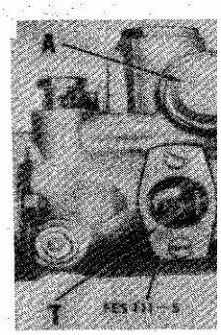
To remove the Bosch VA Pump from IH tractors you will first need to remove the plate on the front of the timing gear cover directly in front of the injector pump. This plate has four studs with nuts one (the lower left) can be seen in this photo directly above the timing pointer. Once this plate is removed you will see the gear that drives the pump. At the center it will have a hub with 3 small bolts and a larger nut in the center on the threaded end of the pump drive shaft. DO NOT loosen the three small bolts at removal.

Picture 1

Now align the pointer in the picture 1 with degree mark for your engine, most of the three cylinder engines will be at 14 degrees, some 4 cylinder engines may be different. As you are approaching the 14 degree mark remove the cover on the side of the pump. Pictured below is a VA/BR model pump the VA/CR pump the cover is similar.



If you are on the compression stroke you should see a line above the pointer that is near the center of the window. This line is very faint and may be hard to see. If there is no line visible rotate the engine one complete revolution. Stop the engine rotation as the mark reaches the pointer, observe where your timing pointer to the front pulley outlined in Picture 1 is located if it is on the degree mark that your engine time on the engine is correctly timed.

Then proceed to remove all of the lines and linkages from the pump, leave all levers in place. Remove the center larger nut and washer at the gear leaving the 3 smaller bolts

tight. Now replace the larger nut without the washer leaving the nut flush with the end of the pump drive shaft, taking extreme measures not to drop anything into the timing gear cover. Remove the mounting bolts on the pump side from the pump.
With a soft punch made from aluminum or brass strike the nut that you returned to the pump drive shaft. One quick hard strike should release the tapered shaft from the gear..

Re-Installing:

Lining the pump key up with the key way in the gear may be your challenge. The pump when it is on the timing mark will be on its so called compression stroke and it may not stay where you want it. There are 2 ways you can go from here I will let you decide.

1) IF you are certain you had it on the mark when it was removed, loosen the 3 smaller bolts rotate the center hub of the gear to line up the key. Once the pump is secured in the key way replace the center nut, replace the mounting bolts of the pump. Then place a socket on the center nut to rotate the pump shaft to re-align the timing marks in the side window as they were when you removed the pump. When your timing marks in the window of the pump are in line, tighten the three smaller bolts in the gear hub.
2) You can also rotate the engine a few degrees to line the key in the pump up with the gear. The engine will not need to move much usually this can be done with the fan or a socket on one of the bolts that holds the front pulley on. After the pump is secured to the engine and the center nut is tight. Back the engine up to the a few degrees before the target degree mark to remove any free play in the timing gears. Then bring the engine back to the target degree mark and check the pointer in the window. If it is not in line, rotate the pump housing to line the mark up, (loosen the outer pump mounting bolts).

Now replace the lines and linkages, if the injector lines were not removed at the injector you may be able to bleed the air out from the injector lines at the pump, if they were removed from the injector you will need to leave them loose until the air is out.

One thing to note these units have no supply pump and rely on gravity to supply the pump. When installing the VA pump you must be sure the fuel in the tank is higher than the pump. Turn the fuel on before tightening the inlet line and be sure you have a flow of fuel at the pump before you tighten the inlet. Some pumps you can leave the return loose until fuel come out of it also.

Also these pumps are set by the IH test plan this test plan also states that final idle adjustments may be required at mounting. You will need to check your low idle and high idle speeds. These can be adjusted by the 2 screws that stop your lever as you move the throttle. The screw nearest the front of the engine controls the low idle, the back screw controls the high.