256635

START AND TAKE CONTROL OF A WINDER

NQF Level: 3
Credits: 19

Introduction

The importance to start and take control of a winder is to provide transport for persons, material up and down the shaft and conveying minerals to surface. Persons and material are normally conveyed separately in cages and minerals are hoisted with skips to surface. There are differences in starting an alternating and direct current winders, the mine specific requirements will be applicable for starting each winder.

The starting up procedures

The procedures to start operating a winder, and

Taking control of a winder

Every person in the working environment has a responsibility towards personal safety and the safety of others. A person competently starting and taking control of a winder contributes effectively towards his/her safety and the safety of others in terms of providing winding operations and thereby transportation for persons to and from the underground workings and conveying minerals to surface.

You must also be alert to potential consequences of incorrect working standards and must strictly adhere to legislation and all laid down site specific requirements that will ensure your own safety and the safety of others, as well as the operation of equipment to comply with required safety standards.

Incorrect operating methods are hazardous and may lead to accidents and may cause injuries to persons or damage equipment.

Winding Equipment

Examine winding equipment in accordance with specified requirements to ensure that the following is functional: -

Lubrication systems for drum shaft bearings, gearbox when provided and motor shafts bearings. Cooling systems whether water or ventilation fans.

Ensure that all the electrical and mechanical indicators for lubrication and cooling systems are functional.

Repairing and oiling machinery in motion: -

The repairing, adjusting, testing, examining, cleaning or lubricating of machinery in motion shall not be undertaken by any person other than a competent person where there is a risk of personal injury, and then only when it is impracticable to stop machinery. Automatic devices for oiling machinery whilst in motion shall be provided whenever practicable

Lock-out procedures

The person in immediate charge of any work on or repair to machinery shall ensure that the power supply to such machinery is switched off and locked out or disconnected in accordance with a code drawn up in writing by the engineer and that the power supply remains disconnected or switched off until the work or repairs have been completed.

Driver logbook entry

Any special instructions involving the safety of persons given to the winding engine driver and the time such instructions were given. Such entry shall be signed by the person giving the instruction and shall be countersigned by the winding engine driver. Any warning must indicate the time when such warning was given.

Brake test on winder

Apply the side brake lever of the drum that produces the maximum static torque on the brake to the No 2 position. (*Brake on clutch in position)*

Ease the main brake lever to the off position.

Check the drum to ensure the drum remains stationary.

Move the control lever in the direction to drive the conveyance down that produce the maximum static torque on the drum.

Check that the drum remains stationary,
Increase power to the maximum and check the ammeter to prevent a trip-out on over load of current. (*The red line on the ammeter, which is 10% below the trip out value*)
Check that the drums remain stationary, an indication of sufficient brake holding power. (S*hould the drum start moving slightly it is an indication that the brake holding power is insufficient and the required emergency procedure has to be followed to rectify the brake holding power)*.
Move the control lever slowly back to neutral to lower the backlash being picked up.
Apply the main brake lever.
Move the side brake lever to the brake off clutch in position. (*No 1 position*)
Apply the side brake lever on the opposite drum to the No 2 position. (*Brake on clutch in position*).
Ease off the main brake lever.
Check that the drum remains stationary.
Increase power to the maximum to "drive the bottom conveyance down" and check the ammeter to prevent a trip-out on over load of current. (*The red line on the ammeter, which is 10% below the trip out value*)
Check that the drum remains stationary, an indication of sufficient brake holding power.
Move the control lever slowly back to neutral.
Apply the main brake lever.

TAKING CONTROL OF A WINDER

A driver must carry out certain checks on a winder before he may take over control. The driver must report any faults observed on the winder to the engineer. He records these faults in the logbook and if any defects occur, he must be aware of them. The procedures followed to carry out these checks are the same for manually and automatically operated winders, whether in an incline, vertical or sinking shaft. The checks are described below.

AUTOMATICALLY AND MANUALLY-OPERATED WINDERS

On automatically and manually operated winders the following procedures must be followed before taking control of the winder.

Most automatically operated winders are under the supervision of a driver on another winder, e.g. man winder. Automatically operated winders are normally used to convey mineral and should it trip out, this would be indicated to the supervising driver by means of a pilot light or a hooter on the footplate of the man winder.

a) If the rock winder had been standing without power, e.g. over a weekend,

The driver must: -

Obtain the key to the engine room.
Switch on the lights.
Secure the winder, brakes on control lever in neutral and reset the emergency trip switch.
Check the logbook and for any instructions.
Check the guards and railings.
Check for any loose materials, tools and persons near the moving parts.
Check lubrication and cooling systems.
Reset the safety circuit.
Receive the shaft re-opened signal 6-6-6 from the banksman.
Acknowledge 6-6-6 to the banksman.
Receive the clutching signal 4-4-4 and a clear signal 2-2 from the banksman.
Select the man/rock switch to the rock position.
Raise one conveyance to 2 turns from the tip and stop on the tip mark.
Test both brakes separately and if satisfactory,
Unclutch the top conveyance.
Lower the bottom conveyance to 1 turn above the box and stop on the box mark.
Clutch in and test both brakes separately.
Signal clutching completed signal 4-4-4 to the banksman.
Receive a clear signal 2-2 from the banksman.
Await a signal to lower from the onsetter.

When coming on shift to take over from another driver,

The driver must: -
Check the notice board and logbook for any instructions.
Check the guards and railings.
Check the lubrication and cooling systems.

Check the coiling of the ropes.
Check the clutches, brakes, depth and brake over travel, indicators.
Check the logbook for which level the conveyances are clutched and the last signals interchanged, and with either the banksman, onsetter or shaft timber man. The driver must countersign for these entries in the driver's logbook.
Enquire what type of work is in progress.
Take control of the winder when the winder is stationary.

PROCEDURES AND ACTIONS SUPERVISING AN AUTOMATICALLY OPERATED WINDER

Before taking control of an automatically operated winder,
The driver must: -
Check the winder as explained under No 1 in this module.
Drive the winder manually for at least two trips, stop and secure the winder in the tip.
Select the manual/automatic switch to the automatic position when the conveyances are stationary at the tip and box.
Move the main brake lever and control lever to the automatic position.
Observe the winder for two trips to ensure that it is operating correctly, keep your hand on the main brake lever to stop the winder should a wrong direction start occur.
Reset the flags on the rock winder flag panel and return to man winder.
Check that the rock winder pilot lights are operational on the man winder control panel.
Should the rock winder trip out, the driver will be able to see this by means of a pilot light or an audible warning.

The driver must: -
Stop the man winder.
Brakes on control lever in neutral and stop all other winding by ringing the intercommunication bell.
Check the rock winder flag panel to ascertain the cause of the trip out.
Act according to the accident to shaft procedure, if tripped on overload or slack rope. (Refer to module POE)
No winding before the banksman and the engineer has been notified. The engineer must sign the driver logbook to resume normal winding.
If tripped out due to any other cause, complete the trip to get all persons clear.

Notify the other drivers to proceed with normal winding. (Telephone).
Obtain a clear signal from the banksman and/or onsetter and move the conveyances clear from the bank and under ground station.
Secure the winder, brake on control lever in neutral and side brakes in No 2 position.
Proceed to the rock winder, reset if due to other causes, e.g. overspeed, power failure, over and/or under winds.
Secure the winder and move the manual/automatic switch to the manual position.
Drive the winder manually to the tip and then for two trips afterwards.
Select the manual/automatic switch to the automatic position when the skips are stationary in the tip and box.
Move the main brake and control lever to the automatic positions. (Keep your hand on the main brake lever to stop the winder should a wrong direction start occurs).
Check that the winder is operating correctly for two trips (Automatic).
Make an entry in the rock winder logbook and state the time.
Return to the man winder.
Check that the pilot lights for the rock winder are operational.
Proceed with normal winding.

TAKING CONTROL OF A WINDER NEW DRIVER

WINDING ENGINE DRIVERS TAKING MARKS WITH ANOTHER DRIVER BEFORE TAKING CONTROL OF A WINDER.

The following important steps are a guideline for newly appointed drivers to consider before taking control and responsibility on a winder.
The time and duration to take marks is not a regulation requirement, but for safety reasons it must be stressed that the winding engine driver must be competent to handle the winder or any other winder under his control safely.

When the driver is confident to take control of a winder he must make an entry in the winding engine driver logbook in the presence of the driver on duty at the time.
Both winding engine drivers must sign the entry made in the logbook.

The responsible sectional engineer must be informed that the new driver is capable of taking control of the winder safely.

Information at the bank and in the shaft

The driver must:-
Study the standard procedures or code of practices on that shaft.
Obtain and sign the Code of Conduct for winding engine drivers.
Obtain shaft knowledge with the Banksman, Onsetter and loading box operators.
Obtain the approved working procedures, shaft schedules, notices and the list of permitted material at the bank (including speed restrictions, and which winding plants to be stopped while slinging abnormal material).
Take note of daily, weekly and monthly examinations on the shaft and winder.

Obtain practical experience with the shaft examination team.
Visually obtain experience of changing conveyances on the bank.
Ask for a list of approved special signals on the shaft.
Request the Engineer for the names of the responsible persons to conduct examinations and their alternatives.
Which persons are authorised to pilot or guide long and abnormal material.
Obtain the correct procedures to follow in cases of an emergency: e.g. floods, mud rushes, fires, fumes, poisonous gasses or riots.

Taking marks on the winder

The driver must:-

Memorise the starting procedures of the winder, auxiliary compressor and emergency generator (Refer to practical module PMG and PSAC).
Observe and check lubrication, lubrication methods, cooling and solution levels.
Inquire the starting amps when operating the winder when persons, material, mineral or explosives are conveyed.
When clutching for different positions remember the rope stretch needed.
Take note of all drum and depth indicator markings for the tip, bank, under ground levels and all loading boxes.
Inquire the initial contact amps when testing the solution strength of an AC single drum winder that is fitted with a Liquid controller. Before lowering a heavy load, obtain a clear signal and test the brake at the lowest point in the shaft. (Refer to regulation 16.5.2).
Obtain the required amperage needed to test the holding power of the brakes.(Refer to regulation 16.6.1 , 16.6.2 and 16.6.3 respectively).
Gain maximum practical, electrical and mechanical experience while taking marks on the winder
Acquaint yourself with all call-out procedures, should any breakdown on the winder, headgear or shaft occur.
Assure yourself of any special clutching procedures for men, material, mineral and all examinations. e.g. (Cutting front ends, back ends or changing winding ropes).
Acquaint yourself with the procedures to follow when the headgear tip is full, and if the driver must record this in the driver logbook.
Acquaint yourself with the procedures to follow in case of a maximum power demand.
Obtain all relevant telephone numbers on the various available communication systems.

Taking marks and obtain all information before taking control of a winder is of utmost importance to a newly appointed driver.
Maximum exposure and attention is the only way to handle the winder safely, it is important to ask for assistance if you are in doubt.
Good communication with the persons you work with is advisable.
Remember all entries made in the logbook must be clear and time stated.