbiss, which reduced relative humidity to .5%. End result confirmed our body and prep work was excellent. Of course the lighting in the booth makes the color look strangely yellow. Where the camera flash hits the body it almost looks right....

We will take the masking off tomorrow, and then start on the doors, hood, and trunk lid. There will be three more painting sessions, one for the doors, trunk, and hood, one for the roof (likely Friday or Saturday), and a final round of small bits that need to be body color.

#### **June 8th, 2006:**

Another busy day in the paint shop! First task was to unmask the shell, which of course was most pleasing! Not many words required: Wow! It looks great. All that masking and prep really paid off.

The next step was to wrap all the rails in the booth with saran wrap, to make sure they were ultra clean. Then Andy made some custom brackets to hang the doors from, in order to paint them in the optimum

position. These were fabricated out of redi-rod, with nuts on the end to hold them in the proper position within the frame.

Hood, trunk, and doors then received a light block sanding with 180, then a guide coat with 180, dry sand with 320, and a final wet sand with 400. 1 coat of primer followed by 3 coats of paint and they look awesome!

Next up: roof and final bits.....

#### **June 10th, 2006:**

On Friday, we finished painting the bits (hinges, hood latch, door hardware, etc), and did all the seam sealing on the roof. First up today was to do a complete cleaning of the booth (again!), and then mask up the car with only the roof exposed. This is it-the last masking job!

Once the car was masked, we did a final once-over with wax & grease remover, followed by blowing and tacking off the surface. Then Andy put on his paint suit, and did another tack application to remove anything that may have fallen on the surface from our clothes.

Then a coat of black epoxy primer, followed by 4 coats of paint. Finished roof is exceedingly reflective and glossy. Absolutely awesome! Tomorrow we will bring the car home, ahead of schedule!

Let the assembly begin!

#### **June 11th, 2006:**

The anticipation of unmasking the car had us over at the hangar early. We spent some time cleaning the shop before taking the car home.

Now the fun work can begin!

#### **June 14th, 2006:**

Since bringing the car home from the Hangar, a number of things have been done. First up is to complete the cleaning and painting of the suspension parts, and numerous other small bits. Mostly stuff that needs to be silver. All the threads are now cleaned out with the appropriate tap. The recent vacancy of the spare room invited a host of mini parts, which now are waiting in line to be put on the car. Really nice to have one room dedicated to parts!

Another project is to fit the rear anti-roll bar. This must be done prior to installing the rear subframe, and is proving to be tricky. The hydro line mounts are in the way, and mounting the device lower will cause some issues when fitting the exhaust. More work needed to complete this.

Boot board brackets & right hand tank brackets were also riveted in place, and then the rivets touched up with some paint. These are now finished. The pedal assembly is now installed, as is the brake & clutch master. Upper shock mounts are in.

Andy made a very nice custom blanking plate to cover over the heater hose openings out of aluminum. The clutch slave and hose are in, and the dog bone bracket. Front subframe is now ready too.

#### **June 15th 2006:**

Thompson Machine in Nanaimo finished up the machine work today. They cleaned and sonoflaxed & resurfaced the block, bored & finish honed the cylinders (very nice at 20 over), align hone the main housing, polished the crank and thrust faces, install the cam bearings and balanced the lot. Very nice work and great service, picking up the parts and dropping them off for no charge. Assembly continues on the rear subframe, displacers, & swing arms. Saturday, Sunday, & Monday we have a two-person crew, so lots of progress expected!

### **June 17th, 2006:**

Today assembly continued, with the first task being to clean up the hydro lines and get them on the car. We ended up painting them a dull silver (sort of a cast finish), because by the time they were properly cleaned most of the finish was removed. The plastic buffers were a greenish color, which cleaned up very well. Once they were installed, we put in the steering rack and rear subframe. Andy also installed shut off valves on the rear hydro lines, which are tucked up under the muffler. This worked out nicely. All areas that require rust preventative also received a good spray, which is so much easier when you can turn the car this way and that to get it to flow into all the crevices.

Once these tasks were complete, it was time to remove the rotisserie! We stapled some foam to 2X4's, and put these under the jack stands. An added bonus was to roll out a large piece of carpet, which made working on the car a real pleasure! In fact, we walked around in our socks all afternoon; it was like having the car in the living room. In addition to being a comfortable working environment, you don't have to worry about dropping a part and it getting damaged since the carpet is nice and soft.

When the rear camber brackets were installed, it was found that they will need a bit of grinding to make them fit properly. The originals have a small area removed, and as we didn't do a test fit on these we will have to modify them and then touch them up. Minor setback.

Other items installed today were the rear tail lights, fuel cell mount, front marker lights, door striker hardware, some brake lines, etc. I was quite disappointed with the front marker lights, as the lenses were completely different, and the rubber needed lots of trimming. The chrome rings were really cheap, and I gave them a good polish which helped. The chrome on the rear tail lights is sub-par (it will do), and one of the lenses was cracked. We did have another in stock, so that setback was overcome. Hey, it's a race car after all!

We finished up by doing a bunch of touch ups around the areas where the rotisserie had been. This paint is toxic, so touch ups need to be done with a mask, at the end of the day to allow the space to clear out for a while.

### **June 19th, 2006:**

A very productive two days! Lots done, including:

- Fuel Cell mounted and remote fill connected. Original fuel cap polished
- E-brake installed & cables run
- Rear camber brackets modified (see pic)
- Rear sway bar mounted to subframe
- Entire front & rear suspension complete
- Brakes complete (lines need running)
- Wiper motor & linkage installed. Chrome nuts polished
- A-pillars & upper dash finished in vinyl (need the Newton order to finish lower dash)
- Hood latch & safety strap installed

The car is ready now for pressurizing the suspension and bolting the wheels on! Next update after our F1 vacation.....

### **June 28th, 2006:**

After the excitement and thrill of the F1 race in Montreal, it was time to get back to the project. At this stage, it can hardly be deemed a chore!

The first task was to finish the lower dash rail with vinyl. We soon discovered that the vinyl from our previous order (about 8 years ago!) was considerably thinner than the new stuff. The old measured in at .019", while the new is .032". It was a good thing that we used the old order on the pillars and upper dash, as this area is much more difficult to do. We were a bit worried about the thickness and being able to torture the material around the curved lower dash, but using the heat gun made a big difference to the

application process. The spare S shell had a lower dash pad trim strip in good condition. It just needed cleaning, since it had a coat or two of paint.

Next up was to install the windshield. With six hands for safety (thanks Rob!) and the right tools, we completed it without incident. It did help that the temperature was nice and warm!

Andy then worked on running the brake and fuel lines inside the car. He also made a custom plate where the lines came through the firewall, with rubber grommets. The lines run down one of the floor channels, and then under the cross member. This really looks nice and out of the way. The brake and clutch lines are now complete and ready for fluid.

### **July 1st to 3rd, 2006:**

Overall a very productive weekend. The only snag was blowing a hydro displacer hose. We did have a spare displacer, which got a fast clean up and paint. Here is a summary of what was done:

- Clean & Install 1/4 windows.
- Brake & clutch system fully bled with ATE Super Blue racing fluid.
- Instrument Binnacle installed.
- Battery cable routed inside car.
- Gas pedal installed
- Installed racing brake/clutch pedal extensions.
- Door seals, kick plates, & door straps installed (last item very hard to complete with roll bar in the way!).
- Carpets installed.
- Front & Rear bumpers installed.
- Switch panel & fuse box installed.
- R/H seatbelt installed (to hold down the pax seat!).
- Custom aluminum 2024 T3 closing panels fabricated for boot area, and installed.
- Hi-beam switch reconditioned & installed.
- Covers on C-posts installed.
- Grille surrounds & extensions installed.
- Pumped up Hydro suspension.
- Mock-up of shifter, trans case, block, head & carbs to fit header & oil cooler.
- Welded retaining sleeve system to replace clamp on header & collector. It is now ready for ceramic coating (Wednesday).

We bolted some wheels on the car, and she is sitting rather high at the moment. After the pics below we dropped the pressure to 200lbs, and although the car is still sitting high it is much better. Obviously, the wheels are too wide for the car, but so far we have not mounted tires on the rose petals. It is great to see the car back on its own suspension again!

Next up is a trip to Mopac for more goodies! More updates next weekend.....

### **July 5th, 2006:**

Today Andy made a run out to Mopac to pick up some bits, and to drop the headers & collectors off at Kool Coat Ceramic Coatings. The ceramic coating will be completed next week.

There was time to do some small jobs afterwards. Andy finished rebuilding the steering column, mounted the Motolita wheel, tach housing & turn signal switch. Very pleasing! The mounts for the wink mirror were installed using rivnuts, and this is now very solid. The rear window is now installed, finishing up the list of glass.

The crank needed to be re-tested in the block, as the thrust surfaces were rough. Thompson polished the thrust surface smooth, so a second mock-up was required to check end float.

### **June 9th, 2006:**

Only one day to play this weekend, and morning company did slow progress a bit. We finished installing the remainder of the pocket liners; wheel arch covers, 1/4 panel liners, rear seat, and trim strips. Getting the seat back in was a challenge, and we had to take out one of the 1/4 windows to get it in past the roll cage.

The fire system is now installed. The lines for the fire system run under the left lower cage bar, and then under the dash. Nice and tidy. The battery cut-off mount has been completed, and is awaiting connection to the new 15.4lb Odyssey battery. It looks rather small in the stock battery tray, but we will make a custom mounting bracket to hold it in place.

#### **July 12th, 2006:**

Today we picked up the collectors, headers, and Andy's intake manifold from Kool Coat. We went for the ceramic chrome, which looks very much like the real thing! It seemed like a good idea to do the headers for both the cars at the same time. Although not a cheap process, the added life and under hood cooling is worth the price (not to mention the look!). Since Kool Coat is not far from Mopac, picking up a few goodies was in order. We will try out some K & N oil filters, and picked up some ARP 12 point stainless nuts for the exhaust studs and some trick stainless clamps for the fuel filter.

#### **July 16th, 2006:**

This weekend, more assembly progress, including:

- Finish mounting fuel pump, filter, & connecting hoses. Just need to finish the breather and ground strap.
- Install fuel regulator.
- Fabricate battery hold down straps, install cables and solder ends as required.
- Assemble door hardware and install on doors, rivet trim & kick plates on, door panels, and bolt doors on body.
- Mount mirrors on doors.
- Clean up the boot lid seal (new one predictably didn't fit!), install the boot board, seal, & badges, mount on body.
- Install lower body trim.
- Test-fit window net and mounting positions.
- Fit bonnet & adjust hinges. Install safety strap, badges, and hinges. New badge had very large mounting posts, which didn't fit the hood at all. So, a used one had to be cleaned up and painted. Looks nicer anyway!

#### **July 17th, 2006:**

A few more things finished up today. The coolant catch tank is now mounted in the l/h fender. Nice and out of the way. Lower engine stabilizer bars are fitted, with improved poly bushings. The exhaust is now fitted, a custom rear hanger fabricated, mounted and ready to go. Special DEI heat reflective tape (1500 degrees reflectivity) applied to the exhaust tunnel and hydro line near the header & collector.

#### **July 21st, 2006:**

Lots of little things done over the last two days. Fabricating a good mounting setup for the driver's seat was first. Since both Andy and I will be driving the car, we decided to make the front mount allow 8 possible positions. Bob sent down a 2"x3" aluminum tube for the rear mount, which is mounted solid to the floor with bolts.

Next the 5 point harness was installed, using eye bolts where required. Passenger seat was easy, and the seatbelt will hold it from moving during the race. The race seat facelift from black to red & gray really looks good!

Since the Smiths tach is new (and therefore slightly different than original 60's type), mounting it required some modifications to fit properly into the period column mount. Andy made up custom brackets, and it will now fit right in. The wiring is also complete.

The final task for the boot area was to run a vent breather hose for the fuel cell. Andy bent up some 3/8" aluminum tubing and used an existing hole in the floor to avoid drilling more.

We finally located a 2L catch tank for the oil, which is now mounted in the right inner fender. Not very period, but exceedingly practical!

#### **July 23rd, 2006:**

This weekend was dedicated to cleaning & painting the engine and assorted parts. Everything had to be cleaned spotless, and set up for assembly. Saturday was ideal for painting, and all the parts that needed to be green are now painted. Crank & cam, & frost plugs are installed, ring gaps & main bearing clearances have been checked, and crank end float.

Sunday morning, while reviewing the Customs paperwork, we noticed that the officer had recorded the wrong vin number on the import form!!! Needless to say, this would cause a big problem when we went to register the car, since the number he had written was the Oregon title number. The only way to fix it was to make a trip to the border and have them re-do the paperwork. A bit of a delay, but it was a nice day for a drive, and now the papers are in order.

Tomorrow assembly will continue.....

#### **July 24th, 2006:**

Assembly continues on the engine and gearbox. Rods & pistons now installed, front plate & timing components installed, and the cam is timed in. Timing gears aligned perfectly by selecting from our vast collection of front plate gaskets, which varied in thickness from .015" to .023". A .022" was used in the end. This way, no shims were necessary between the timing gear and the crankshaft. The LSD parts are now ready to assemble, and will be fitted into the gearbox. The compression ratio has been calculated at 12.2:1 using the Longman GT14 head, which should be just about right. Each rod bolt was individually measured & specs recorded for future reference. Ditto for rod side clearances. Ring gaps were done yesterday.

#### **July 26th, 2006:**

Tuesday & Wednesday assembly continued.....

Also today, Bob's custom rear tie down plates showed up, as well as the tire tubes for the Rose Petals.

- Double-check all assembly to date, including the cam timing, and lock bolts on the cam gear. Timing cover, front pulley, & damper installed, with works style lock plate. All bolts lock wired.
- Rod bearings clearances checked with plasti-gauge & rod bolts with Arp Stretch gauge rather than relying on torque to stretch the bolts correctly. Distributor drive installed.
- Installed Longman cylinder head with new ARP bolts & ARP 6 point nuts. BK450 head gasket.
- Installed cam followers, pushrods, & "works style" lightened/polished rocker gear. Since the head was shaved the rocker geometry was slightly off, so custom made .095 rocker post shims corrected the problem. Head torqued & valves adjusted.
- Some material removal in the trans case required to get the front main studs to clear, so the trans were fully masked up to prevent metal from contaminating everything. A few spots on the diff case as well. A die grinder with special carbide burr works great!
- Also, helicoil repair done to one diff side cover bolt hole in the case, and one 3/8 helicoil for the remote housing bolt.
- Assemble crown wheel on LSD & put together the side covers with LSD output shafts, new seals, etc.

- Shimming of the diff checked, and while doing so another bolt pulled out of the diff cover at about 10lbs/ft. One more heli coil installed...
- Diff installed into trans case.
- Test fit of Mini Spares roller bearing drop gears.
- Gasket surfaces cleaned on block & gearbox, units mated using 5/16" hex head cap screws and two 5/16" studs & nuts over the shift linkage.
- Primary gear end float sorted using a .114" shim.
- Clutch housing and primary gasket seal installed. Used our new rear seal tool and protective sleeve, which sure works a lot better than tape!
- Flywheel & back plate installed, ARP lube used on bolt threads & backside of bolt head.
- Water pump installed. Also installed a drain tap in the coolant drain hole, instead of the factory plug at the back of the block.
- Enlarged voltage regulator holes with a unibit to 1", for grommets and breather hoses.
- With the engine off the stand, flywheel torqued up to 150 ft/lb.
- Clutch cover installed and it is ready to go!

We finished up with installing the engine. With the mounts and upper dog bone secured, the next step is to start bolting the parts on! The moment of turning the start key (what? a key in a race car?) is near....

### **July 30th 2006:**

#### **Twenty years later...the engine runs again!**

With the engine now in the car, all that was required was to bolt on the accessories. Sounded simple, and for the most part everything was straight forward. We did run into a problem with the intake manifold. The surface was not large enough to contact the gasket all the way around, so we had to steal the intake out of Andy's car. At the same time, the flow was improved by doing a bit of porting.

Mike Owen flew over Sunday morning to assist. We soon had him doing the fun jobs, such as installing the rad and shroud, etc. Thanks Mike for all your assistance!

After gaining oil pressure, the moment of turning the key produced excellent results. The starter barley cranked, and Schimberg car roared to life! Talk about sounding sweet! The car runs awesome! A little bit of adjustment here and there, and a re-torque of the head after it was warmed up was all that we had time for today.

Now it will be a matter of tidying up the engine bay, with a few more straps and such to hold everything in place. The grille can now go in, and the license plate holder needs the light installed. The dash cards can be installed now that all the instruments are functioning. The window net requires mounting, and the tires need to be put on the rims. The alignment needs to be done once the proper tires are ready. Of course some suspension set up too, and final checks before we run it on the street for the first time.

### **August 3rd, 2006:**

The work schedule is busy this week, so today was the only day to play with the car. Registration process complete and now testing on the road may begin when the street tires are installed and some suspension set up done. Right now the plan is to road test early Sunday morning, before traffic builds. We will "borrow" the street tires from the 67 S for the road tests, and mount the rose petals for the trip down to Monterey.

The Hoosiers are now mounted on the rose petal rims and the minilites, so we are all set up for racing!

### **August 6th, 2006:**

Saturday more set up....including camber, toe-in, and weighing on the scales. Turns out the car is a rather plump 1486 lbs total, including 5 gal. of fuel and all fluids (no driver). This was set up using the Minilites. We will do a final set up on Wednesday, since this was done prior to road testing. Camber was measured

with both the Calver ST tool and the Smart Camber gauge on loan from Dennis Obee (thank you sir!). The car is now at 1.5 negative camber on the front, and .5 negative on the rear. Rear toe is set at 0, and the front at 1/8th toe out. Caster is 4.5 degrees +. Hydro pressure is set at 240psi even. Also lots of misc. projects, such as connecting the lights, fabricating a lic. plate bracket, tidy up in the engine bay, touch up paint (very little!).

Sunday we got off early for the car's first road test. This proved exceedingly successful, with no problems or issues noted other than minor carb adjustments. We choose the BCIT parking lot at the Airport, which was deserted with the exception of a old cranky security guard (who likely didn't appreciate being woken up!). Anyway, we got in quite a bit of testing before we were ousted :) With the radial tires, the car had no trouble at all lifting a back wheel.

We then went out the highway for the remainder of the testing, which involved loading the engine by accelerating from around 2500 to 4500 in 4th gear to help seat in the rings. We also tested cruising at numerous speeds.

The rest of the day we did a complete wash and wax of the entire car. This was followed by putting the numbers on the car, and misc. stickers. We also installed the window net & camera mount.

So, we can now pronounce the car **COMPLETE & READY TO RACE!!!!**