How To Weld On Used Oil Field Drill Pipe

By Ron Galoway

In many areas of the U.S. and Canada used oil field drill pipe is cheap and easy to find. But welding it can sometimes be tricky.

The problem is that during normal use, drill pipe acquires the properties of a permanent magnet. The strong magnetic fields at the ends cause a magnetic arc to spot, fluctuate, and leap wildly from side to side of the joint, making it difficult to get a good weld. Retired drill pipe is rarely used outside the oil fields in full lengths. When lengths are cut into two or more pieces, both ends of each segment will exhibit the same permanent magnet properties.

The challenge is to remove or completely neutralize the strong magnetic fields. To do that, we simply take advantage of the basic electro-magnetic principle used in creating an electro-magnet - that of wrapping an insulated wire around an iron core and then applying a direct current.

In this case the iron core is the drill pipe, the insulated wire is a few feet of your stinger whip lead, and the direct current is supplied by the welding machine as soon as you strike an arc which will continue as long as you are welding.

Both north and south polarities can be neutralized by this same method, the difference being that you wrap the stinger lead around the pipe. Wrapping clockwise will produce one polarity and counter clockwise will produce the other. Polarity can be established by a simple compass test but it isn’t necessary to use this principle. If you’re wrong you’ll intensify the magnetic field and your arc disturbance will be intensified also. Simply stop and rewrap the other direction.

There is no simple field test to establish the intensity of the existing permanent magnetic field. The intensity of your induced electro-magnetic field will be affected by the amperage of the machine and the number of wraps of cord you put around the pipe. This device is usually set by the rod size and the technicians preferred arc so the easiest way to adjust the electro-magnetic field strength is with the number of wraps.

Experience shows, if your machine is set for 1/8-in. rod, you would start with six wraps and adjust more or less until you achieve the desired results. It’s important that the lead be tightly wrapped both against the pipe and against each other, while keeping the wraps 4 to 5 in. back from the end being welded so as not to bum the insulation covering the lead. Start your wraps far enough back from you stinger that you don’t restrict your freedom of movement of the stinger. Tests show that once the root pass has been completed the wraps can be removed and normal welding will resume.

Contact: FARM SHOW Followup, Ron Galoway, 70 TecMont Circle, Afton, Wyo. 83110 (ph 307 886-3673).

Pneumatic Shift Added To Vintage Versatile

While rebuilding the engine on his 1974 850 Series Versatile tractor, Jim Hermanski, Enid, Okla., decided it was time to do something about the old tractor’s inherent shifting problem.

“These are great tractors, and their 3-speed transmissions with four ranges allowed them to be used for a wide range of field work,” Hermanski says. “The problem was that after you’d used the tractor a little, the remote shifter box wore down and it was hard to keep it from shifting into two gears at once. All the Versatiles with this transmission are notorious for this.”

Having lived with the problem since he bought the tractor used in 1978, Hermanski had given plenty of thought to a solution.

“I worked for years as a truck mechanic,” he says. “A lot of trucks with that same engine had pneumatic shifters, so I decided I could put one on the tractor and solve the problem.”

His idea was to replace the manual transmission shift lever with small pneumatic cylinders that would shift the gears. “I worked for an International Harvester truck dealer-ship here in Oklahoma, and we worked on a lot of oil drilling equipment,” he says. “So I was acquainted with a type of air spool valve that would do the job.”

According to Hermanski, the Versatiles with four ranges allowed them to shift using just four buttons. “These are great tractors, and their 3-speed transmissions with four ranges allowed them to be used for a wide range of field work,” he explains.

Having lived with the problem since he bought the tractor used in 1978, Hermanski had given plenty of thought to a solution.

“I worked for years as a truck mechanic,” he says. “A lot of trucks with that same engine had pneumatic shifters, so I decided I could put one on the tractor and solve the problem.”

His first step was to hunt down a used air compressor and an accessory drive assembly that had been used on the same model Cummins engine in a large road truck.

“The Versatile engine was exactly the same as the truck engine, so all the mounting holes were already there. All I had to do was put it in place and add a coolant line to keep it cool,” he says.

His idea was to replace the manual transmission shift lever with small pneumatic cylinders that would shift the gears. “I worked for an International Harvester truck dealer-ship here in Oklahoma, and we worked on a lot of oil drilling equipment,” he says. “So I was acquainted with a type of air spool valve that would do the job.”

According to Hermanski, the Versatiles with four ranges allowed them to shift using just four buttons.

While rebuilding the engine on his 1974 850 Series Versatile tractor, Jim Hermanski decided to add a pneumatic shifter to solve the old tractor’s inherent shifting problem. He bought a used air compressor (upper right) and an accessory drive assembly. Photo at right shows shift control valves.

“‘What took the most time was running the transmission to get the stroke right, but the ones that were on it worked just right,’’ he continues.

He found all the parts he needed (except for air lines, which he purchased new) at Southwest Truck Supply, Pratt, Kansas. “I had to rebuild the speed blocks and, because they were old, I went through several before I could get two that would seal up tight.

“What took the most time was running the lines. I think there were 10 of them in all,” he says.

“The V ersatile engine was exactly the same as the truck engine, so all the mounting holes were already there. All I had to do was put it in place and add a coolant line to keep it cool,” he says.

His idea was to replace the manual transmission shift lever with small pneumatic cylinders that would shift the gears. “I worked for an International Harvester truck dealer-ship here in Oklahoma, and we worked on a lot of oil drilling equipment,” he says. “So I was acquainted with a type of air spool valve that would do the job.”

According to Hermanski, the Versatiles with four ranges allowed them to shift using just four buttons.

While rebuilding the engine on his 1974 850 Series Versatile tractor, Jim Hermanski decided to add a pneumatic shifter to solve the old tractor’s inherent shifting problem. He bought a used air compressor (upper right) and an accessory drive assembly. Photo at right shows shift control valves.

“‘What took the most time was running the transmission to get the stroke right, but the ones that were on it worked just right,’’ he continues.

He found all the parts he needed (except for air lines, which he purchased new) at Southwest Truck Supply, Pratt, Kansas. “I had to rebuild the speed blocks and, because they were old, I went through several before I could get two that would seal up tight.

“What took the most time was running the lines. I think there were 10 of them in all,” he says.

“My first step was to hunt down a used air compressor and an accessory drive assembly that had been used on the same model Cummins engine in a large road truck.”

“The Versatile engine was exactly the same as the truck engine, so all the mounting holes were already there. All I had to do was put it in place and add a coolant line to keep it cool,” he says.