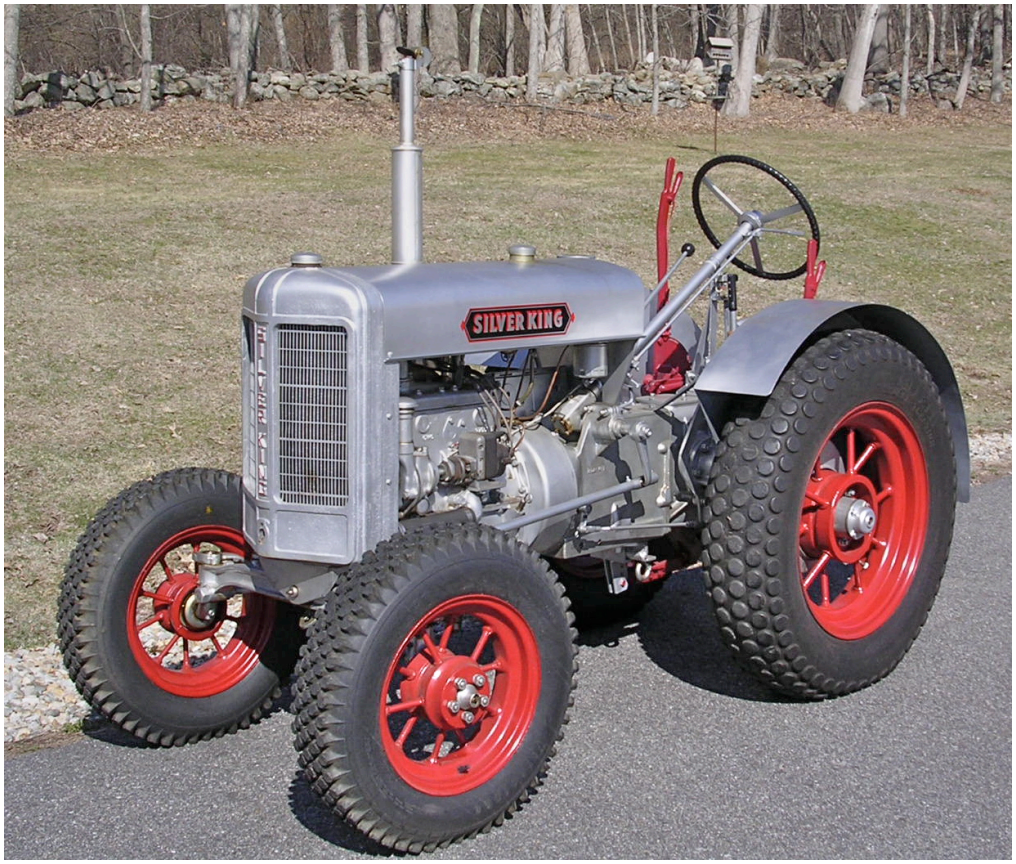
RESTORATION OF A 1935 SILVER KING TRACTOR

By Dave McClary

Preface: The following is an account of the restoration of a 1935 Silver King R-38 tractor in the years 1998 to 2001. Much of this is taken from articles written for the Quinebaug Valley Engineers Association monthly newsletter as the restoration work progressed. These have been edited to shorten and improve continuity. The tractor was originally purchased and used for haying in Stonington, Connecticut, on local farms. It had been in storage for the previous twenty years or so and was then given to my next door neighbor by the owner. The neighbor and I considered that it should be restored. He being more interested in restoring automobiles and I, having restored several antique tractors and being active in tractor pulling events and antique machinery shows, decided that I should undertake the restoration and take it to the various shows when completed. I considered this a privilege well worth the many hours of work and expense involved.

In mid September, 1998 I brought the Silver King tractor home to restore. There was some excitement after removing the side mount mower, finding the name plate and discovering it was serial number 336. The Fate-Root-Heath Manufacturing Co. started making Plymouth tractors in 1934 beginning with number 101 and as I subsequently learned, there were 214 Plymouths made before the name was changed to Silver King. This was therefor the 22nd Silver King made and the 11th made in 1935.



Overall appearance was excellent with little rust evident. Engine oil was clean and the engine turned easily. The magneto worked after cleaning and some gas line work was needed. I expected to have it at the Fall (1998) Brooklyn, CT, show, running or not. Well it was not, but it tows easily with the Oliver 60 and someone to steer. One rear tire inner tube had to be replaced. While trying to get it started, I found the exhaust manifold rusted out with holes on the back side. A replacement was later purchased but the configuration was somewhat different. The carburetor and exhaust connections are two inches higher and one inch further out. Some plumbing gets the exhaust out the side under the integral hood and gas tank, and an upright muffler looks right, although the original stuck out horizontally. Some modifications to the throttle and governor linkage would be necessary. It was noted that a wire used on the original linkage would have controlled the governor action. I wondered why it was there but pressed on in an effort to get the engine running. I wanted to drive it around with some used engine oil in the rear end to help flush out the heavy oil and water mix that had drained out. Hand cranking is the starting method and my battery ran down several times. Nary a cough was heard. Rechecking carburetion and ignition proved fruitless. I concluded there was insufficient compression to draw a charge into the cylinder. A piece of cardboard placed over a spark plug hole barely lifted on the compression stroke. I decided to overhaul the engine first. Curious about the wired throttle linkage, the back cover of the governor was removed to permit looking inside. What governor? There were no internals in there except the yoke that moves the external lever. A new governor was ordered that “should work”. Well it didn’t. Although it would fit the engine, placement of the external lever away from the mounting flange caused an interference with the radiator support

casting. The governor was returned and looking for an alternative was started. I spoke to the elderly son of the original owner and he confirmed that he and his father bought the tractor new in Rhode Island and that it came with a mowing machine, a plow, and a cultivator. It was probably bought through a grain dealer acting for the dealer, Drake and Bruseau of West Warwick, RI, I have been told. Without prompting from me he recalled that it had round knobby tires made by Gillette, confirming what I thought, that the rear tires are the originals. I promised him he could take it for a drive, so now I had a real incentive to get it done.

The four spoked wheels were sandblasted and primed. One rear wheel had a well perforated rim around the bead area on one side. That whole side was cut off and a new side welded on using a salvage rim. New knobby front tires were mounted. The front axle was removed and worn bronze bushings and a remarkably rough casting were found. With the axle off, the engine could be disassembled and removed. A service manual for the IX series Hercules engines published in 1961 describes the early engines and subsequent design changes. Serial numbers listed started at 400,001 and this engine is number 403,069, an early one. The oil pan is a two part casting. The bottom shallow part is the anchor for the one piece radius rod for the axle. The upper part bolts to the cast bell housing and the engine block and acts as the tractor frame. It supports the axle and radiator at the front. Engine disassembly started with head removal. The head bolts were extremely tight and a few were near rounded off. It was

necessary to apply heat with a propane torch to get them out. The fan and front cover were taken off, cleaned and painted. The radiator looked good although it was quite dirty externally. The rods and pistons were removed and look pretty good. The block and bell housing have to come off together and were put on a wood support frame. The bell housing forms the rear closure for the oil pan and block, and contains the oil seal, if there is one on this early engine. The front seal is a cork ring that wasn't sealing much and the bell housing and clutch were well lubricated also. That may be why a new spare Borg and Beck clutch disc came with the tractor. Further engine disassembly disclosed that the bell housing bolts under the flywheel were loose. I found that this engine is the type with no rear seal, relying instead on close, concentric fitting of the bell housing and a slinger. Main bearing caps were found with no shims installed, indicating previous work on the bearings and measurement showed a worn shaft. Although the pistons and cylinders appeared good, there was wear and the ring grooves were pretty much filled with carbon. Considering the low compression found earlier it was decided to have a thorough engine job done at an automotive machine shop where I had Oliver 60 and Farmall BN engines done previously.

It was noted that there was some minor damage to the front edges of the teeth on the cam gear which drives the governor. The service manual mentions that an oil line to the governor should be checked but there was no provision for such a line on this engine. This made me believe the governor possibly failed due to lack of lubrication. I saw a fellow in New Hampshire and looked over his collection of twenty-one (21) Silver Kings, most of which were unrestored. Most of them had no or inoperable governors. My search for a governor continued but I was able to get a NOS crankshaft gear which was found to be badly worn. That should reduce much of the backlash in the gear train to the

camshaft and magneto drive. That new gear was used as the basis for accurately determining the tooth configuration for the gear train and center to center distances were used to confirm the dimensions of the missing governor gear as being two inches in diameter and having fourteen teeth, helical cut at forty degrees.

On a tip from a tractor enthusiast friend I went looking for a Hercules engine dealer in Hartford, CT. On the third stop, the fellow at the parts desk called someone and got the names of the two guys who bought up the old Hercules parts stock, probably when the Hupp Corporation took over. One I knew of out in Ohio where I bought the crankshaft gear. The other was at M&M Surplus Sales in the Bronx. They handle Hercules, Continental and Waukesha parts. I described the governor gear I was looking for and he found the gear on a new die cast governor (made by Hoof Products Co, Chicago) that would not fit my engine but the gear was exactly right. The price was less than having a new gear made so I had it sent. I had been working on modifying Ford governor internals to fit the original housing, but ended up using the new governor. Next on the agenda was to find or make missing parts for the right rear wheel brake. A mouse poked his head out of the hole where the lever goes when I first brought the Silver King home. I could have guessed what would be found inside.

In June a beneficial trade was made; a hopper cooled engine for a late 1935 Silver King parts tractor, the same model as my restoration project. The operative word is parts. To get it home and under cover I took my Kubota along on the trailer and picked up the many parts individually. The transmission-differential assembly was the biggest piece and the Kubota could just lift it. This tractor was wanted specifically for hand brake parts missing on mine and other potential needs as I got further along. With both final drive assemblies off I started disassembly to get at the brake drum that needed to be replaced. Links riding on the drum effectively machined it down to a narrow band. The pinion shaft couldn't be moved with a sledge hammer so I sawed through the remnants of the drum surface and broke off pieces until I could drill holes in the hub. A chisel was then used to break the hub. Then the shaft came out with no trouble. Now a scheme to remove the drum from the parts tractor nondestructively was needed. Other restoration work was proceeding slowly, the steering box was refurbished to remove excessive play, new bushings had been put in the front axle to reduce steering knuckle play and many small parts had been cleaned and painted. The steering wheel needed new ends on the spokes and a new rim wire. That was sent to Minnesota for new rubber covering. It was reported from the engine shop that the cylinders were found to be excessively tapered by seventeen mils, so new oversize pistons were obtained and the cylinders were to be bored out. The crankshaft had to be ground and then bearing adjustments made.

The first weekend in August,1999 I went to Plymouth, Ohio, the home of the former Fate-Root-Heath Company, makers of Plymouth and Silver King tractors. Each year the Silver Kings of Yesteryear Club holds a show there for these tractors. I found nearly a hundred tractors there including most models made. I had several conversations with owners of collections and learned a lot. There were many running changes made on these tractors as designs evolved and/or different suppliers were found. There were two

Plymouths there with mounted plows made by Oliver and another had a tow behind plow made by Wiard. This was a really good show for a Silver King enthusiast.

I had decided to go to Kinsers that year and was reading the ads in the September GEM when one caught my eye. Someone in eastern PA wanted the upper half of the cast oil pan for a 1939 Silver King "XIB" engine. I had the 1935 parts tractor and concluded that if the fellow had a four wheeler, I might have the needed part. A call confirmed that he had a four wheeler. He lived in Lancaster and would be at Kinsers so we agreed to meet and see if it was the right piece. We got together and he decided it was the same as the one that a machine shop had lost for him. He had been looking for two years for a replacement and now hopefully one Silver King had been saved from becoming a parts tractor.

I managed to remove the brake drum from the parts tractor without destroying anything. A leaky oil seal kept that brake well lubricated so the set screw was backed out without too much trouble. Then I mounted a hydraulic jack between the end of the shaft and a steel plate supported by two long threaded rods. It took an extension handle on the jack,

some heat on the drum and it finally broke free with a loud bang. Some careful planning, heating of the drum and some luck got the replacement drum on the original shaft in the right place. Both final drives were cleaned and painted, new seals installed, and reassembled. In progress next was rebuilding of the transmission. Here I found all bearings needed to be replaced. The reverse gear bushing and the idler shaft were worn badly so a new shaft was machined from 1 1/4 inch round bar and a new bushing had to be machined down to a 1/16 th inch wall thickness and pressed into the gear. The shifter rail detents were worn and the interlock pins had worn grooves in the rails as well. So the next task was to machine new shifter rails from 5/8 inch round bar. New interlock pins were made and new balls and springs obtained. The shift lever ball and socket are worn and I looked at a scheme to spring load the lever in the upward direction where there is little wear on the surfaces. The engine was just about done by this time. After grinding the shaft it was necessary to get main bearing caps and upper half bronze shells re-babbitted. Inquiring about a source for such work from Zimmerman Oliver-Cletrac in PA I found that they do this on an exchange basis and have them in stock in several under-sizes for these Hercules engines, which are also found in some of the old crawlers. More cleaning and painting of the transmission and differential cases and tractor reassembly could begin.

After machining new shifter rails for the transmission, the shafts, gears and new bearings were reinstalled in the housing, the shifter parts were installed and the cover put on. The gear shift lever was tried and everything seemed to be working as intended. So the next step was to start reassembling the tractor now that most all parts were repaired, cleaned and painted. After putting the differential housing back on the transmission case with the differential assembly inside, each final drive has to be lifted up into place and shoved in, engaging splines, studs and a close fitting cylindrical shape. These final drives came off hard and go together harder. There are shims on each side for setting gear backlash and these contribute to the problem. Envisioning several tries before getting the backlash correct I decided to replace the inboard tapered

roller bearings even though not badly worn. Special jigs had to be made to pull the bearings using a gear puller. All surfaces were checked for smoothness and dry fitting was done to improve chances for success. Complicating the process is the necessity to coat each shim to prevent oil leaks and of course cleaning and re-coating if one has to be removed to correct backlash. After replacing the bearings, checking all surfaces and splines, the right final drive was lifted with an engine hoist. This required a three point lift to support the weight, level the axle and rotate the housing to align with the studs. So I had a clevis, a turnbuckle and a load binder strap holding this thing in position. Next, nine or ten shims were coated with High-Tack and stacked on the studs. Inching the final drive into position, the differential assembly was lifted with a rope sling through a top cover plate hole, the splines were rotated to match the shaft and the two were moved together. A lot of jiggling, tilting and cussing finally got them together enough to start the nuts. These were taken up with a torque wrench until tight. The same process was repeated for the left side. Gear backlash came out just right. The drawbar was

bolted in place between the final drives and more stable blocking could then be put under the rear of the whole thing.

When disassembling the final drives from the differential, I had removed the left brake lever and then yanked the band out of the housing. The right lever and band were missing and that drum was the one replaced. So the next reassembly step was to reinstall the bands and levers using parts from the parts tractor. Well there was no way to get the band back in the housing. There is a threaded adjusting end riveted on one end of the band that passes out through a hole in the casting where a wing nut is used for adjustment. There is also a three quarter inch diameter release spring to keep that end of the band away from the drum. As near as I could tell there is about five eighths inch clearance between the drum and the casting where the band would have to pass to be put in place. The band would have flexed and the spring came off when I pulled the band originally. It seems that the whole process that I had been struggling with, including pressing the drum off the shaft, would have to be gone through to reline a brake band. Seems too complicated to me or maybe the brakes never wear out. The left one did show little wear. I relined the one good band taken from the parts tractor. To solve this problem I made a new hinged adjusting end out of half inch thick steel. A new spring was ovalized and sure enough this allowed the band to be slipped around the drum and the threaded end fished out the hole. It appears original from the outside. The only concern I had is that the one quarter inch hinge pin, made from a grade 5 bolt, was strong enough to take the full braking force that could be encountered with a hard yank on the lever.

The final closure hole in the differential housing is where the rear PTO shaft exits. This shaft is driven off the end of the intermediate transmission shaft at the bottom of the housing with a simple splined coupling. There is a ball bearing in the differential housing and in back of the bearing retainer and seal cap was a dog clutch piece and a v-belt pulley that could slide forward to engage the dog clutch. The pulley drove the side mounted sickle bar mower shaft. It is a double sheave pulley, ten inches in diameter and weighing 22 pounds, a lot of mass to start rotating. It slides on the shaft with a yoke and lever and has eight half inch rollers two inches long to support it. The back end of the

PTO shaft has a standard 1 3/8” spline. The dog clutch piece was originally held on the shaft with a woodruff key and was probably pressed on. Somewhere along the way the key let go from the looks of the grooves on the shaft. It was then pinned and I found it loose again. A larger pin solves that problem. It may be that the dog clutch for the mower was engaged without depressing the engine clutch to stop the PTO shaft and that shock was too much for the woodruff key and subsequent pin fix. The bearing outer race was quite loose in the differential housing hole and apparently was turning. The bearing is pressed on from the rear of the shaft up against a shoulder, preventing the shaft from moving back. But there was no provision for clamping the bearing outer race or holding the shaft from moving forward, the recess being bored completely through the housing. The dog clutch piece would rub against the bearing retainer and there was evidence of that happening. The PTO shaft turns continuously unless the engine clutch

is disengaged, and the same applies for the side mounted belt pulley. Removing the gear from the belt pulley shaft eliminates the safety hazard of a revolving pulley when the engine is running. I decided to leave the rear PTO shaft in place with the dog clutch piece on but not the pulley, and make a shield to cover it. The worn bearing recess was a concern. An inside retainer plate was made and shaped to fit the cast inner surface of the housing. The four bolt holes for the outer retainer were already tapped through the housing and it seemed wrong to drill these out in order to hold the new inner retainer tight using tapped holes in it and longer bolts. Instead the inner retainer bolt holes were drilled through and longer bolts installed with the heads inside and lock wired to hold that plate securely. Nuts and lock washers are used on the outside retainer and shims are fitted to clamp the outer bearing race between the two retainers. The oil level has the bearing partially submerged so care has to be taken to seal the threaded bolt holes in the cast housing.

The carburetor that came with the tractor was not the original, obviously, as it was a marine version of the Zenith 161 series. The parts tractor had a Tillotson that was not repairable. A 1934 Hercules parts booklet did not list a carburetor except for power unit applications and there either a Zenith 154 or a Stromberg UR was used. The later Hercules service manual that I have describes only a Zenith 161 series. Comparing the internals of the marine carburetor with other tractors using the same type Zenith, I concluded that the venturi and jets were too large. A call to Central Tractor confirmed that they had a cast iron rebuilt unit for a Farmall A or B. That engine is the same bore and stroke and it operates at the same rpm as the Hercules, so it would be a good choice. What was received was a Marvel Schebler that was an option on the Farmalls. It was swapped for the Zenith on my Farmall BN which I knew was working properly and the linkage set up is the same configuration as on the incorrect marine version. The Marvel Schebler works fine on the BN. In a related matter, the original horsehair air cleaner was found to be difficult to remove for periodic cleaning, and probably wasn't. The intake pipe to the carburetor was found to be very dirty and this was probably the cause of much of the engine wear found.

The Hercules engine came back from the machine shop with many parts like new. The cylinders were bored oversize to remove the taper worn in the walls and that meant new pistons, aluminum instead of cast iron, and rings. The crankshaft journals were ground

and that means new bearings of course. The connecting rods have precision bearings so fitting is no problem. The mains however are babbitted. The upper half is bronze backed similar to but heavier than a precision bearing. As previously noted, these parts were exchanged for a re-babbitted and undersized set. This required line boring as the ground shaft didn't match available re-babbitted sets. The top of the block and head were resurfaced to resolve a leaking head gasket problem identified by the previous owner. A valve job was done and seats installed. The block and all oil passages were cleaned. Next task was to assemble the engine and those attached parts that had been cleaned and painted in the past year. With the block upside down the shaft was installed using a single shim under each side of the caps as was used when line boring the

bearings. Some binding occurred when the bolts were first torqued, but this was fixed with some minor relieving at the radius of the thrust bearing. Next the bell housing was attached and the engine stood on end for fitting of the pistons and rods. The cast oil pan upper part is installed next and is bolted to the bell housing and the block. This is the main structural member supporting the front end of the tractor. It is important to get the fit tight against both the block and bell housing for both oil tightness and structural rigidity. The oil pump and bottom part of the oil pan were installed and then the engine could be set upright. The front pulley was installed and the engine could be turned with the crank reasonably easily considering new bearings and rings. It was necessary to check clearance behind the flywheel before installing it because there are two bolt heads behind it. These are bell housing attaching bolts and since they were found loose originally, lock washers were removed to increase clearance and the heads were drilled to permit lock wiring. The flywheel and clutch were then installed. A modern PCV valve was installed between the engine and carburetor intake. What appears to be a similar device is shown in the 1961 service manual for these engines. One of the bolts that hold the valve cover on was replaced with a special bolt drilled and made with a barbed hose fitting. It is expected that running with a slight vacuum in the crankcase will reduce shaft oil seal leakage and hopefully not upset the carburetion.

In early April 2001, the Silver King was very close to being rolled out for its first start after restoration. The engine assembly, previously described, was bolted to the transmission housing. The front cover, pulley, fan bracket and fan, accessory drive for the magneto, head and manifold were installed on the engine. Next the radiator and grill casting could be installed. Then the front axle and radius rod were pinned in place. In the meantime, refinishing the hood and integral gas tank and dash panel was started. This was taken down to bare metal using a 3M stripping tool in a variable speed drill which works very well as an alternative to sandblasting and the potential for damage to sheet metal. Some rust pitting on the underside was not filled and smoothed but the top surface had only minor pitting and was easily smoothed. Painting completed, it was installed and it began to look like a tractor again. New radiator and gas caps were obtained from Steiner. These are reproductions of the originals found on Farmall models A and B, complete with the stamped in words “WATER” and “BUY CLEAN FUEL - KEEP IT CLEAN”, probably just like the originals. New gear shift rubber boots were found that fit the Silver King, and also my Oliver 60, at Zimmerman Oliver-Cletrac. The throttle lever and shaft turn a cam that rotates a cross shaft on which a lever connects by rod and springs to the yet to be installed governor. Examining all my photos with an

eye loupe disclosed how all this went together and I found out that leather inserts were used in the throttle shaft clamps mounted on the steering column while at the Silver King show. However, this arrangement left a lot to be desired as the friction needed to maintain throttle position against return spring force is created by the leathers and adjustment was far too sensitive. Springs were installed under the clamp bolt nuts to provide more consistent clamping pressure. There also was apparently no provision for keeping the throttle shaft from sliding downward and causing the cam to lose contact

with the cross shaft. A collar with set screw was made to solve this problem. Next the four wheels were put on which really made it look like a tractor again.

Installation of the new governor created a problem that may be of interest. It turns out this governor fits the engine too but has to be mounted on the rear side of the front engine cover where a generator could be installed instead of on the front side. The original carburetor was not the one installed when the linkage was removed and a different carburetor was to be used anyway. So the governor and throttle linkage system had to be designed from scratch. Of primary concern was the initial startup of the engine and the possibility of no governor speed control action before an over speeding occurred while the oil passages were filling with oil. The hand throttle on a tractor is not directly connected to the carburetor butterfly shaft as a foot throttle is on a car (or used to be). Rather the governor makes this connection and serves to hold a constant speed with a varying load. Typically the governor has flyweights that pivot and as rpm increase cause a thrust collar to move along a shaft, in turn causing a lever arm to move, all in opposition to a strong spring. The governor lever arm is directly connected to the carburetor butterfly valve. With the engine stopped, the spring will cause the butterfly to be at least partially open. As soon as the engine starts the flyweights move outward and cause the butterfly valve to move towards the closed position until the opposing spring and flyweights are in balance and no further movement occurs. When the operator moves his hand throttle to give the engine some speed, this action increases the spring tension so the flyweights move inward and the butterfly is opened until equilibrium is again established. Sometimes the hand throttle is connected directly to the anchor end of the spring. In other cases it is connected to the governor lever itself with a pair of springs that allow the lever to move in response to engine load and speed. Either way the principle is the same. Advance the throttle and you increase spring tension on the opposing outward motion of the flyweights. On the Silver King the original governor lever moved rearward in response to the flyweights moving outward. The lever moves forward on the new governor. The carburetor being used as set up on the Farmall had the butterfly valve lever pointing downward while the previous set up had it pointing upward. These two differences cancel each other. But the hand throttle lever had to be made to work in the opposite direction from original, so the cross shaft lever arm was rotated 180 degrees on its shaft to compensate for the reversed governor lever. A pair of springs were installed on the throttle rod where it connects to the governor lever. A return spring is needed as before to maintain contact between a cam and lever in the throttle linkage. An adjusting screw on the governor sets the maximum engine rpm. Next step is to try the new governor and linkage system. After all fluids were put in and new spark plugs (Champion W-18) installed, everything looked ready for starting. The fenders were put on and the tractor rolled out under cloudy skies. Some hard cranking

didn’t even get a cough. More checking and maybe a tow would be needed to start it. The next attempt to start the Silver King was with the help of a neighbor and a tow tractor. There was something wrong with the clutch as the pedal gained a lot of free play and then a hard spot. Consultation with more knowledgeable tractor guys told me that the clutch disc was stuck. I didn’t think so but resigned myself to splitting the tractor to

resolve this problem. After considerable procrastination, courage was screwed up and the tractor was split in two hours. There I found some dummy had failed to install the new throw-out bearing. The clutch lever arms were readjusted to be similar to the setting on the parts tractor and another two hours and it was all back together. Some more cranking and still no roar from the engine. Another tow and a short period of running occurred, then nothing. Rechecking the ignition and timing showed that okay. A hard look at the gas line raised some doubt that it was getting gas. A filter installed downstream from the strainer bowl didn't look like it was filling and checking for fuel flow showed it wasn't letting fuel through. A different filter was tried and that was okay. Some more cranking and fiddling with the choke and throttle and it finally came to life and ran like a top.

Next step was a road test. But putting it in reverse resulted in going forward. So did all the other gears. So I rolled it out of the garage and then drove it forward in all four gears plus reverse. It was noted that the speed in reverse and second were the same and that the shift pattern has second along side reverse. So it was concluded that the lever wasn't going far enough for the end to get over to the reverse shifter lug. I had modified the shift lever retainer snap ring arrangement to replace a heavy ring that, broke when taken out, with three thin washers and a thin modern snap ring. The thin washers were supposed to slide around as the lever was moved but apparently there was some tightness there. The ID of the washers was increased a sixteenth of an inch which allows the lever to move over far enough to engage the reverse lug. Amidst all of this it was apparent that the radiator was leaking progressively more and the road test ended with a little steam coming from the radiator cap. A new radiator core was considered the best thing to do. The rebuilt radiator was installed and once more it was time to start the engine and do some road testing. After some cranking it started up and off it went. Driving around the yard everything seemed to be okay. The governor works fine, the steering is a somewhat stiff and the seat could use some more springiness. Decals were put on and pictures were taken to document the finish of this project. It was then show time and hopefully a long retirement for this fine old tractor. First show was at Pepperell, MA, July 2001. The son of the original owner saw it on display at the North Stonington Fair the next week and he got to start it when it wouldn't start for me.

Later, I put it on the trailer and took it to show the old fellow who had it last. He was quite pleased and as I was about to leave he mentioned that he had the plow for it. Showing it to me over in a patch of weeds, he said I could have it if I wanted it. Looking through the weeds and grass, it appeared to be nearly complete. Having seen these plows mounted on Plymouths and Silver Kings at the show in Plymouth, Ohio, I certainly wanted it and went and picked it up a few days later. What I found with a closer look at home was a lot of rust and comparing it to the parts list in the tractor manual showed that all but one or two parts were there. Disassembly for sandblasting confirmed what

happens when steel sits out in the weather for twenty years or more. Some bolts came undone, some broke and some had to be cut. Even then, the plowshare, land-side, frog and moldboard could not be separated. All the parts were taken for sandblasting and a

coat of primer. Meanwhile the search was started for replacement bolts and nuts. The primed parts sat in the way for over a year until February 2003 when a fit of ambition took hold and reassembly was undertaken. My unintelligible disassembly notes were figured out and the levers, latches, springs and supports pieced together. Some pictures taken of the previously seen mounted plows were most helpful. A few parts had to be fabricated and some straightened. When the weather warmed up, the painting, red to match the wheels, was done and the plow mounted on the tractor in place of the drawbar and support. The plow is an Oliver model F1134. The whole plow showed a lot of wear just as the tractor did. There won't be any plowing demonstrations with those original worn down knobby tires on the tractor and fresh paint on the plow, just some show time. The plow remains installed and adds quite a bit of interest to the tractor at shows.