REPLACING OLD ROPES WITH NEW ROPES.

The engineer is responsible for the safety of persons who are transported in the shaft. He carries out monthly inspections, as explained in module PRE, and must decide when it is necessary to change the ropes. The Procedures to followed is that,
On some mines the rigger will splice new pear shaped thimbles to the front ends of both new ropes before the changing of ropes is about to take place.
The rigger in charge of the operation will be responsible to make the entry in the driver logbook, the rigger will sign and the driver will countersign. The fitter and electrician will make pre-arrangements, make and sign their entries in the driver logbook and the driver must countersign.
The rigger, fitter and electrician must then discuss the entire operation, working procedures and all the required signals with the driver. After both conveyances are loaded at the bank with the maximum load to assist in rope coiling for the dead layers,
The driver must: -
Countersign the entries made by the rigger, fitter and electrician in the logbook
Receive signals from the banksman to support the conveyance at the bank.
Reply the signal 7 from the banksman.
The rigger will support the conveyance at the bank. The RSJ support must be connected with steel wire slings to the headgear.
The driver must: -
Receive the mark signal 4-4 from the banksman.
Advise the fitter and electrician.
The fitter and electrician will disconnect the depth indicator and Lilly controller at the Vernier couplings. The electrician will disconnect the rope monitor device and the slack rope device.
The driver will: -
Acknowledge the mark signal 4-4 to the banksman.
Acknowledge the signal 7-7 to the banksman.
Receive the clutching signal, the bank signal and a clear signal from the banksman.
Test both brakes separately and if satisfactory.
Unclutch the conveyance at the bank.
Raise the opposite conveyance to the bank (the speed 2,5 m/sec.)
Reply to the signal 7 from the banksman.
Receive signals to support the conveyance to the bank.
Receive the mark signal 4-4 from the banksman.
Advise the fitter and electrician who will disconnect the depth indicator and the Lilly controller.
Acknowledge the mark signal 4-4 to the banksman.
Receive the signal 4-2 from the banksman.
Pay out slag rope onto the bank until stopped with a signal 1 from the banksman.
Signal 1 to the banksman.
The rigger and fitter will now remove the connections from the conveyance.
The connection will be removed from the rope. The rigger will cut the splice off the old rope and clamp the end of the new rope onto the old rope. The new rope is usually on a reel or rope change winch on the bank.
The driver will: -
Receive the signal 4-1 from the banksman.
Coil the new rope over the sheaf wheel onto the drum. (The rigger will notify the banksman that he will move back to the engine room).
Continue to coil the rope onto the drum until ± 1½ to 2 turns of new rope are on the drum.
Stop the winder when signalled by the rigger who is in front of the drum. (Hand signal of air whistle).
The rigger and his helpers will secure the new rope in the engine room.
The driver must: -
Receive a signal from the rigger to uncoil the rope from the drum.(new rope)
Stop the winder when signalled by the rigger.
The rigger will now detach the new rope from the old rope and place the end of the new rope out of the way.
The driver must: -
Receive the signal from the rigger to uncoil the old rope.
Continue uncoiling the old rope in front of the engine room where it is coiled in a figure 8 or onto a spare reel.
When all the old rope has been uncoiled: -
The driver must: -
Stop the winder when signalled by the rigger.

The rigger and his helpers will now remove the old rope back end from the drum and secure the new rope through the hawse hole inside the drum by means of Crosby clamps and a clove hitch knot.
The driver must: -
Receive a signal to pick up the slack rope from the rigger.(new rope ± 2 turns)
Stop the winder when signalled by the rigger.
The rigger and his helpers will now release the new rope where it was secured inside the engine room.
The driver must: -
Receive a signal to coil the new rope onto the drum.
The rigger will notify the driver of his intention to move back to the bank.
The driver must: -
Continue coiling the new rope onto the drum until the front end of the rope is on the bank.
Stop when signalled 1 by the banksman.
Reply the signal 1 to the banksman.
The rigger will now splice the rope around a new pear shape thimble.
The fitter will assist the rigger to secure the doubling down wheel on the conveyance.
Lace the new rope through the doubling down wheel and secure the end of the rope as high as possible in the headgear. The purpose of a doubling down wheel is to assist uncoiling all the rope from the drum. If the new rope were coiled loosely onto the drum, it would result in bad coiling. By doubling down the conveyance, which is loaded with the maximum permitted load, a tight proper coil is obtained on the drum.

The driver must: -
Act on signals from the banksman to remove the support from the conveyance
Acknowledge the signal 7-7 from the banksman.
Receive the signal 4-2 from the banksman. (The driver must take note of the amount of rope turns on the top layer).
Stop the conveyance when signalled by the rigger, the rigger will mark the rope when the conveyance is one turn underneath the bank.
Lower the conveyance at a reduced speed to protect the drum bush, doubling down wheel bush and the rope, which has a tighter bend on the doubling down wheel.
The mark on the rope enables the banksman to warn the driver that the conveyance is approaching the bank.
The driver must: -
Receive the signal 4-2 from the banksman.
Lower the conveyance slowly, reduced speed of 2,5 m/sec.
Stop the conveyance when 3 turns of rope remain on the drum (reg.16.6.5).
Lower the conveyance when signalled or instructed by the rigger.
The rigger will signal to the driver by means of a whistle, bell or hand signals to uncoil the rope until ½ a turn of rope is left on the drum (on rigger's request).
The driver must: -
Stop the conveyance when signalled by the rigger.
The rigger will let his helpers get into the drum pits with copper mallets.
The driver must: -
Receive a signal to raise the conveyance slowly.
While the driver is coiling in the rope, the rigger's helpers will hammer the rope into position with copper mallets. (Copper mallets do not damage the rope).
The driver must: -
Stop the winder when signalled by the rigger.
The rigger will stop the winder when ½ a layer of rope has been hammered into position. His helpers will then leave the drum pits and.
The driver must: -
Receive the signal from the rigger to raise the conveyance slowly to the bank (2,5 m/sec).
Continue to raise the conveyance slowly. (No Lilly controller or depth indicator. Remember the number of turns of rope on the top layer).
Receive the signal 4-1 from the banksman when the mark on the rope is approaching the bank.
Reduce speed to walking pace.
Stop the conveyance when signalled 1 by the banksman.
Reply the signal 7 from the banksman.
Act on signals to support the conveyance at the bank.
The rigger and fitter will remove the doubling down wheel from the conveyance and disconnect the rope front end in the headgear. New rope connections will be attached to the rope and the conveyance. (Humble hook)
The driver must: -

Acknowledge the signal 7–7 from the banksman.
Receive the signal 4–1 from the banksman to pick up the slack rope.
Raise slowly until all the slack rope at the bank has been picked up.
Stop the winder on the signal 1 from the banksman.
Receive the mark signal 4–4 from the banksman.
Advise the fitter and electrician who will connect the depth, Lilly controller, slag rope and bad coiling devices.
Acknowledge the mark signal 4-4 to the banksman.
Receive the clutching signal and a clear signal from the banksman.
Test both brakes separately, and if satisfactory,
Clutch in the opposite conveyance.
Unclutch the conveyance to which the new rope has been fitted.
Repeat the procedure as describe above for the other conveyance.
Both conveyances will now be at the bank on the temporary marks, fully loaded.
The driver must: -
Receive the clutching signal, bottom level station signal and a clear signal from the banksman. Clutch one level higher than the lowest level in the shaft, because of the increase in drum diameter. (The new rope is longer than the old one).
Test both brakes separately, and if satisfactory, unclutch one drum.
Lower the conveyance and stop.
Clutch in and test both brakes separately if satisfactory,
Run at least 2 complete trips up and down the shaft. (Reg. 16.27).
N.B. It is advisable for the driver to do as many trips as possible, e.g. ± 20 trips to get the rope settled in and check the rope coiling.
The driver must: -
Stop the conveyance at the bank.
Reply to signals from the banksman to unload each conveyance separately.
Receive a clear signal 2-2 from the banksman.
Run a few trips through the shaft with empty conveyances to obtain the proper tension in the ropes.
Stop on the temporary marks given previously by the banksman.
The fitter and electrician will disconnect the depth indicator and Lilly controller.
The driver must: -
Receive signals from the banksman to position the conveyance to obtain new permanent marks.
Receive the mark signal 4-4 from the banksman.
Advise the fitter and electrician who will connect the depth indicator and Lilly controller.
Acknowledge the mark signal 4-4 to the banksman.
Repeat the above procedure on the opposite conveyance as described above to.

The electrician will also test the slack rope and the rope monitor device, as well as all the over and under wind trip position. After the rigger and fitter have examined the ropes and connections, they will also clear and sign the driver logbook. The driver will countersign these entries. (State the time.)