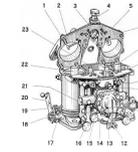


# 356/912 Resto Strip™



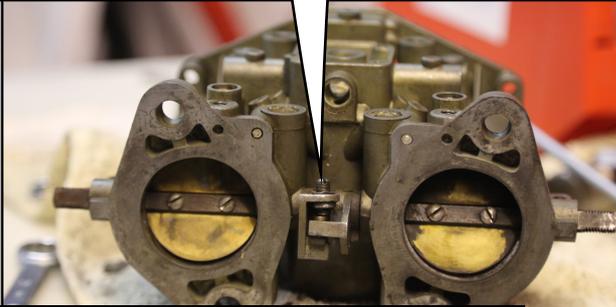
**Split shaft Solex restoration, keep it original!**

**JORIS SCHWEITZER**

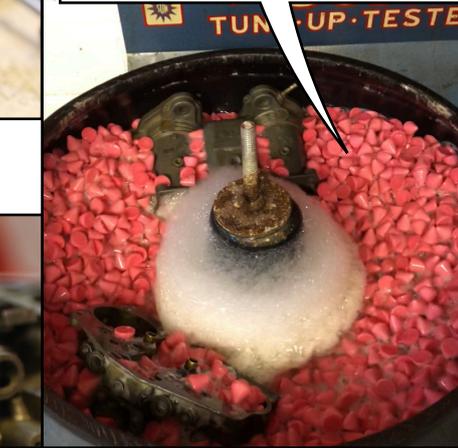
THE SOLEX 40 PII-4 IS A FANTASTIC CARBURETTOR, WHEN IT WORKS... THE SOLEXES ON OUR 356'S AND 912'S HAVE SEEN A LOT OF WEAR AND TEAR OVER THE YEARS. THE BUTTERFLIES HAVE EATEN THEIR WAY INTO THE THROTTLE BORES BECAUSE OF EXCESSIVE PLAY ON THE THROTTLE SHAFTS. TIGHTENING DOWN THE CARB ON THE INTAKE MANIFOLD HAS CAUSED WARPAGE OF THE BORES. YOU CAN TURN THOSE ADJUSTMENT SCREWS ANYWAY YOU LIKE, YOU JUST WON'T BE ABLE TO GET A CORRECT IDLE SETTING DUE TO VACUUM LEAKS ALL OVER THE PLACE. "WHO IS SHOOTING AT ME? THAT'S JUST THE GUY WITH SOLEXES DRIVING BEHIND YOU."



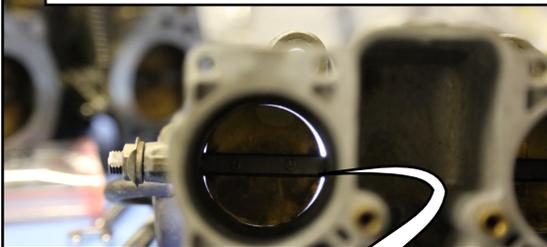
THE SPLIT SHAFT SOLEX USED ON THE LATER 912'S (69') HAD AN ADJUSTMENT BLOCK IN BETWEEN TWO SEPARATE THROTTLE SHAFTS TO BE ABLE TO ADJUST THE BUTTERFLIES INDIVIDUALLY. THIS IS WHAT MAKES TIME TRAVEL POSSIBLE.\*



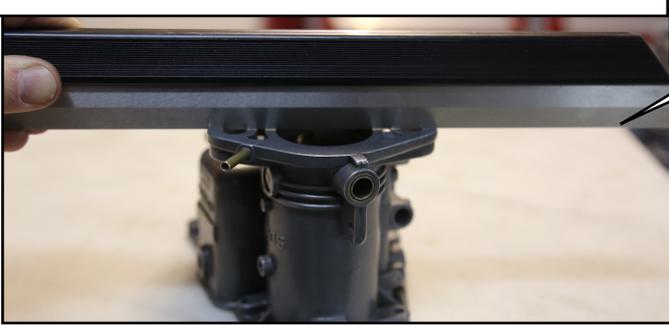
AFTER TAKING THE CARBS APART THEY ARE ULTRASONICALLY CLEANED AND TUMBLED IN CERAMIC MEDIA.



THE STEEL SHAFT THAT ROTATES IN THE SOFTER ALUMINUM THROTTLE BODY DOESN'T JUST CAUSE EXCESSIVE PLAY ON THE PIVOT POINTS BUT IN TURN ALSO CAUSES THE BUTTERFLIES TO RIDE IN THE THROTTLE BORE. THE ONLY SOLUTION IS TO MILL THE BORE TO AN OVERSIZED DIAMETER AND TO FIT OVERSIZED BUTTERFLIES.



AN EXAMPLE OF AIR LEAKAGE DUE TO WEAR. THESE BUTTERFLIES ARE IN THE FULLY CLOSED POSITION!



THE MATING SURFACES OF THE TOP OF THE CARB AND THE FLANGES THAT CONNECT TO THE INTAKE MANIFOLD ARE PRONE TO WARPAGE WHEN LOOSENING AND TIGHTENING. THE DIFFERENCE BETWEEN THE LOWEST POINT OF THE FLANGE AND THE HIGHEST POINT WAS ALMOST 0,5MM. THESE SURFACES WILL BE MADE FLAT AGAIN TO ENSURE FUEL AND AIR LEAKAGE DOES NOT OCCUR.



THE PREVIOUS MECHANIC HAD ALREADY INSTALLED BRONZE BUSHINGS IN THE PIVOT POINTS. SADLY THESE WERE ALSO WORN. NEW BUSHINGS WILL BE MADE ON THE LATHE WITH A CLEARANCE OF 0,035MM BETWEEN THE BUSHING AND THE SHAFT FOR "EINEN LEICHTEN SATTENGANG".

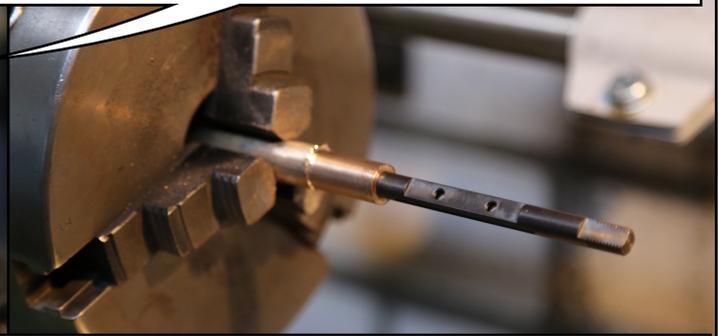
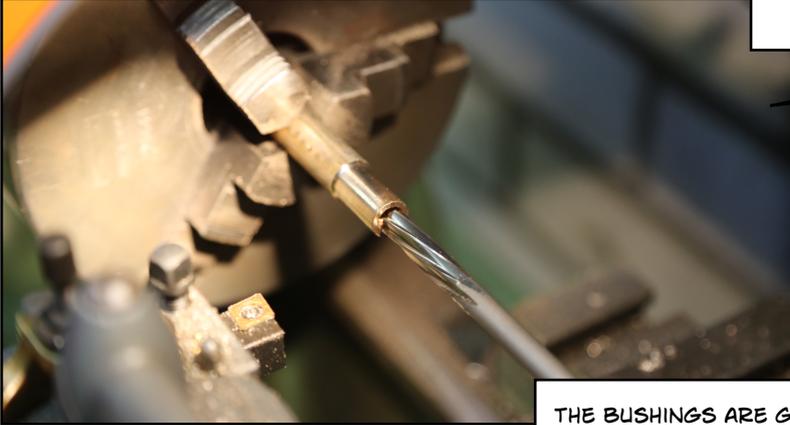


\*MAYBE NOT TIME TRAVEL, BUT THE ADJUSTMENT MAKES IT POSSIBLE TO ACHIEVE 100% AIR FLOW SYNCHRONICITY BETWEEN THE TWO THROTTLE BORES.

THE NEW SHAFTS I ORDERED HAD A DIAMETER OF 7,957MM. A DIAMETER OF 8MM WOULD HAVE BEEN EASIER TO WORK WITH WHEN MAKING THE BUSHINGS BUT I GUESS I'LL HAVE TO PUT A LITTLE MORE EFFORT IN ON THE LATHE ;)-



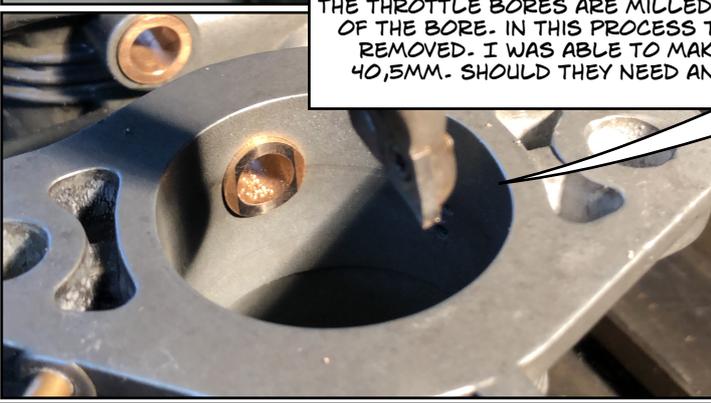
NEW BUSHINGS ARE TURNED OUT OF BRONZE ON THE LATHE. FOR THE OUTSIDE DIAMETER I WAS DEPENDENT ON THE PREVIOUSLY USED BUSHINGS. FOR THE INSIDE DIAMETER A REAMER OF 7,96MM IS USED.



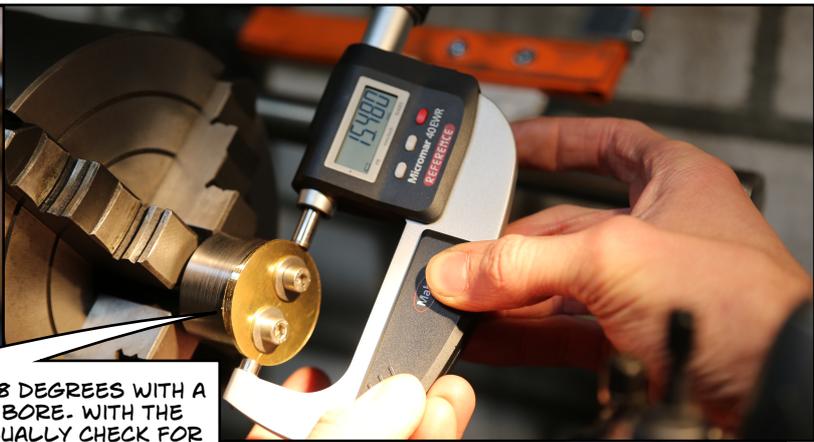
THE BUSHINGS ARE GLUED IN THE PIVOT POINTS USING LOCTITE 603. DURING THIS STEP THE SHAFTS ARE FITTED TO ENSURE CORRECT ALIGNMENT.



THE THROTTLE BORES ARE MILLED TO OVERSIZE IN ORDER TO MAKE THE NEW BUSHINGS FIT THE RADIUS OF THE BORE. IN THIS PROCESS THE GROOVE THAT THE PREVIOUS BUTTERFLY CAUSED WILL ALSO BE REMOVED. I WAS ABLE TO MAKE THE BORES CLEAN AND ROUND BY MILLING TO AN OVERSIZE OF 40,5MM. SHOULD THEY NEED AN OVERHAUL IN THE FAR FUTURE THEY CAN BE OVERSIZED TO 41MM.



NEXT STEP: BUTTERFLY PRODUCTION ;)



BUTTERFLIES ARE MACHINED OUT OF BRASS AT AN ANGLE OF 8 DEGREES WITH A CLEARANCE OF 0,02MM BETWEEN THE BUTTERFLY AND THE BORE. WITH THE BUTTERFLIES INSTALLED IN THE THROTTLE BORE YOU CAN VISUALLY CHECK FOR LEAKAGE USING A LIGHT TO SHINE DOWN THE THROTTLE BORE. IF YOU SEE NO LIGHT COMING THROUGH ON THE OTHER SIDE WHEN THE BUTTERFLIES ARE CLOSED YOU KNOW YOU'VE DONE A GOOD JOB :)\*



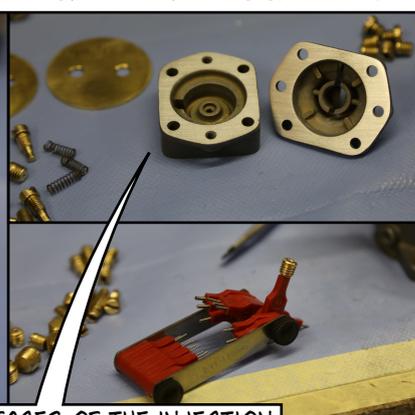
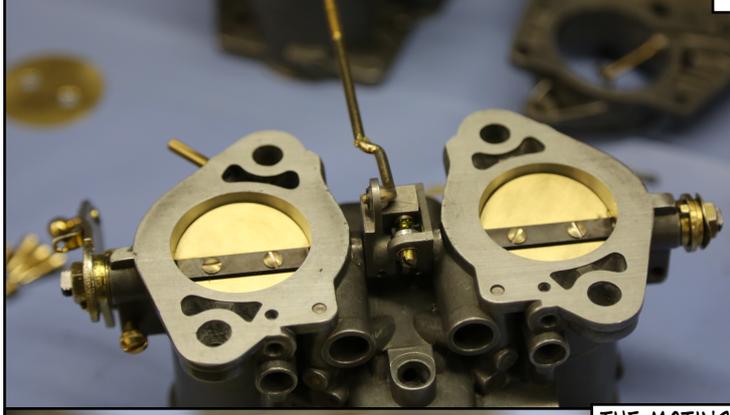
DO YOU SEE ANY LIGHT SHINING PAST THE BUTTERFLY?



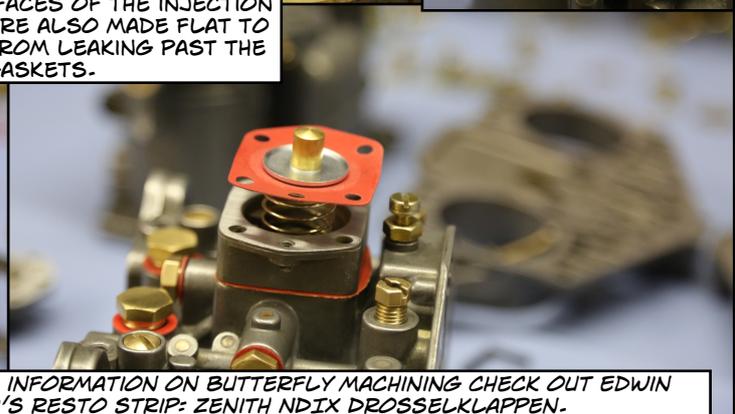

BEFORE ASSEMBLY CAN START THE SOLEX BODIES ARE ULTRASONICALLY CLEANED AND BLOWN THROUGH WITH COMPRESSED AIR ONE MORE TIME IN ORDER TO GET ANY DEBRIS OUT THAT MIGHT HAVE GOTTEN IN DURING THE MACHINING PROCESS.



ALL JETS ARE MEASURED AND CLEANED. THE HARDWARE IS REPLACED IN THE ORIGINAL YELLOW ZINC. THE ADJUSTMENT BLOCKS IN BETWEEN THE THROTTLE SHAFTS ARE REPLACED. THESE ARE OFTEN WORN AND BENT. SHIMS ARE USED AT THE ENDS OF THE SHAFTS IN ORDER TO GET THE BUTTERFLY TO ROTATE EXACTLY IN THE MIDDLE OF THE BORE.

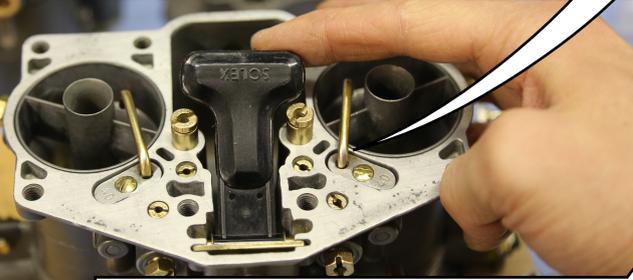


THE MATING SURFACES OF THE INJECTION PUMP HOUSING ARE ALSO MADE FLAT TO PREVENT FUEL FROM LEAKING PAST THE GASKETS.

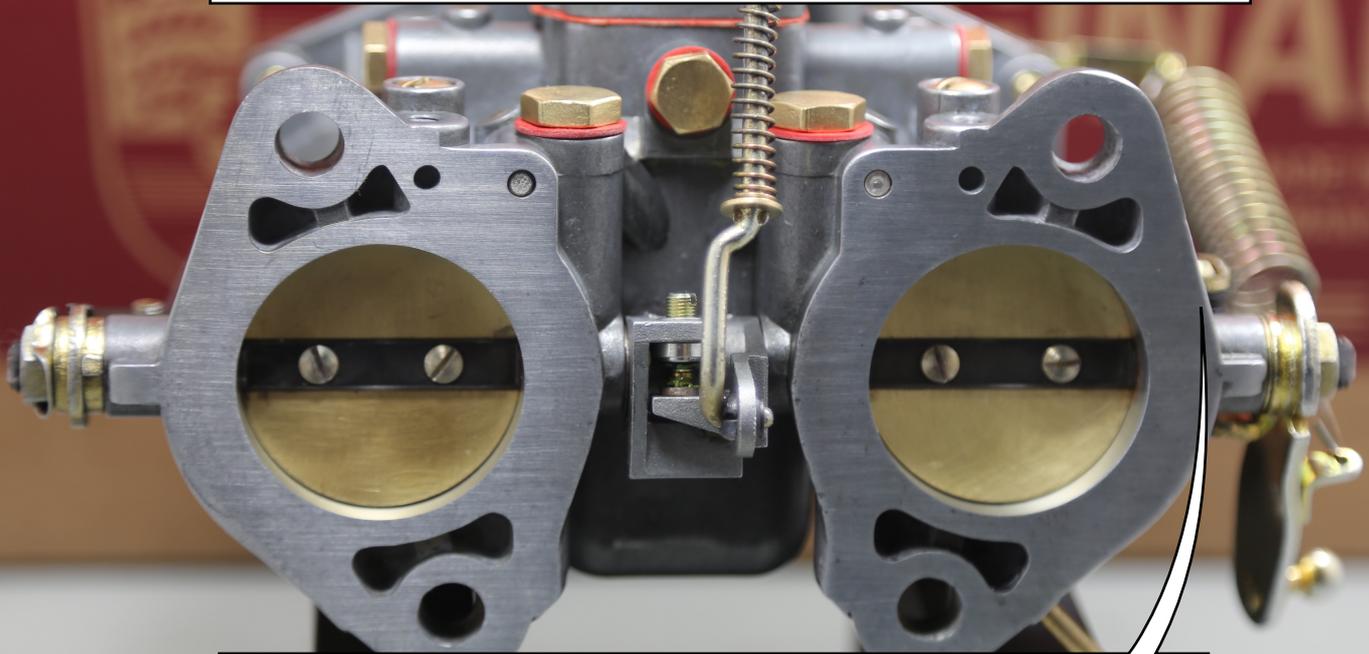


\* FOR MORE INFORMATION ON BUTTERFLY MACHINING CHECK OUT EDWIN SCHWEITZER'S RESTO STRIP: ZENITH NDIX DROSSELKLAPPEN.

THE INJECTION NOZZLES SHOULD BE ADJUSTED IN SUCH A WAY THAT THEY SPRAY THE FUEL DIRECTLY DOWNWARD WITHOUT FIRST HITTING THE BORE OR THE BUTTERFLY. THEY CAN BE TURNED AND BENT LIGHTLY UNTIL THEY ARE IN THE CORRECT POSITION. THIS WILL PREVENT FLAT-SPOTS DURING ACCELERATION.



THE TOP COVER, CARBURATOR TOP AND BOTTOM ARE MADE FLAT ON A TRUE SURFACE USING SANDPAPER. TO MAKE THE SURFACES NICE AND SMOOTH I WENT FROM 300 GRIT UP TO 1000 GRIT. THIS WILL PREVENT ANY LEAKAGE OF AIR OR FUEL.



WITH THE USE OF THE IDLE ADJUSTMENT SCREW YOU CAN EITHER OPEN OR CLOSE THE BUTTERFLIES IN ORDER TO ADJUST THE IDLE SPEED OF THE ENGINE. THE BUTTERFLIES SHOULD NEVER BE FULLY CLOSED. THIS WOULD ALLOW THEM TO HIT THE BORES. THIS PHENOMENA WOULD OCCUR IF THE SHAFTS AND BUTTERFLIES WERE WORN. THEY WOULD LEAK SO MUCH AIR THAT YOU WOULDN'T BE ABLE TO ADJUST THE IDLE SPEED CORRECTLY.



I WOULD LIKE TO THANK REMON VERAART FOR GIVING ME THIS PROJECT AT RESTO LAB. I WOULD ALSO LIKE TO THANK JAN BALDER FOR HIS GREAT ADVICE ON MILLING AND MACHINING. THE NEXT RESTO STRIP WILL FOCUS ON SETTING THE FLOAT LEVEL, INJECTION QUANTITY AND AIR FLOW OF THESE CARBS.

JORIS SCHWEITZER ©  
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