Welding Instructions: Rippers

General Rules:
1. Weld with a rube thread according to norm AWS A5 20: E71 T-5. This guarantees a low hydrogen content.
2. Employ a gas with a composition of Ar + 25% CO2. Specify that it must not contain any humidity. Recommended minimum flow is 16,52 l/m.
3. During the welding process work with complete cleanliness. Do not rub the weld with gloves, rags, bushes or other contaminating material.
4. It is very important to hammer the welding strings after each pass.
5. Preheat the area between 120˚C and 200˚C and let it cool off slowly before welding has been carried out.
6. During the process make sure the interpass temperature does not reach 250˚C at a distance of 2 inches from the welding.

Welding Instructions:
1. Place the ripper flat on the ground and draw a parallel line along its axis (Fig 1).
2. Determine the cutting angle degree. It is important to respect this angle to achieve a good penetration and sharpness of the tooth. Draw a line AB on the shank according to the angle.
3. Place the adaptor on the shank so that its welding bevel is kept parallel to the AB line. Move the adaptor upwards and downwards considering carefully the adequate total length so that possible repairs, welding or wear of the shank remain in the area that is going to be eliminated. Once the ideal situation has been determined mark the cutting line parallel to AB. Take off the adaptor.
4. Preheat the area to be cut to 200˚C and carry out a first cut across the marked line (Fig 2). Maintaining the temperature at 200˚C cut bevels similar to the adaptor. Clean off the rest of the slag, oxide etc. During use of a grindstone with compressed air, avoid pointing the jet on the hot metal.
5. Prepare the adaptor in the same way eliminating any paint and dirt in the weld area.
6. Place the adaptor in position so that the front border is in line with the front border of the shank. Preheat the assembly and weld. Follow general weld instruction.
7. Make the first passes lengthwise along the bevel making sure that the penetration is 100%. Hammer after each welding string. Turn the assembly around and grind the first strings until you reach clean material. Continue welding alternatively on each side to correct deformations. Deformations are corrected by welding on the convex side. Make some more passes to ensure a thickness that can be ground remaining totally smooth without any cavity.
8. Once the welding has been finished, blast the porous parts which have been accumulating at the end of each weld (Fig 3), with air until you reach a clean material. Fill the space by cleaning the same way.
9. Grind the welding carefully leaving the surface of the junctions smooth without roughness. Use a fine grindstone for the last passes and grind parallel with the length of the shank. If using a grindstone of compressed air, avoid the jet on hot material.
10. Only once the welding process has been completed, verify if there are any cracks by using penetrating liquids. Any cracks must be repaired.

Note: Maintain a temperature under 260˚C throughout entire process.
WELDING INSTRUCTIONS (CONT.): RIPPER SHANK

7. Make two passes on this side, then a third pass on the first side. Caution: the temperature of the welded area must not exceed 232°C at any time. The temperature of the material around the junction will increase even after having made the pass.

8. Make all other welding string with an AWS E-110-18,6.30 (.25") electrode. Make a string on one side and another one on the other side (Fig 8). Verify that the shank and the adaptor are in line between each welding string (Fig 9). If the two pieces are not in line make one or two strings on the opposite side in the direction of the move of the adaptor (Fig 10). Add weld until the welded area is higher than the surface of the shank and the adaptor (Fig 11).

9. If the border of the adaptor is not in line with the shank, heat this area between 140°C-232°C. Fill in the space with more weld as indicated. Make each welding string parallel lengthwise to the shank. Make sufficient welding strings to avoid any crack after grinding. Eliminate any slag after each string. Make the last string so that the surface is as smooth as possible.

10. Grind all welding areas until they are even. When grinding always grind in a direction parallel with the length of the shank (Fig 12). Grinding across the shank will leave notches that could cause a failure of the welded area. Use a medium to a fine grinding tool for the finished surface.

11. Inspect the surface of the welded area. If there are any cracks or spaces (Fig 13), grind the area around the crack or space. Heat to 149°C and fill the area with more weld (Fig 14). Grind off the extra weld material. Uneven welded surfaces may cause a failure.

12. Assemble the protector and the ripper point. The assembly of the pins should be done one by one.