According to the present invention, there is provided a method of removing a metallic cable core that extends through an outer cable sheath of a length of data transmission cable, the core being surrounded by a filler material contained within the outer cable sheath as an integral part of the cable, the method comprising the steps of:

(a) resistively heating the core by supplying electric current to it to reduce the viscosity of the surrounding filler material;

(b) terminating the supply of electric current to the core prior to;

(c) pulling the core out of one end of the outer cable sheath whilst the viscosity of the filler material is in a reduced state.

As the filler material softens or liquifies at a lower temperature than the material of the outer sheath, it is possible to sufficiently reduce the viscosity of the filler material so that the friction between the core and the outer sheath is reduced, without damaging or altering the outer sheath, thereby enabling the core to be extracted from the outer sheath. Depending upon the length of the cable being treated, it should be possible to simply pull or draw the core out by hand. However, it is envisaged that the core could be pulled or drawn out of the outer sheath by a machine capable of applying sufficient load to the core. It has been found that, in its heated state, the filler material effectively becomes a lubricant that substantially reduces the force required to pull the core out of the outer sheath, that force being substantially lower than the overall tensile strength of the core. Ideally, the pulling step is carried out as soon as a sufficient reduction in the viscosity of the filler material has occurred and before its temperature drops to a point at which the filler material has regained its original viscosity. As it may be difficult to maintain a supply of current to the core simultaneously to the pulling step, ideally the core is pulled immediately after disconnection of the current supply to the core.

The core is preferably extracted immediately after the supply of electrical current is terminated.

Step (a) may comprise heating the core by supplying it with electric current having an amperage range of between 30A to 90A, a voltage of between 24V and 110V. The current may be supplied for a period of between 2 and 7 minutes.

The method may further include the step of attaching a draw-string to the end of the core prior to carrying out step (c), so that the draw-string is pulled through the outer sheath simultaneously with the drawing of the cable core out of the outer sheath.

Alternatively, the draw-string may be fed through the outer sheath after the cable core has been pulled from the outer sheath in step (c).

In a preferred embodiment, the method includes the step of flushing the outer sheath to remove and/ or dissolve residual filler material after the cable core has been pulled from the outer sheath in step (c). Flushing the outer sheath may comprise forcing pressurised fluid down the outer sheath.

The flushing step may also include forcing pressurised fluid down the outer sheath from one end, whilst closing the other end of the outer sheath until a predetermined pressure within the outer sheath has been reached.

Pressurised flushing fluid may be retained in the outer sheath for a predetermined period of time.

In an alternative embodiment, the step of flushing comprises inserting a draw-string through the outer sheath across any remaining filler material deposits, attaching a cleaning element to said draw string and pulling said cleaning element through the outer sheath.

Preferably, a second draw string is attached to the cleaning element so that pulling of the cleaning element through the outer sheath also pulls said second draw string through the outer sheath.

The cleaning element may comprise a cloth or brush and the cloth or brush may be soaked in a solvent, such as ethanol.

If the cable to which the method is being applied has a string extending between an inner surface of the outer sheath and an envelope surrounding the core, the method may then include the step of retaining said string in position within the outer sheath during core and envelope extraction and attaching a new core to said string prior to pulling said string to draw said new core down said outer sheath.

The step of retaining the string in position in the outer sheath comprises the step of attaching one end to an external surface of the outer sheath and extracting the core and the envelope from said opposite end of the cable.

If the cable from which a cable core is to be removed includes an envelope between the filler material and the outer sheath, the method preferably includes the further step of releasing said envelope from the outer sheath after extraction of the core in step (c) by jetting compressed air along the outer sheath.

The method preferably comprises the step of applying an initial pulling force to the envelope protruding from one end of the outer sheath prior to pulling the envelope out of the cable sheath from the opposite end, after jetting compressed air along the outer cable sheath. The method may include the step of applying an initial pulling force to the envelope until a portion of the envelope breaks within the outer cable sheath and prior to pulling the remaining portion of the envelope from the opposite end of the outer cable sheath.

Preferably, lubricating agent is supplied or is contained in the compressed air as it is jetted into the outer cable sheath.

There is also disclosed an apparatus for removing a metallic cable core extending through an outer cable sheath of a length of data transmission cable in which the cable core is surrounded by a filler material contained within the outer cable sheath as an integral part of the cable, the apparatus including an electrical generator for generating current and wires extending from the generator for connecting the apparatus to a cable core for supplying electrical current to the cable core, wherein the apparatus includes a housing containing the generator and an integral draw-string storage reel for supplying draw-string into the outer sheath following, or during, removal of the core.

Preferably, a supply of draw string material is contained on said draw string storage reel in said housing. The draw string material is preferably made from a polymeric material.

The apparatus may also include a feeding mechanism for pushing draw-string off the reel and along the outer sheath.

There is also disclosed an apparatus for removing a metallic cable core extending through an outer cable sheath of a length of

Claims

1. A method of removing a metallic cable core that extends through an outer cable sheath of a length of data transmission cable, the core being surrounded by a filler material contained within the outer cable sheath as an integral part of the cable, the method comprising the steps of:

(a) resistively heating the core by supplying it with electric current to reduce the viscosity of the surrounding filler material;

(b) terminating the supply of electric current to the core prior to;

(c) pulling the core out of one end of the outer cable sheath whilst the viscosity of the filler material is in a reduced state.

2. A method according to claim 1, including the step of attaching a draw-string to the end of the core prior to carrying out step (c) so that the draw-string is pulled through the outer sheath simultaneously with the drawing of the cable core out of the outer sheath.

3. A method according to claim 1 or 2, comprising the step feeding a draw-string through the outer sheath after the cable core has been pulled from the outer sheath in step (c).

4. A method according to any of claims 1 to 3, comprising the step of flushing the outer sheath to remove and/or dissolve residual filler material after the cable core has been pulled from the outer sheath in step (c).

5. A method according to claim 4, wherein flushing the outer sheath comprises forcing pressurised fluid down the outer sheath.

6. A method according to claim 5, wherein the flushing step includes forcing pressurised fluid down the outer sheath from one end, whilst closing the other end of the outer sheath until a predetermined pressure within the outer sheath has been reached.

7. A method according to claim 4, wherein the flushing step comprises inserting a draw-string through the outer sheath across any remaining filler material deposits, attaching a cleaning element to said draw string and pulling said cleaning element through the outer sheath.

8. A method according to claim 7, wherein a second draw string is attached to the cleaning element so that pulling of the cleaning element through the outer sheath also pulls said second draw string through the outer sheath.

9. A method according to claim 7 or 8, wherein the cleaning element comprises a cloth or brush.

10. A method according to claim 9, wherein said cloth or brush is soaked in solvent.

11. A method according to any preceding claim, wherein, when the cable to which the method is being applied has a string extending between an inner surface of the outer sheath and an envelope surrounding the core, the method includes the step of retaining said string in position within the outer sheath during core and envelope extraction and attaching a new core to said string prior to pulling said string to draw said new core down said outer sheath.

12. A method according to claim 11, wherein the step of retaining said string in position in the outer sheath comprises the step of attaching one end to an external

surface of the outer sheath and extracting the core and the envelope from said opposite end of the cable.

13. A method according to any preceding claim, wherein if the cable from which a cable core is to be removed includes an envelope between the polymer material and the outer sheath, the method includes the further step of releasing said envelope from the outer sheath after extraction of the core in step (c) by jetting compressed air or gas along the outer sheath.

14. A method according to claim 13, comprising the step of applying an initial pulling force to the envelope protruding from one end of the outer sheath prior to pulling the envelope from the opposite end of the outer cable sheath, after jetting compressed air or gas along the outer cable sheath.

15. A method according to claim 14, wherein the method includes the step of applying an initial pulling force to the envelope until a portion of the envelope breaks within the outer cable sheath, prior to pulling the remaining portion of the envelope from the opposite end of the outer cable sheath.

16. A method according to any of claims 13 to 15, including the step of supplying lubricating agent to the compressed air so that compressed air or gas and lubricating agent are jetted along the outer cable sheath.