

# Vehicle Practice

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## LEVELLING CABLE MAINTENANCE, INSPECTION AND REPLACEMENT CRITERIA – AERIAL DEVICES

Practice:

### 1.0 INTRODUCTION

This practice applies to all aerial devices with a cable type leveling system.

The practice establishes a uniform system of inspecting and lubricating cables and sets a replacement criteria.

### 2.0 INSPECTION

There are two levels of cable inspection depending on the usage or period since the last service:

1. **‘A’ Preventative Maintenance Inspection:** (250 eng. Hrs. or 3 months). Visually inspect the ropes at the bucket, boom pivot knuckle and turret ends where the rope contacts the sheaves, looking for evidence of dryness, surface abrasion, corrosion or broken strands. Where visibility is impaired wipe the rope with a cotton rag. Broken wires will catch or “SNAG” the rag.
2. **‘B’ Preventative Maintenance Inspection:** Annually 12 months). Visually inspect cables at same locations as listed in ‘A’ level except examine while moving the upper and lower boom through one complete arc (cycle) of travel. Cables are not to be removed for inspection unless the mechanic suspects significant defects running into non-visible locations.

Remove boom inspection plates and visible areas (note the boom need not be moving for this operation).

Check for proper bucket leveling cable tension by insuring there is to no free-play in the bucket when it is rotated by hand. (If adjustment is required, refer to aerial device manual for leveling cable adjustment instructions).

### 3.0 LUBRICATION

- a) Lubrication should be performed at each ‘B’ Level inspection.
- b) Lubricate within 24 hours of any boom clearing.

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- c) Ropes shall be lubricated anytime there is evidence of dryness.
- d) Lubricant shall be applied sparingly, as the interior of the boom must be kept clean at all times.
- e) Lubricant applied shall be of the type which does not hinder visual inspection, such as Lubriplate Chain and Cable Fluid, Part No. 15363 or Lubriplate lubricant (grease), Part No. 1200-2

#### 4.0 **LEVELLING CABLE REPLACEMENT**

- a) Cable replacement will be required every five years of service (an exception would be made if cables had been replaced during the past 12 months and were in good condition).
- b) Cable replacement is required if it fails to meet the following criteria during an 'A' or 'B' inspection.

#### 5.0 **MINIMUM REPLACEMENT CRITERIA**

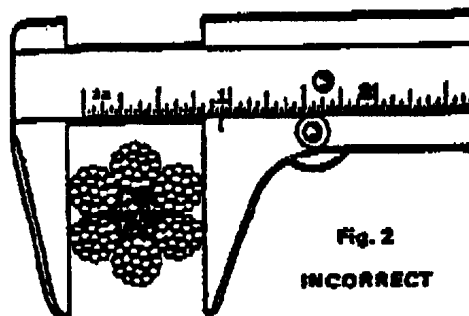
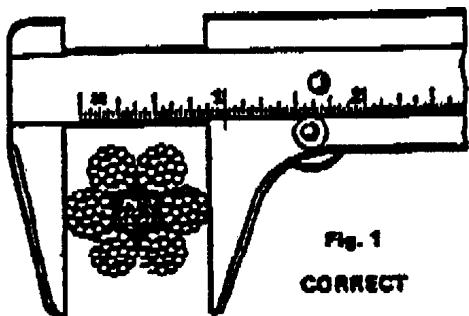
##### 1) **Minimum Strand Cable**

- If 2 broken wires in a strand are found while the cable is still on the aerial device a new cable is to be ordered and scheduled for installation during the next 'A' or 'B' inspection (refer to Fig. 3 for definition of wire-rope and leveling cable construction).
- Replace if 3 broken wires in one strand or 6 broken wires randomly distributed in six strands are found when a cable is thoroughly checked on the aerial device or when checked after removal, using the reverse bending method.
- Replace cable if one-third the original diameter of the outside individual wires is worn away.
- Replace cable if evidence of kinking, crushing or damage to the cable structure is present.
- Replace cable if evidence of heat, abrasion or corrosion damage.
- Replace if a reduction from original diameter of more than 1/32 inch. Refer to Fig. 1 and 2 for correct measuring method.

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## 2) Single Strand 5/16" Diameter Cable

- If 1 broken wire is found while the cable is on the aerial device a new cable is to be ordered for installation during the next 'A' or 'B' inspection.
- Replace if 2 broken wires are found when the cable is thoroughly checked on the aerial device or after removal using the reverse bending method, the cable is to be taken out of service.
- Replace cable in one-third the original diameter of outside individual wire is worn away.
- Replace cable if evidence of kinking, crushing or damage to the cable structure is present.
- Replace cable if evidence of heat, abrasion, or corrosion damage.
- Replace if original diameter of the cable is reduced more than 1/64 inch. (Refer to Fig. 1 and 2 for measuring method).



### MEASURING A WIRE ROPE

#### *(Levelling Cables)*

The diameter of a wire rope is identical to that of a true circle which would enclose the rope. To gauge a rope be sure that the faces of the calipers are in contact with the crowns of two opposite strands as in Fig. 1 and not – as in Fig. 2 – in contact with four strands. To be certain that the calipers are in the correct position rotate them round the rope; the greatest measurement is the correct one. Failure to take this precaution may mean that the size noted is considerably less than the actual.

After a rope has been in use it is sometimes possible to get two "correct" readings of its size varying considerably. This occurs when the rope has lost its shape due to crushing, but may occur at intermittent points throughout its length should there be internal corrosion or core damage.

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## LEVELLING CABLE MAINTENANCE, INSPECTION AND REPLACEMENT CRITERIA – AERIAL DEVICES

### *Wire Rope (Levelling Cable) Construction*

Rope is unsafe for further use if there are either three broken wires in one strand (breaks 4, 5 and 6) or a total of six broken wires in all strands in any rope lay.

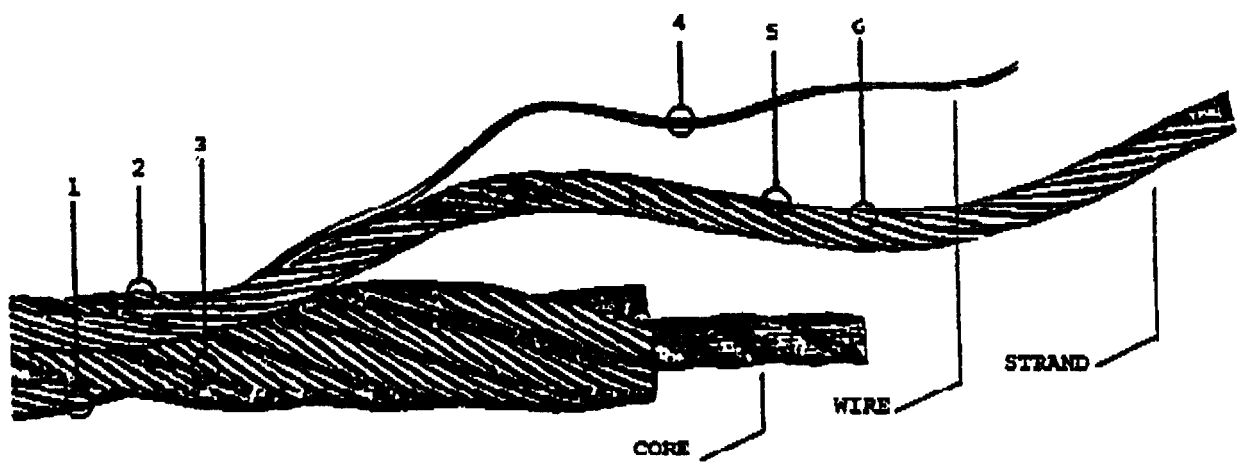


Fig. 3