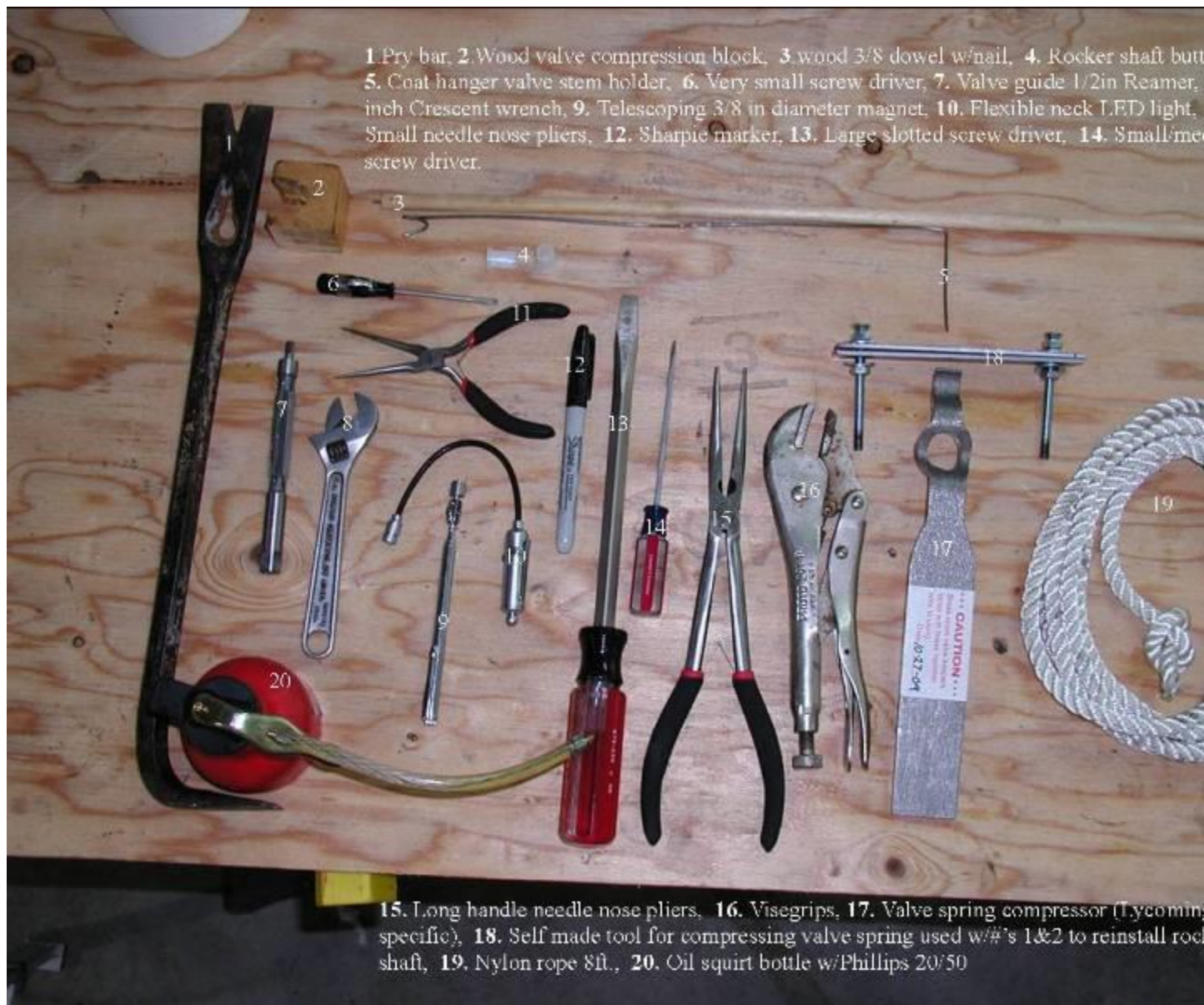


I want to thank Mark Shilling for his efforts and excellent posting of the “how to” on reaming Lycoming exhaust valves which inspired me to take this project on. [Original Reamer Post](#)

What follows is just more detail from his posting “The old Rope Trick”. This is pretty long but hopefully will serve to show the average guy with some mechanical ability that this can easily be done and can reveal and or prevent stuck exhaust valves possibly saving an expensive engine repair or even an emergency off airport landing. Of course this must be done under the supervision of a licensed A&P. Using the “rope trick” you will save considerable dollars and can do all your exhaust guides. You can also see the condition of the deposits on the valve stem which you can’t do with a borescope. I found this fun and very satisfying, kinda like Zen and the Art of Motorcycle maintenance except on an airplane.



Pic 1 Above:

Below is the tool list for reaming your Lycoming exhaust guides.

Note that tools #'s 2,3,5 &18 you must make yourself.

#2 is wood block cut out so the rocker arm has clearance under it.

#3 is a 3/8 wood dowel with a finishing nail in the end. I used "wire nails" size 3/4 by 17.

#5 is the most important tool, a coat hanger bent to cradle the valve stem at one end and a 90deg bend at the other to manipulate the tool in the cylinder. The "U" shaped cradle must be just big enough to fit through the spark plug hole, total length of tool is 13in.

#18 may or may not be needed, made for a pry bar anchor for compressing the valve spring used with the #2 wood block to assist in taking the pressure off the rocker arm when reinstalling the rocker arm on its shaft. It consists of 2 flat steel plates, (2) 3/8 machine screws 3in long, 4 nuts and washers. The nuts and washers are so you can adjust the height of the plate to fit your pry bar. You can buy this stuff at the hardware store for a few bucks. If you can bleed down the lifters you won't need this or #1 or #2 but I found very helpful in easily reinstalling the rocker arm without having to apply much force to the rocker shaft.

#4 is really a part rather than a tool. The rocker arm shaft "button." You can do this whole operation carefully without damaging the existing ones but you might want to have a couple on hand in case you break one. They run about \$3.50 each. Until I found I could use the Sharpie pen to push the shaft over I broke two.

#7 is a 1/2 inch reamer specifically for doing this kind of reaming job and costs about \$60, do NOT use a tapered reamer, buy this valve guide specific reamer. [Reamer](#)

#17 is a Lycoming specific valve spring compressor. You don't need to use Lycoming's one but not having one I bought it and it works great. About \$60. I did modify the length of the handle to allow clearance with the lower cowl when compressing the valve spring. I think I cut off about 3 inches of the handle. Easy to do with a hacksaw as it's made of aluminum. [Valve spring compressor](#)

#15 the long nose needle nose pliers are not really necessary, a small pick with a bend to it will work. I just had the pliers already and it made removal of the lower Valve spring seat very easy. You just need to get under the washer-like seat to get it off unless you use needle nose pliers.



Pic2 Above:

This is a very important tool shown as #'s 9 & 10 in the tool list. #9 is a 3/8 diameter magnet that telescopes about 16in. This is what you capture the valve stem end with and pull it through the 1/2 inch guide. About \$3.50 at Harbor Freight. #10 is a LED light with a very narrow, flexible neck. It came packaged with a larger LED light at Harbor Freight about \$6.50. You only need the one smaller light, the smaller the neck the better. You use this in the top spark plug hole to illuminate the valve and manipulate the coat hanger tool to cradle the valve while you capture the stem end with the magnet through the valve guide.



Pic3 Above:

This is just a shot to show that the rocker arm shafts rotate and float each direction and what the shaft "buttons" do. In this picture you can see the rocker shaft floated to the edge of the valve cover. The button on the end of the rocker shaft rubbed the side of the valve cover at one time.



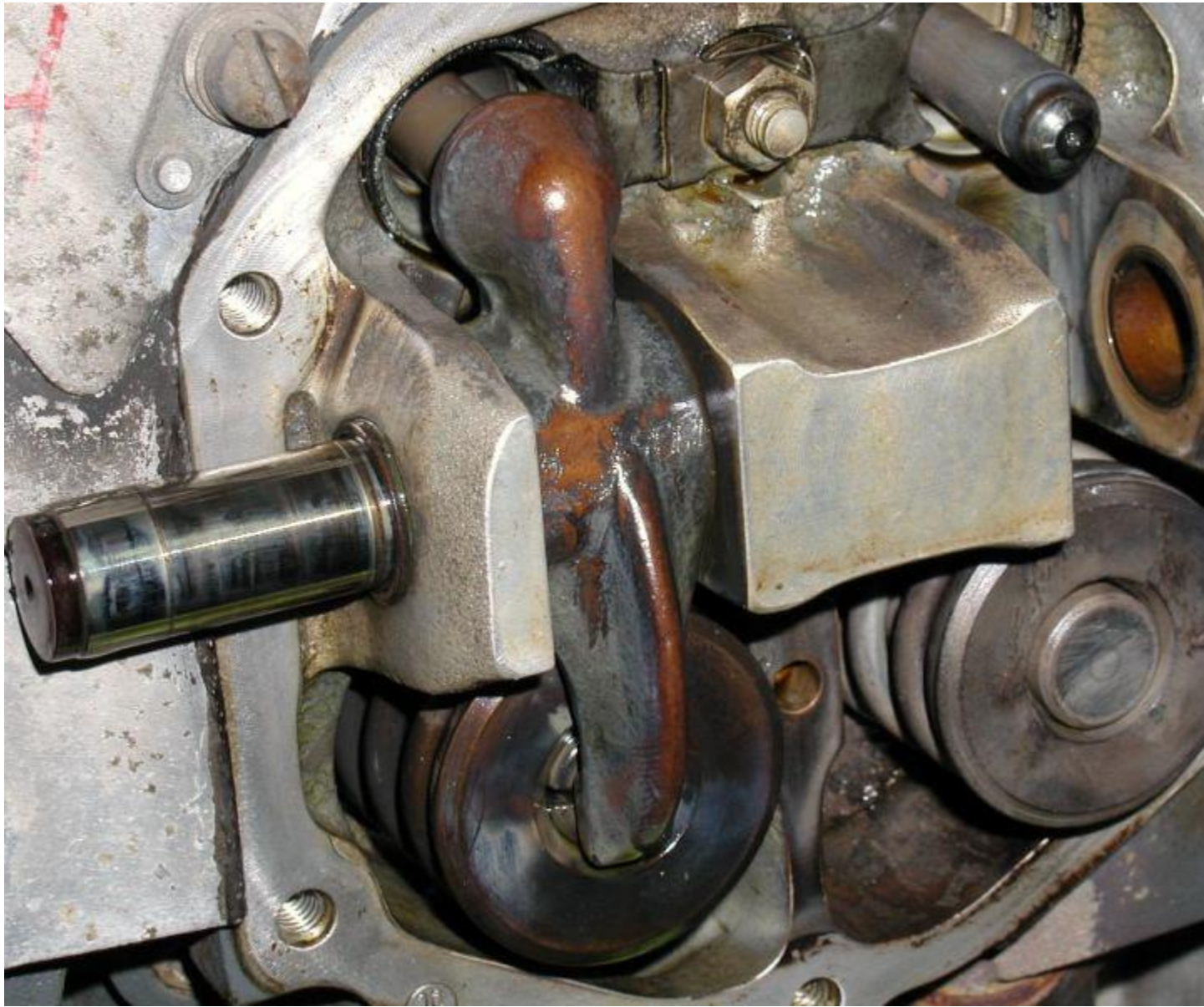
Pic 4 Above:

Here is something not on the tool list but very important—a towel to catch the parts that fall out while you are working. Catch 'em in the towel instead of hunting all over the floor and all the crevices in the bottom of the cowl. (don't ask me how I know!)



Pic5 Above:

Ok now we really start the process. You have already removed all the top and bottom sparkplugs in the engine. (I still have the bottom plug in to help feel the compression stroke). You can remove all the valve covers or just the one you are working on. Turn the prop so the cylinder you are working on is at TDC (Top Dead Center) and it is on the compression stroke. Both valves will be closed so minimum pressure on the push rods and rocker arms. Identify which valve is the exhaust valve, (the one above the exhaust pipe). Then slide the rocker shaft to the side. You have to apply some pressure on the rocker shaft end button without breaking it. Amazingly the plastic Marks-a Lot "Sharpie" pen works great for this! Push the shaft over with the pen without damaging the button. You can only get it over so far before the angle prevents the pen from going in any farther. Use your finger to push the rest of the way or a small socket for a spacer. Only push far enough over to the left so the rocker arm releases. You can also use a small socket and extension to move the shaft.



Pic 6 Above:

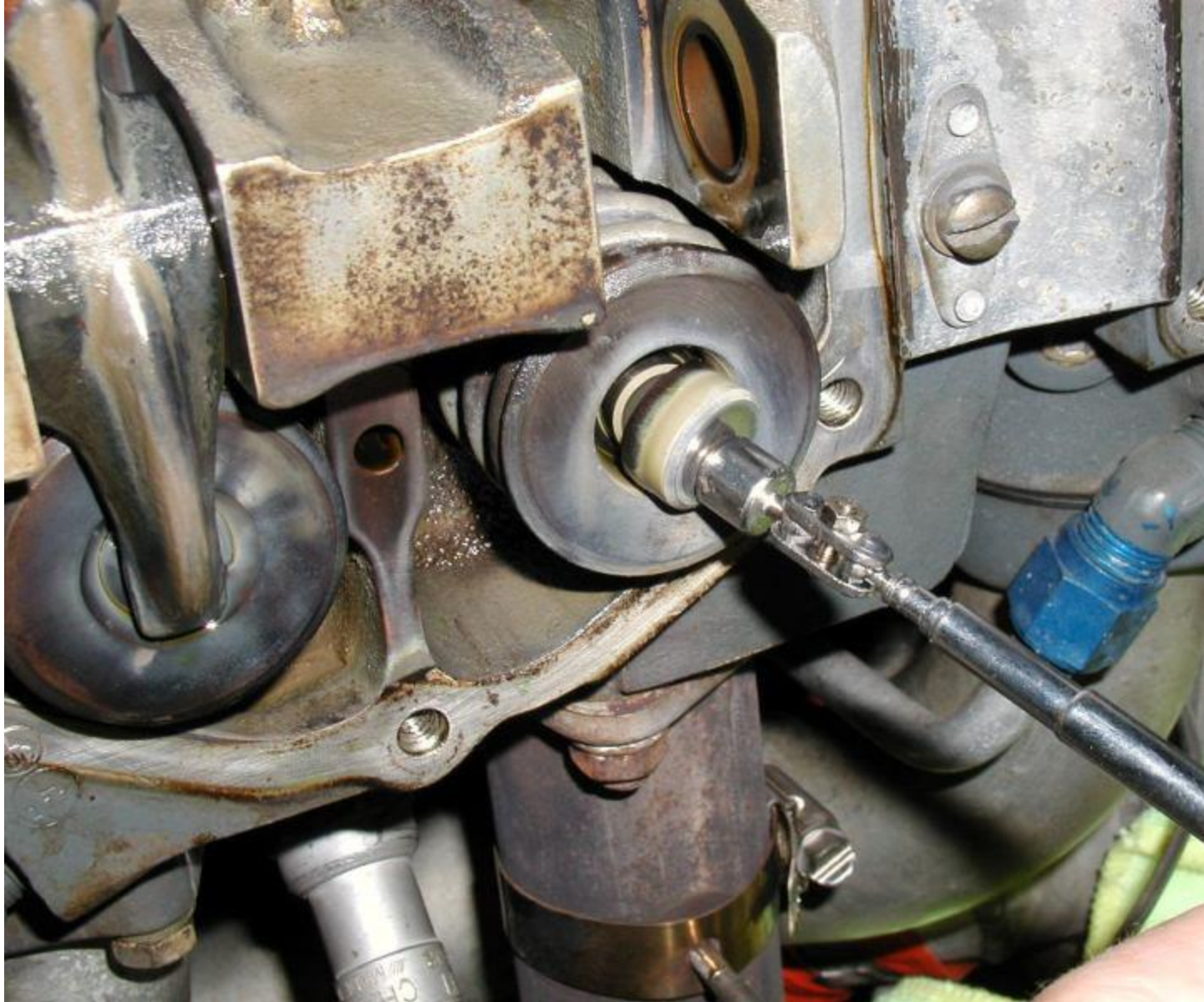
This is about how far the rocker shaft needs to move over to release the rocker arm. Before you remove the pushrod this is a good time to measure how far out the pushrod extends from the opening so you know you have it seated correctly when you replace it, (especially if the socket comes out with it). Now that the rocker arm is removed, withdraw the push rod with your fingers and label it so you know which direction it goes back in so the wear patterns remain the same, (pushrod is upper right). When you take the push rod out sometimes stuck on the inside end is a metal cylinder which is the Tappet socket. This happened to me on 3 cylinders. Sludge builds up in the center and may make the socket stick to and come out with the push rod. No worries, clean it and put it aside, we deal with that later. Find a smooth, clean, level surface and roll your push rod over it. Look for any lopsided rolling. If it is a bit bent, (from your sticky valve?), you should replace it. See and advise your supervising A&P and show him/her the pushrod if you detect

lopsided rolling or any other abnormalities.



Pic 7 Above:

Just a shot of the rocker shaft “button.” If you broke or damaged one you just snap a new one on, they’re made of a nylon like material. The existing buttons after being subjected to heat tend to change colors. Mine were reddish brown, the new ones were white. The old ones still work if undamaged. Replace these in the end of the shafts when you are all done with that cylinder. If you haven’t bought any and need to replace some just leave that cylinder valve cover off until you get some. They pop into each end of the shaft.



Pic 8 Above:

The rocker arm and push rod have been removed, now with your magnet remove the valve stem cap. It is held on by the adhesion of oil underneath it. If it pops off, it will roll a GREAT distance on the floor so use the magnet! Clean out the concave side thoroughly.



Pic 9 Above:

Now we see why it is called the rope trick. Turn the prop from TDC a full piston stroke backwards so to expose the most amount of cylinder volume and feed in about 8 feet of 1/2in rope. Note, if you don't already have the rope buy the yellow polypropylene braided kind, (not what I have in the picture), the kind that is really hard to tie a knot in and have it hold. When you feed in some types of rope they sort of kink and knot on their own—not a pretty picture when you want to remove it. Tie a knot on the end of the rope so you don't accidentally lose the end inside the cylinder. Now turn the prop and bring the piston back up to TDC on the compression stroke until you feel resistance then pull a little more, not much. The rope should be compressed and tight enough that it holds the valves tight in place so you can remove the valve spring.

Ok, here is where I am missing some pictures. You use the valve spring compressor tool to push down on the top valve spring seat far enough so you can remove the two valve stem keys that

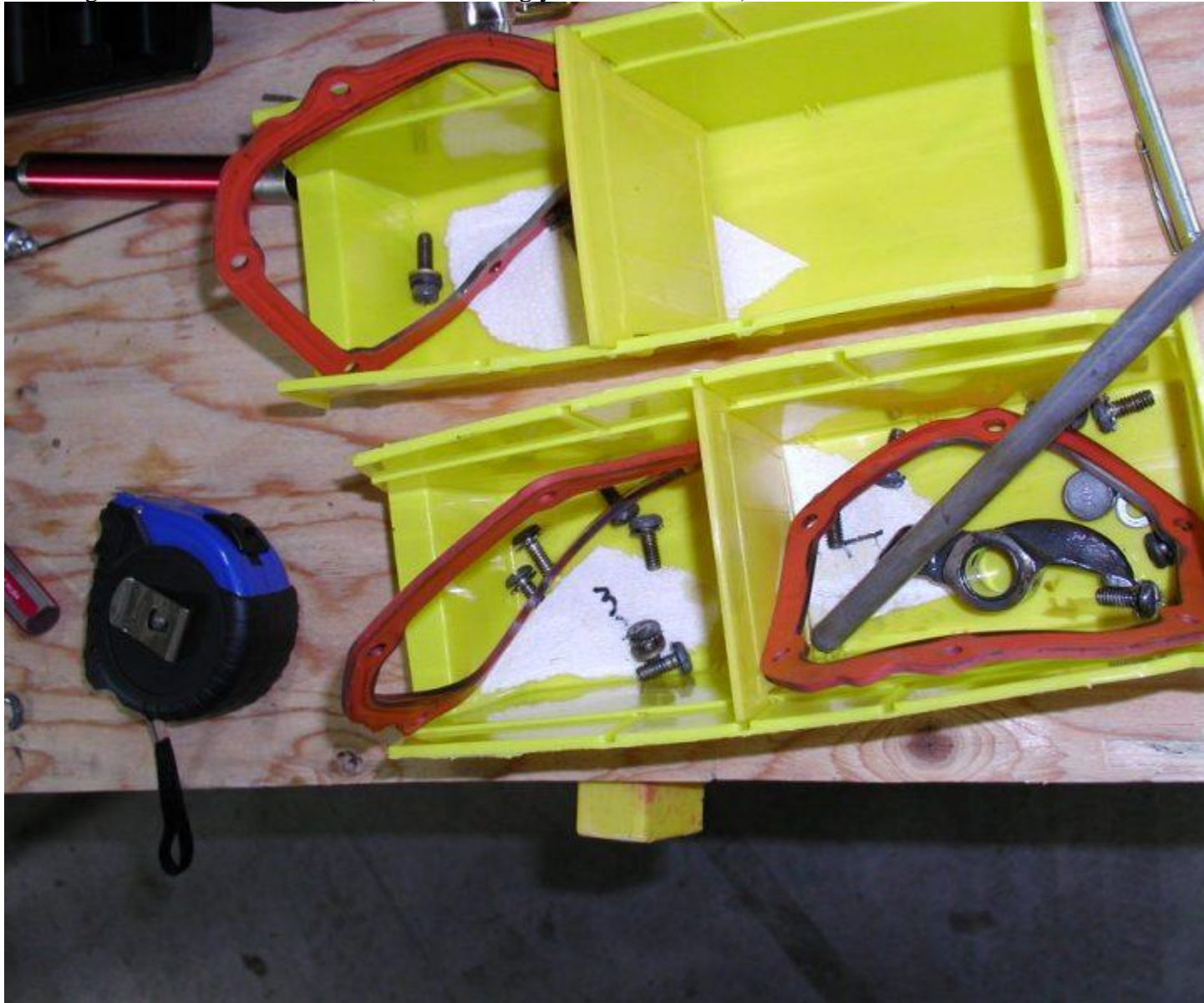
look like a washer split in half. These are really easy to lose so use the towel underneath. If you haven't done this it's a good idea to have someone helping you so you understand what is about to happen and don't lose the two little keys. (You will probably have A&P supervision all the way through the first complete cylinder). After the two keys are removed you slowly release the valve spring compressor tool. The seat, which is a washer like part that covers the top of the valve spring, and the two inner and outer valve springs can be removed as they are no longer under pressure.



Pic 10 Above:

Here is what you are removing in the operation above. From left to right bottom; Lower valve spring seat, (washer like part), inner valve spring, outer valve spring, upper valve spring seat, and two keys. The Valve stem cap, rocker arm and push rod were removed before you used the valve spring compressor tool. Thoroughly clean these parts with MEK and wipe them down. In my

case I scraped off all the baked on carbon deposits on each piece especially the valve springs. Amazing the stuff that comes off, (and could clog your oil return line).



Pic 11 Above:

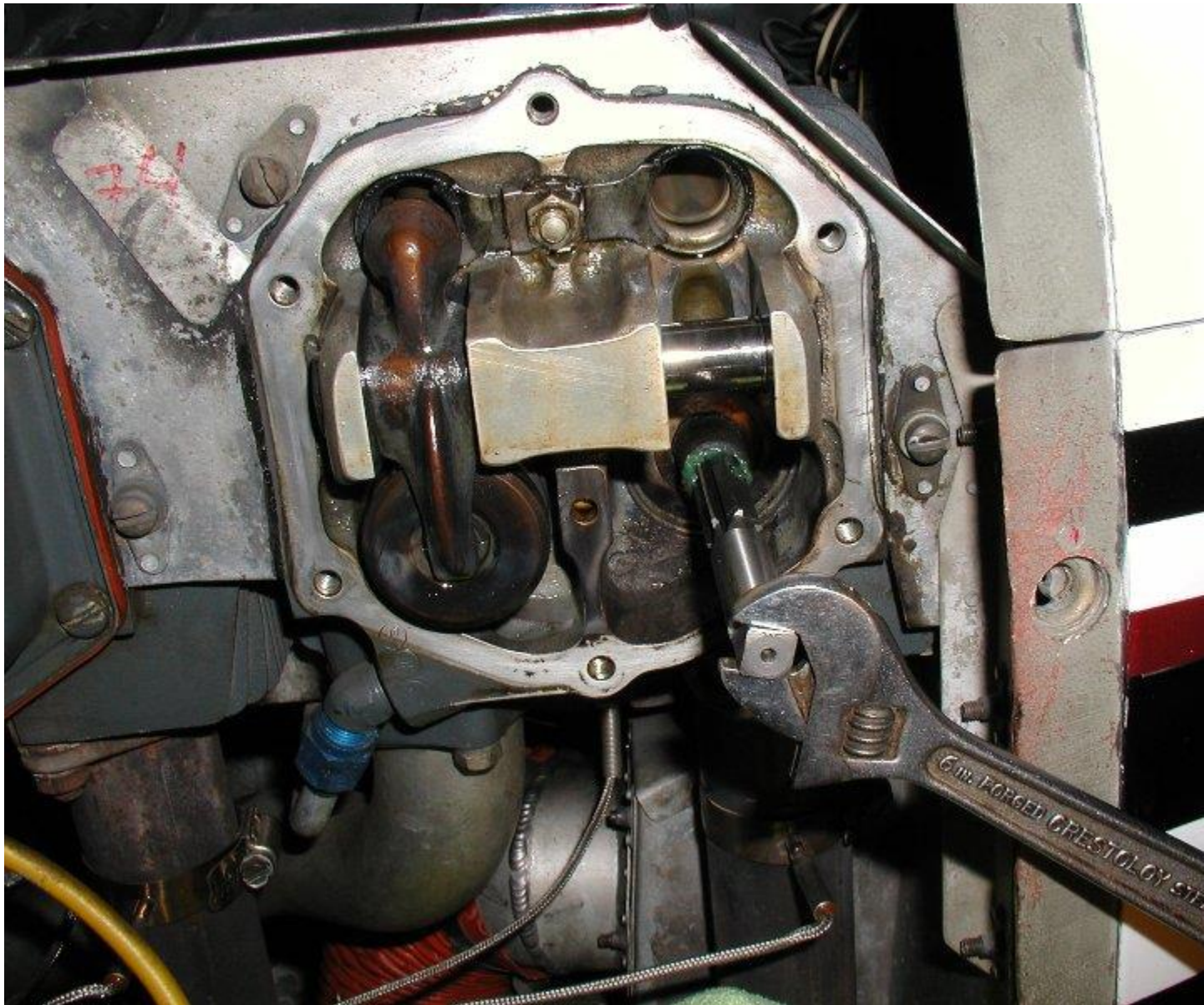
Just a shot of organizing your parts. Be sure you keep all parts from each cylinder together with only those parts from that cylinder. Label the bins so you know which cylinder they came from.



Pic 12 Above:

Here is the exhaust valve stem after the valve spring seats and springs have been removed. Rotate the prop backwards so the piston travels all the way to the bottom of its stroke and remove the rope. Now push the valve stem through the guide so it falls into the cylinder,--Clank! Take a minute to catch your breath since now you are fully committed. If you can't get it out you are doomed to remove the cylinder! The first one you do your pulse rate will quicken but not to worry, you can get it out again. If the valve stem moves easily and pushes right out into the cylinder then your valve is not stuck! However, it does not need to be stuck to exhibit "Morning Sickness"—it still may be "sticky." There will be some exhaust deposits in the guide no matter what but you can be pretty sure this valve was not in the "stuck" category. If you have to force it into the cylinder this is a sticky valve that would or has developed into a stuck valve. Use a brass drift or something softer than the steel valve stem to gently drive it out of the guide and into the cylinder. This is a good time to re-check that cylinder's pushrod for straightness. You will need

to ream the guide even if the valve was not at all sticky or you won't be able to draw it back into the guide. Any deposits at all will prevent you from being able to pull the stem back through so plan on reaming each guide. While this pic is up, notice the gunk on the lower surface below the valve. This gunk is stuff I scraped off the exterior of the guide, and around the base. This is a good time to clean this up as these chunks might just plug up your oil return line someday. I used a screwdriver to scrape off the deposits. Scrape around the round area where the lower valve spring seat was too so it will sit flat when you reinstall it. Amazing how much gunk there is—get rid of it!



Pic 13 Above:

Time to ream! Grease up the reamer, refer to Mark's post as he has better pictures of the reaming process. The grease will capture the reamed off deposits in the valve guide. Start the reamer and use a 6in crescent wrench or equivalent to slowly turn the reamer clockwise. Put mild pressure on the end of the reamer to work it into and through the length of the guide while turning it,

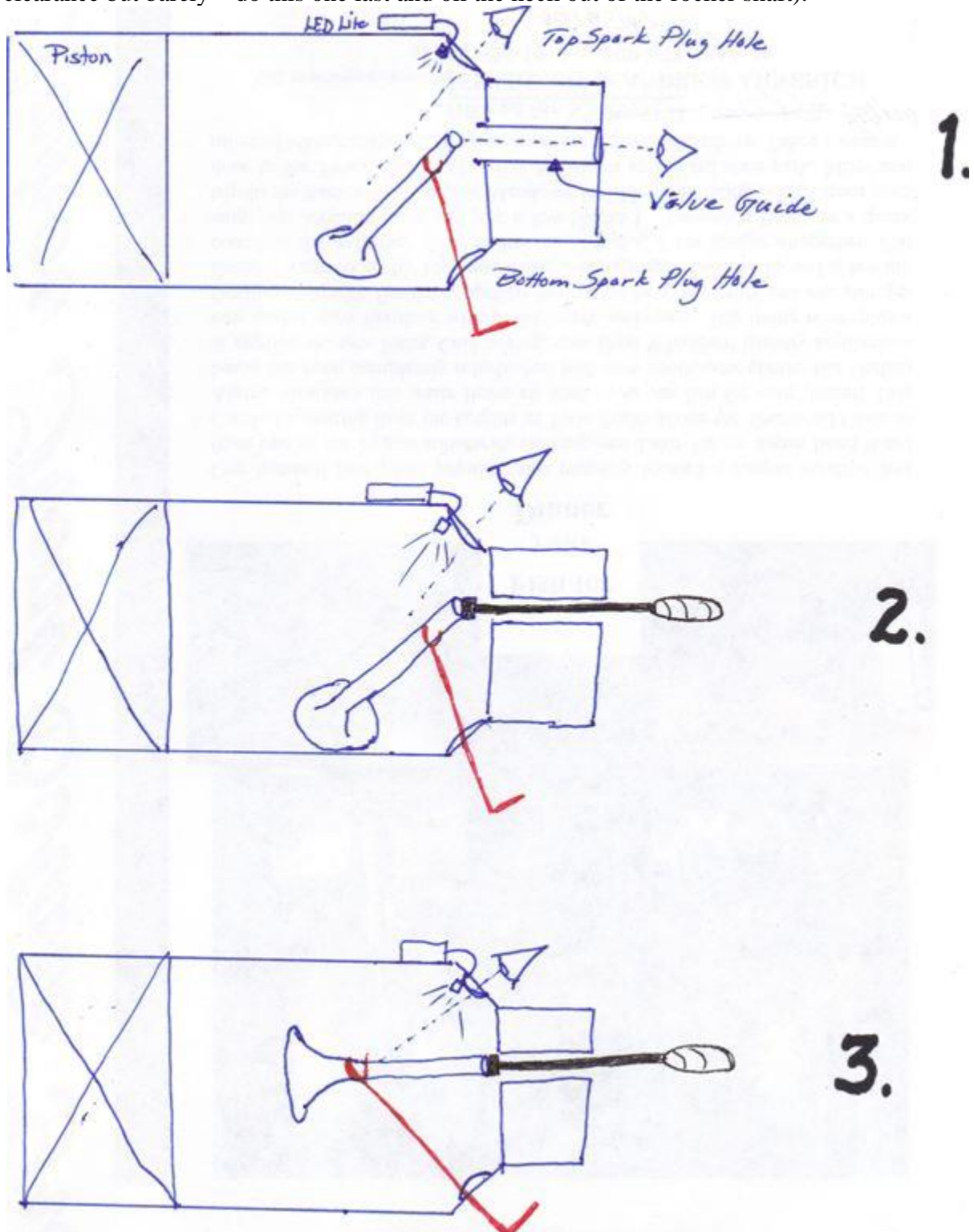
cutting the deposits and making the guide smooth. Do not side load the reamer—you do not want to cut the guide material, just the deposits. It's not difficult just be gentle.



Pic 14 Above:

You will find once you have sent the reamer the length of the guide that you can't get it out! Switch tools and grab the end of the reamer with vise grips. Now continue to turn the reamer clockwise but add some centered back pressure to the vise grips and the reamer will come out slowly as you turn it. Be slow and gentle. It's just about getting the right purchase on the tool. Note the black gunk on the reamer which used to be nasty deposits in your exhaust guide! (your engine sighs with relief). Clean the reamer off with a clean rag. If you're a Tim Allen Tool Time kind of power tool guy DO NOT be tempted to hook up the reamer to a power tool! This is about gently applied pressure, try chanting Ummm, Ummm as you turn the reamer. (side note: this is #2 cylinder, note how little clearance there is for rocker shaft to slide to the left! There's enough

clearance but barely—do this one last and oil the heck out of the rocker shaft).



Pic 15 Above:

Put it back together!

Fish the valve out of the cylinder!

The first time you do this it will take forever then get down to about a one minute operation on

later cylinders, don't despair. Put the LED light in the top spark plug hole, (it's a small light so you might want to leash it to a push rod tube in case you bump it into the cylinder then you can withdraw it).

(1.) In the bottom spark plug hole insert the coat hanger tool (cht). With the coat hanger tool lift the valve stem-end up so you can see just the end of stem through the valve guide and hold it there with the cht while you insert the magnet tool, (2.), so the magnet sticks to the end of the valve stem. Note: the magnet will stick to the edge of the valve stem due to the angle which is OK. Don't oil any of these parts first or the inside of the valve guide or the magnet will not have enough friction to hold the stem end well. (3.) Now move the cht down towards the valve face and lift up that end. (You are watching all this through the top spark plug hole.) Here is where you have to develop your "feel" for the right position and angle to get the valve back in. You'll drop it a few times, just cuss and try again—chant if necessary. The idea is to have the valve seat end held up by the cht tool and the stem end held by the magnet at a level angle so you can pull the valve stem through the guide. Once you correctly line it up it will come right through. When it comes through and before you draw the valve stem all the way through the guide, spend some time memorizing the sight picture through the top spark plug hole of what sight angle and how far up you have to hold the valve for it to be lined up. You get better at this every time you do it. Before you experience this success you will swear that the damn stem has grown a few thousandths! It is a precise fit so you have to line up perfectly.

Once the valve is in, feed the rope in the cylinder again and bring the piston back up to TDC where it is firm against the rope and valves. Once you are successful getting the first valve back in you will consider not tempting fate by doing any other cylinders! You will feel like you dodged the bullet and may not want to try this ever again realizing that if not successful the cylinder has to come off. Resist these feelings as you will be able to pop that valve right in as you get better at this. The first couple have a steep learning curve! Teaching yourself the successful sight picture will cut the learning curve down substantially.



Pic 16 Above:

(Not pictured). You already have the rope in the cylinder, tight against the valves. Put the lower valve spring seat on, the inner and outer valve springs, upper valve spring seat. Use the valve compression tool to compress the springs, and insert the two little stem keeper keys. I found it is easier to place the two keys correctly if you put some grease on them to hold them in place as you place each one. Be sure and use the "catch towel" so you don't lose them. This is a good time for a helper to compress the valve spring while you place these little keys in the proper position. Once the keys are correctly in place and the valve spring compressor tool removed put a drop of oil on the inside of the valve stem cap and place it over the end of the valve stem. Remove the rope and return the piston to TDC, (don't forget this step). (Pictured above): Now oil the heck out of the rocker shaft with your oil squirt bottle. Move it right, oil the exposed portion of the shaft, then move it over to the left, oil the exposed part of the shaft, move it, (with fingers), all the way to the right, oil the shaft, push with your finger on the end, use a screwdriver to

gently lever the shaft over to the left again. Repeat this a few times so the shaft moves easily back and forth. It won't just slip back and forth to each side but should be able to move with firm finger pressure.



Pic 17 Above:

If the hydraulic tappet socket came out when you withdrew the push rod now is the time to reinstall it. Clean the socket well. Note it has a small hole in the center. Find a finishing nail that fits through the hole without binding—it's important that the nail is smaller than the oil hole and will not bind! Sand the end of the 3/8 wooden dowel. Sand it so the end is smooth and no wood fibers come off that could block the small oil supply holes in the push rod and socket. Now pound the finishing nail into the center end of the dowel and nip off the head. The remaining shaft of the finishing nail should fit through the hole of the socket without binding.



Pic 18 Above:

Put the socket hollow end over the dowel with the nail through the oil hole in the center of the socket. A little dab of oil on the end, (not the sides), may add a slight desirable adhesion so you can withdraw the dowel without taking the socket with it.



Pic 19 Above:

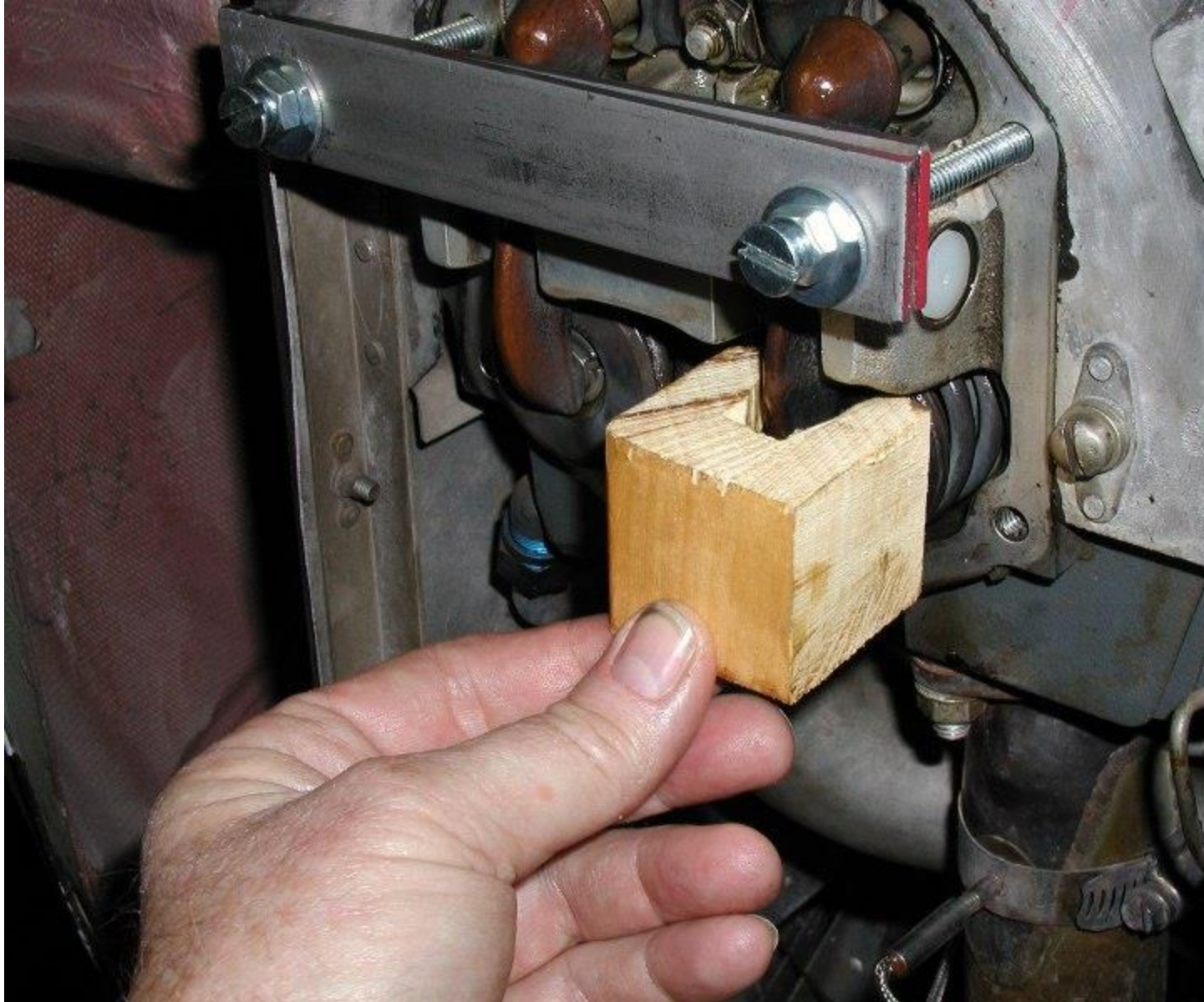
Insert the dowel into the shroud tube and carefully place the socket back into its seat. You may have to work this a little to get it just right. You should feel the socket going into its seat. When you do, carefully, holding the dowel centered in the shroud tube, gently withdraw the dowel. VERIFY the nail is still in the end of the dowel! Shine a light up the shroud tube and verify that the tappet socket is in place, not laying down in the shroud tube. I had to do this with 3 of my cylinders and it worked great. If all goes to hell and you can't get it back in, you lose the nail etc, etc, you have to remove the pushrod shroud tube and install the tappet socket. You will have to order shroud seals and lock nut keeper but it is not a big deal. Now take the pushrod and pump oil through it with your oil squirt bottle from either opening on each end until oil comes out the other end. Insert the push rod in the correct, (previously marked), direction into the shroud tube so it engages the tappet socket. Measure how far the pushrod extends from the tube and compare with the measurement taken before you withdrew the pushrod, it should be the same and you

know the tappet socket is seated correctly. (note: in this picture at this stage normally you wouldn't be putting the pushrod in yet, first re-install the valve springs and keeper—shown for illustration).



Pic 20 Above:

Pre-oil the cup of the rocker shaft where the push rod houses and the center bushing of the rocker shaft. Verify again you are at TDC compression stroke then insert the rocker arm, line it up with the rocker shaft and try to push the rocker shaft so it slips through the rocker arm. If the lifters have bled down by now you might just be able to slip the rocker shaft right through the rocker arm without any other effort, (all that shaft oiling at pic 16 pays off). If not, mount the #18 tool on the cylinder, (the screws screw into the rocker cover holes), and cinch it up. (All the #18 tool does is provide a stable surface for the lever/pry bar end.)



Pic 21 Above:

Position the block over the rocker arm keeping the rocker arm centered in the shaft opening. You may have to do this if you can't slide the rocker shaft through the rocker arm with just finger pressure. (note: in this picture the rocker shaft is already correctly in place, used for illustration purposes).



Pic 22 Above:

Position your pry bar/lever under the #18 tool and put pressure on the wooden block to compress the valve spring a little to take pressure off the end of the rocker arm. Not so much pressure that the valve stem keepers come out—just enough to take off pressure on the rocker arm. While doing this line up the rocker arm with the shaft and push the rocker arm shaft through the rocker arm. It is helpful to use your 3rd arm for this, (I've been told that A&P's who work alone are actually aliens). Doing this alone, I leaned on the pry bar with my stomach, pushed the rocker shaft with my left hand while holding the rocker arm centered under the block with my right—and I'm not even an alien! The idea is to not force anything. The shaft should slide through the rocker arm when everything is lined up and the pressure is off the rocker arm with just firm finger pressure. If you have to force it you are doing something wrong. Be sure and replace the buttons on each end of the rocker shaft if you have taken them out or damaged them. Remove the #18 tool and turn the prop over through at least 4 complete strokes to verify the valves are being

opened by the push rods and closed again. Check the valve stem keepers/keys to be sure they remain seated correctly. Voila—you are done with this cylinder—only 5 more to go! (Note that Cylinder #2 is the most difficult to manipulate the rocker shaft due to clearance. Do that one last or at least once you have some practice on others and it will be a piece of cake.)

End Notes:

While I was doing this I stripped and painted all my valve covers which were chipped and ugly. I also tested all my plugs and found some that had off the scale resistance, some right on new spec and some I couldn't even obtain a reading on. So I replaced all of them with brand new plugs. The old ones had 400 hours on them. I also noticed all the bottom spring leads that screw into the plugs were a bit corroded. Replaced all of these spring leads as well. The resulting test flight showed EGT bars all even and closer together even at idle than ever before. This probably mostly due to the new plugs. I also experienced a little increase in oil pressure probably due to the gunk on the socket tappets that came out with the push rods being cleaned off and the oil passages clear now. All in all, I got about 3 or so more knots and about 5 tenths lower fuel flow at the same power setting after this. Most of that is likely due to the ignition system improvement but satisfying none the less. No more morning sickness and best of all, I have confidence in the engine again. I've heard that it is advisable to do this every 400 hours. My engine log does not indicate this had ever been done before and I have 865 hours on it since brand new when I did this. I'll plan to do this in another 5-800 hours or so or until the "morning sickness" appears again. As a side note; I discussed this with an A&P I use who is pretty young. He had heard of this before, calling it the "Indian rope trick" (??), but wasn't really sure how it worked. I described my process and result and opined that from now on this will be preventative maintenance for my engine, (every 5-800 hours or as necessary). He quickly realized how much money this could save some of his customers and became very interested. The A&P's that have been around for longer seem to know this trick pretty well. The one who supervised me was familiar and has been around awhile. Seems like maybe a bit of a lost art out there. But so usefull!

Jeff

Edited by Jeff Hurst (06/04/10 02:33 AM)

Post Extras:    

[Jack Howard](#)

1970 Cessna 182N




Reged: 11/08/03

Posts: 669

Loc: Beaverton, Oregon

 **Re: The old rope trick II**  [Re: [Jeff Hurst](#)]

#825960 - 06/04/10 02:34 AM

 [Reply](#)  [Quote](#)

This should be a tech alert or something more permanent than a post. You should get your membership for free for a long time. Bravo!

Post Extras:    

[Guy A. Edwards](#)

1963 Cessna 182



Reged: 01/03/03

Posts: 7591

Loc: Sturgis, SD

 **Re: The old rope trick II**  [Re: [Jeff Hurst](#)]

#825965 - 06/04/10 03:22 AM

 [Reply](#)  [Quote](#)

Jeff,
Quite a remarkable post. Great info, and presentation.
Guy

Post Extras:    

[Rick Koril](#)

1964 Cessna 182G





Reged: 04/29/04

Posts: 989

Loc: Mesa, AZ

 **Re: The old rope trick II**  [Re: [Jeff Hurst](#)]

#825970 - 06/04/10 03:44 AM

 [Reply](#)  [Quote](#)

Very, very informative... Great job!!! Thanks!

Rick Koril
Mesa, AZ
Skylane N64RK

Post Extras:    

[Dan Barley](#)



1982 Cessna 182





Reged: 10/23/01

Posts: 2280

Loc: KCMA, Camarillo, CA

 **Re: The old rope trick II**  [Re: [Jeff Hurst](#)]
#825979 - 06/04/10 05:44 AM

 [Reply](#)  [Quote](#)

Very, very informative Jeff. Thank you so much!

Dan B., N182MT

Post Extras:    

[David J. Fogarty](#)



1979 Cessna 182RG



Reged: 01/26/06

Posts: 70

Loc: Boca Raton, FL (Based: KLNA)

 **Re: The old rope trick II**  [Re: [Jeff Hurst](#)]
#825985 - 06/04/10 09:58 AM

 [Reply](#)  [Quote](#)

Wow Jeff - This post is a keeper. Thank you so much for taking all the time to so fully document this procedure. Awesome work. You're more anal than I am - didn't think that was possible - but this is proof positive.

Nice work ! 

Dave Fogarty CFI-AI

Post Extras:    

[Mark Shilling](#)



Cessna R182





Reged: 11/14/01

Posts: 4234

Loc: Raleigh, NC

 **Re: The old rope trick II**  [Re: [Jeff Hurst](#)]
#825987 - 06/04/10 11:09 AM

 [Reply](#)  [Quote](#)

Jeff,

Excellent post - You did a great job.

Two minor points, when I did this job I used the bent wire tool to grab the valve on the way into the cylinder. It then captured the valve while you reamed the guide and made it so that you didn't have to go fishing for the valve when you were ready to get it back in the valve guide.

Second, I used a short extension along with a tap handle to rotate the reamer into the valve guide. It seemed to provide better control than using a wrench. There was enough friction in the system to withdrawl the reamer while rotating the handle. I suppose if the extension kept slipping off you could possibly drill a hole through the extension and reamer and insert a pin to help hold it.

Again, GREAT JOB!!

Some ideas are so idiotic only an intellectual can believe them.
Mark
R182

Edited by Mark Shilling (06/04/10 03:25 PM)

Post Extras:    

[Jeff Hurst](#)
1981 Cessna TR182



Reged: 07/06/05

Posts: 2856

Loc: Tahoe City, CA

 **Re: The old rope trick II**  [Re: [Mark Shilling](#)]
#826071 - 06/04/10 05:14 PM

 [Reply](#)  [Quote](#)

Thanks for the comments guys. I appreciate it. This seems like such a valuable process to keep lycomings healthy that I thought I would take the time to document it and add on to what Mark has already done.

Mark,
Quote:

Two minor points, when I did this job I used the bent wire tool to grab the valve on the way into the cylinder. It then captured the valve while you reamed the guide and made it so that you didn't have to go fishing for the valve when you were ready to get it back in the valve guide.

Interesting Mark. I got lots of ideas from people including tying safety wire on the the stem where the keepers go. As it worked out fishing the valve from the bottom of the cylinder was a piece of cake with the coat hanger tool you invented.

Quote:

Second, I used a short extension along with a tap handle to rotate the reamer into the valve guide. It seemed to provide better control than using a wrench. There was enough friction in the system to withdrawl the reamer while rotating the handle. I suppose if the extension kept slipping off you could possibly drill a hole through the extension and reamer and insert a pin to help hold it.

I looked high and low for a tap handle that would fit on that reamer and couldn't find one. Using a step down fitting could have worked but I finally just used the small crescent wrench and centered pressure with my thumb and it worked fine. A proper tap wrench would be ideal though. The vise Grips was so simple to use to withdraw the reamer while turning that it wasn't worth a tool modification. If you did this for a living I'm sure you would make a tool specifically for this.

Thanks again Mark for the inspiration to do this!

Jeff

Post Extras:    

[Paul Knapp](#)

1973 Cessna 150L

Reged: 01/28/09

Posts: 425

Loc: Langley, BC (CYNJ)

 **Re: The old rope trick II**  [Re: [Jeff Hurst](#)]

#826110 - 06/04/10 08:03 PM

 [Reply](#)  [Quote](#)

Jeff and Mark, your two posts combined are an absolute gem.

Is there anyway they could be moved into the Tech Info area of the CPA site? They are far too valuable to get burried in the regular forum posts.

I'm going to print them both off, 3 hole punch them and put them in my maintenance manual.

Thanks guys for posting such good, solid information 😊

Post Extras:    

[Michael Skrzecz](#)

1979 Cessna TR182



Reged: 10/10/02

Posts: 588

Loc: Phoenix, AZ

 **Re: The old rope trick II**  [Re: [Jeff Hurst](#)]

#826149 - 06/05/10 12:20 AM

 [Reply](#)  [Quote](#)

Jeff,

I see the reamer is adjustable +/- .010". So how much material is removed from the guide? Do you have to adjust the reamer up in size? When do you know when "enough" material is removed?

Is there a Lycoming SB that covers this procedure?

Mike

Post Extras:    