

Paragraphs Rewritten to Clarify or Expand
John Deere “H” Restoration Guide
3rd Edition, 1st 2nd & 3rd Printings
(August 2010 Update)

NOTICE: Check your book's Printing Date. If the print date is AFTER the date given in the paragraph, this update is already incorporated into your text unless otherwise noted. For many, you may have received another form, such as an insert update with your new book.

Page 51 – (August 2010) Cracked Filler Neck Seam in Fuel Tank - Such a defect really should be re-soldered. Radiator shops do this kind of repair. With a thorough cleaning of the tank (safety), you can also renew the soldering yourself. If this is your first try at this kind of thing, however, I do not recommend a “home job”. F-I-T tells us, “There are other sealants that might work – such as JB Weld. Another is called Body Seam Sealant, and then there is Liquid Nails – like from Home Depot in a caulking tube. Finally, F-I-T recommends a 3-M product, urethane based, called Scotch-Weld; an aviation grade product -- used to seal fuel tank patches for jet fuel. Sufficient cure time is a key to success.” (Courtesy, in part, <http://www.ytmag.com/cgi-bin/viewit.cgi?bd=jd&th=316351>)

Page 56 -- (March 2009) Above **Figure 210**, where **OIL LEVEL** is embossed in the air cleaner oil cup, do not apply “Oil Level” decal.

Page 58 – (August 2010) - Check out the photos at the end of Chapter 7 for some help visualizing build-up of the hood-fuel tank-end cap subassembly.

Pages 69 – (August 2010) – Gaskets, A Unique Observation – A seasoned diesel engine technician (44 Diesel Tech) states (on www.ytmag.com), “Why use a gasket in the first place? If mating surfaces are clean and flat, then apply a thin bead of gasket eliminator by Loctite™. Gaskets are of the past. Gaskets leak. By using gaskets you are adding one more connection to leak. Gaskets also compress and in time will loosen and leak. The only exception would be in a shim application. Modern manufacturers are using fewer gaskets all the time.” Unfortunately, the mating surfaces in a Model “H” tractor are generally NOT flat and thus gaskets ARE needed when performing an overhaul! This observation is courtesy of <http://www.ytmag.com/cgi-bin/viewit.cgi?bd=jd&th=348058>

Page 69 (August 2010) -- Soft Washers – Use of lead washers on cylinder head studs is to serve one purpose, lubrication. They keep the nut from galling into cast iron head – which, if happens, will provide false torque readings. You can use either copper, aluminum or lead. They are NOT used for sealing.

Page 72 – (August 2010) -- Manifold – This casting will have eroded – losing much of its cast body. There are reported instances of holes between the intake and exhaust chambers. Such a defect wreaks havoc on engine performance, and is extremely hard to find in an assembled engine. A thorough cleaning and some probing around inside the casting may be revealing and should be done. Sandblasting is an excellent way to prepare casting for complete visual checkout.

As an added touch, you may choose to have the sandblasted manifold powder-coated to Gloss Black. Many small automotive "fix-it" type shops offer this service at a very reasonable cost. Then follow this up with brass nuts – limiting torque to **35-45 ft-lbs!**

Page 72 -- (August 2010) -- Removing Old Studs from Castings – Key elements are heat and a clean-biting vice grip wrench. Some welding may be called for as well – depending on circumstances. Heat the existing (it sticks up) stud to cherry red; if you lack a part sticking up, it's welding time. Either weld an extension onto the stud, or position a nut over the hole and half-fill it with weld. These treatments, once cooled enough so they are no longer red, should give you something to grasp – and your success rate should rise to 100%! All that remains is to chase the hole and blow out debris.

Page 77 -- (March 2009) Ring Groove Cleaning -- [Added text] -- John Deere "H" tractors have all-fuel engines designed to burn distillate, and as such will have pistons with three compression rings at the head end and one oil-wiper ring on the skirt end. Original pistons will also have a groove machined around the head end to collect carbon. The groove, commonly referred to as a carbon groove, acts as a heat dam to reduce heat transfer to the top compression ring. When cleaning the ring lands, do not remove the carbon deposit from this ring. (Ref SM2004, Oct 5, 1948).

Pages 80 & 81 -- (March 2009) Radiator disassembly, cleaning and repair -- [A Clarification of IMPACT] -- A firm grip between fastener and wrench is foremost. Now - think "impact" -- but not with overwhelming force! Some sort of shock works best. A small hammer (on the wrench) used with patience -- "tap-tap" one way, then "tap-tap" the other. Watch for movement.

Pages 82 -- (August 2010) -- Governor Dynamic Testing -- With one hand on the throttle lever at the carburetor, note that engine speed can be controlled. Then, as speed is increased with the left hand, have a "sensing" feel (right hand) on the governor arm to see if it exerts a counter-force as speed is increased – this in an attempt control the speed. If the governor arm is lifeless, then you can be sure you have identified the governor as the cause!

Page 82 -- (August 2010) -- Low-Cost Governor Gasket Set (Reference AH1163R in Appendix 4) – The make up of this set assumes that the owner be very careful when removing old gaskets and shims. You must avoid damage to existing metal shims because if not mutilated, they usually are reusable. This substitute listing will save you at least \$100 when compared with buying **AH1163R** Governor Overhaul Gasket Set from Deere.

A5272R - gasket, Gov to Magneto
F1072R - Packing, Ventilator Pipe (2 ea)
H387R - Gasket, Gov to Main Case
H398R - Gasket, Gov L.H. Brg Hsg (3 ea)
H399R - Gasket, Gov L.H. Brg Hsg
H413R - Gasket, Gov Fan Shaft Brg Hsg (2 ea)
H414R - Gasket, Gov Fan Shaft Brg Hsg (3 ea)

Page 82 -- (May 2009) Governor Lubrication [Added paragraph after Disassembly & Overhaul] -- One of the oil pump manifold outputs is to the governor. Oil rises inside the governor case to a point defined by presence of a 1/8" NPT plug, rear side of governor casting. From that point, the oiling channel is horizontal toward the fan pinion & drive gears. Ensure this horizontal path is open. **DO NOT ENLARGE THIS PATHWAY.** See figure 309 (A&B), Governor Oiling Channel.

Page 82 -- (August 2010) -- Governor Bearings -- See Figure 308A, B & C. Note that in the 3rd Print, the photos of Figure 308(A&B) were reversed. The original bearings for the JD-H governor were by New Departure, a source now dried up! The bearing comes in three parts (JD7151, 7152 & 7153), but is now supplied by Deere under part number JD7150. The main warning for you is that the current Deere part JD7150 IS NOT configured the same as the original parts, and they aren't low-cost either! In the JD7150 Deere replacement bearing, its roller balls are retained by a flimsy, soft jelly-rubber gismo. If alignment isn't just right when mating the parts, will result in you being down on your hands and knees searching for balls! Unlucky restorers have had miss-alignments where the balls fell away, but they DID NOT KNOW – and lost their fan drive and pinion gears as the tractor was started! 'Both frustrating and costly.

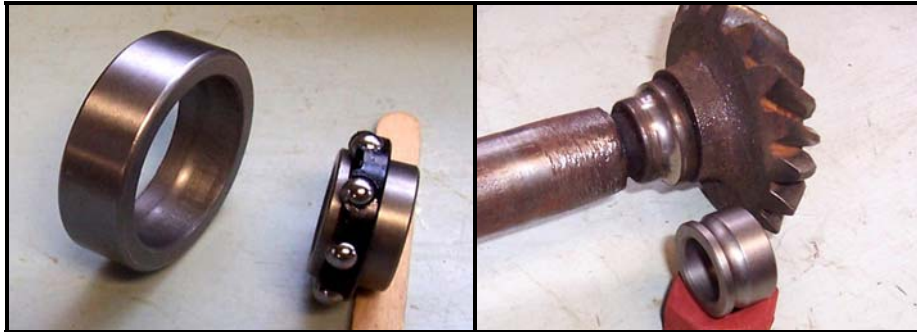


Figure 308 (A&B). On the left, is the Deere JD7150 bearing. Note the black bearing ball retainer -- it made of very soft, jelly-like rubber, and once installed may indeed cease to exist -- the bearing balls being held captive by the other two parts. In the right side photograph, you see one part of each bearing compared, original bearing on the shaft.

Governor Bearing Breakthrough – A Cost Saver -- No longer do you have to pay enormous fees for a defective replacement! New tapered roller bearings by jdhpubs.com is now available at a fraction of this cost. And, it comes in two parts, not three. This is extremely significant because now there is no “floating” part to fall out of position during assembly. The bearing inner cone with rollers (one piece) press-fits onto the shaft, and the bearing cup (as before) presses into the bearing housing. See Green and Two Cylinder Magazines, and if you have Internet, go to GOOGLE and enter “JD7150”.



Figure 308C. Tapered Roller Bearing, Sub for JD7150

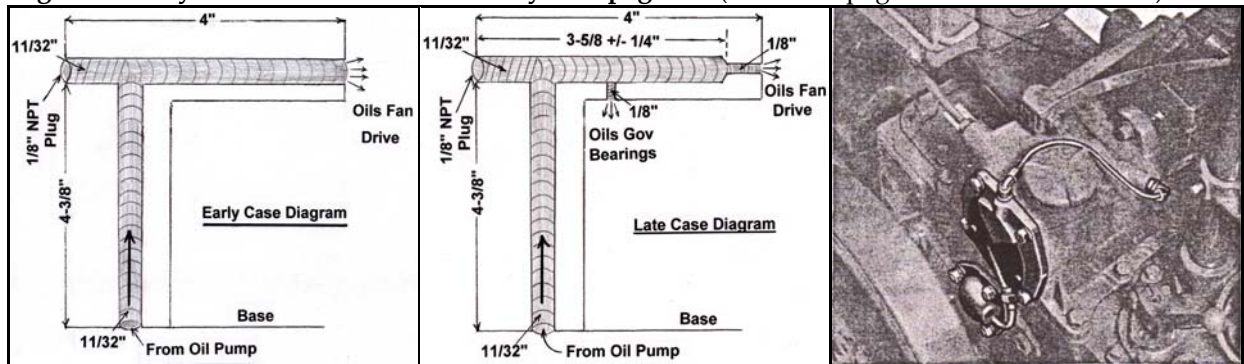


Figure 309 (A, B & C). Governor Oiling Channels, and Changeover Assembly

2. Field Changeover Assemblies -- External oiling kits were announced in FSB 121-S, 15-May-1941 (Late point of 1941 production), for tractors produced 14 to 33 months beforehand, and 14 months AFTER an apparent fix! That fix turned out to be a casting change in the H386R governor case, and kit analysis points H16626 as the change point. PC304 Model "H" Parts Catalog, page 5 defines the parts in each kit. It is interesting is that there was no pipe from the rear side of the governor case (oil in-feed) from 16626-up! This tends to indicate that beginning at H16626, there is oil enough being delivered to the L.H. governor bearing to warrant elimination of the oil in-feed pipe. While it's not written, one may logically conclude any number of reasons existed for keeping the oil pipe between L.H. bearing housings for the governor and camshaft. It can be surmised that momentum of the change, or even fear played a role in deciding to use the lower part of the oiling kit beyond H16626. Perhaps a flaw in the maintenance data analysis drove product support engineers to this decision. At this point, we just don't know.

Conclusion and Tests -- If your tractor has an **Early Case** governor (governor cases CAN be switched over time), the external oiling kit should be installed to protect the life of the L.H. governor and camshaft bearings. Lube by "Oil-Splash" isn't sufficient. See Figure 309 above. Governor case tests follow:

Early Case (Factory H1000-16625) -- The hole at the forward end of the horizontal pathway is full-sized and there is no outlet hole near the turning point of the internal oiling channel. You have to look inside of the governor case to learn this. Alternate test: Remove 1/8" NPT plug, rear side of governor, and a section of 3/16" rod can be inserted to a depth of 4-1/4 +/- 1/8 inches!

Late Case (Factory H16626-up) -- The final 'fraction of an inch' of the forward end of the horizontal pathway is 1/8" in diameter and there IS a 1/8" diameter hole near the turning point of the internal oiling channel; again, as viewed from inside the case. Alternate test: Remove the 1/8" NPT plug, rear side of governor, and a section of 3/16" rod can be inserted to a depth of 3-5/8 +/- 1/4 inches. (The length of the 1/8" diameter section varies.)

TIP: The most vulnerable bearing for "Early Case" tractors is the L.H. Gov Brg. You can install a grease fitting into the L.H. Gov Brg Hsg for the adding needed lube. For Hydraulic-Lift tractors, at least install the top oil pipe (rear of case to upper L.H. Gov Brg Hsg). Or - consider a "Late Case" Governor Housing!

VALVE TIMING TEST

Be sure the flywheel is installed correctly. The "V" mark on the flywheel should register with the "V" mark on the crankshaft.

With valve tappets set to 0.015-inch gap, turn flywheel in normal direction of rotation until the exhaust valve of the left cylinder is just beginning to open (.000 tappet gap). At this time, the flywheel mark "L.H. EXHAUST OPEN" should be in register or within one-half inch of the index mark on gear case or sliding gear shaft cover (At 3:00 o'clock when viewed from left side).

RETIMING OF VALVES

Loosen the governor case retaining cap screws and remove camshaft left bearing housing (or cover on earlier models), and remove the left bearing. Remove belt pulley and clutch assembly, then remove reduction gear cover and loosen the camshaft right bearing housing. Lift end of cam shaft up so that camshaft gear and crankshaft gear are out of mesh; then turn crankshaft until valve timing is as specified.

Verify that the "V" marks on camshaft gear and on camshaft are in register, and then adjust the relationship between crankshaft and camshaft until the marks on camshaft gear and crankshaft gear are in register. **Note** – if camshaft gear and camshaft "V" marks fail to be in register, you may elect to leave them as they are found – using the "valve timing test" above to verify a "correct" relationship between camshaft and crankshaft.

GOVERNOR SHAFT TIMING

When finished with valve timing, install governor with (a) An engine piston at TDC, and (b) The magneto drive flange groove horizontal.

MAGNETO TIMING

With engine at "No. 1 Just fired TDC" and magneto at "No. 1 just fired (top wire)", install magneto with cap screws only finger-tight. Rotate magneto fully to the rear. Reverse rotate flywheel a half revolution, and then bring it back to "No. 1 just fired TDC". Carefully rotate magneto forward until the impulse snaps. Tighten in place. ++++

Pages 115 & 116 -- (March 2009) - Rear Axle Housing Disassembly, "Brutus" Method:

This entry WILL NOT be incorporated into the Guide because it is posted on Yesterday's Tractors website - see URL's below)

<http://www.ytmag.com/cgi-bin/viewit.cgi?bd=jd&th=313675>, and
<http://www.ytmag.com/cgi-bin/viewit.cgi?bd=jd&th=313846>

The Brutus Approach -- To getting the spacers, bearings and brake drum off the axle. CAUTION; this method can result in broken A134R adjusting pins -- Back A151R adjusting screw OUT (CCW) as far as it will go. Take the 3 bolts out on the wheel end of the housing for the dust seal/ bearing retainer, stand the axle up, (brake drum facing down) on a block of wood. Pick the whole thing up a few inches and drop it. It may take a few tries but it will come apart.

Page 163 -- (March 2009) Original Equipment [As relates to the generator] -- Aside from OEM Delco-Remy (DR) 1101377 Generator, DR 1101390 generator will substitute here (See also Deere TY1441, or SE5011388). For DR1101390, you may need to use your old end cap! (mounting issue).

Page 163 -- (August 2010) -- Delco-Remy Generator Identification Tags -- Tags will be black for 6-volt and red for 12-volt units.

Page 163 -- (March 2009) Painted Parts -- All Delco original parts and light assemblies were thick-painted high gloss black. Starter motors, however, generally ended up green; this the case with most JD top-mounted starters.

Page 173 -- (June 2009) -- Lag Angle paragraph, 3rd sentence revised to read, " For the JD H, this angle was set at 35 degrees for H1000-16199, and at 30° for H16200-up."

Page 178 -- (Not Incorporated) -- Wire Clip Locations -- The parts book shows 8 in use.

- #1 Right front gas tank bracket.
- #2 Under the bolt that holds the spark plug wire loom conduit to the hood stand.
- #3 Under the bolt on the front of the transmission cover.
- #4 Under the bolt on the right side of the transmission cover.
- #5 Under the bolt that bolts the platform to the tractor on the right side.
- #6 Under the bolt that holds the rear light bracket on to the platform.
- #7 Under the bolt where the fan shaft mounts to the governor.
- #8 Under the bolt to the right side and rear of the top engine cover.

Pages 222 & 223 -- (March 2009) Hardener for John Deere Paint, New Para -- NAPA Martin Senour CrossFIRE 15118 -- As time passed, Synthol 8010 phased out and is replaced by a Martin Senour-NAPA product sold under the **CrossFIRE** label with a product number **15118** -- used with synthetic enamel (S/E) paint. There's Great News! Cost was under \$15 per pint and it works just fine. And so, if you choose John Deere S/E paint, also buy your paint reducer (thinner) from Deere and CrossFIRE 15118 will be a winning combination. If persistent, I am confident you will find other hardeners compatible with S/E paint -- this is one. As for ratio's of paint-reducer-hardener, ask around, seek a consensus, and in absence of good guidance, start with 8:2:1 and experiment some.

Page 223 -- (August 2010) -- Martin Senour/Sherwin Williams (FH601) -- As time passed, Synthol 8010 phased out and is replaced by a Martin Senour product sold under the **CrossFIRE** label with a product number **15118** -- used with synthetic enamel (S/E) paint. And by this writing, the **15118** product is superseded by **FH601** (in pints), priced in the \$25 per pint range. And so, if you choose John Deere S/E paint, also buy your paint reducer (thinner) from Deere and Martin Senour FH601 will be a winning combination. By this writing, your Deere dealer should also have a catalyst suitable for use with Deere S/E paints. As for ratio's of paint-reducer-hardener, ask around, seek a consensus, start with 8:2:1 and experiment some.

Pages 224 & 258 -- (March 2009) Parts Painted Black -- Light assemblies, generators, and cutout units (or voltage regulators) are painted gloss black. Starter motors generally ended up painted green as with most top-mounted JD tractor starters.

Page 243 -- (March 2009) Head Gasket Orientation (App 6 - Add to 2nd para) -- If both sides seem smooth. The check the firing ring – the crimped border around each cylinder bore hole. You will find one side of the ring smooth this side goes to the block the other side has the roll crimp and this side goes to the head.

Page 249 – (June 2009) 39-H (App 8): Photographs in Figure 8-2 are reversed for 3rd Edition Restoration Guide books sold before June 10, 2009.

Pages 274-276 -- (March 2009) Added Appendices 15 and 16 -- Pan Seats, and Steel Washer Specifications.

Pages 277-282 -- (June 2009) Added Appendices 17 and 18 -- Overhaul of Power Lift Unit, and Hydraulic Lift Unit Troubleshooting Chart. ++++