Folknoll Group Ltd.

HYDRAULIC VEHICLE GATE

ELECTRIC WINDER OPERATOR MANUAL

ELECTRIC AND HAND WINDER OPERATION

ISSUE

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1 INTRODUCTION

This document describes manual operation of a hydraulic vehicle gate using a hand or electric winder. This procedure should only be undertaking in exceptional circumstances e.g.in the event of a gatehouse control system failure.

1.1 TERMINOLOGY USED IN THIS DOCUMENT

Local procedures	Site specific procedures and systems for obtaining keys accessing areas, interlocking gates etc.
Hydraulic ram	Hydraulic mechanism for operating the gate
Electric winder	Electric winding mechanism for operating the gate
Hand winder	Manual winding handle (crank) for operating the gate
Gatehouse control system	Electronic control system for managing the operation and interlocking of the gatehouse hydraulic gates
Manual gate operation	Opening and closing of the gate using an electric winder or hand winder
Automatic gate operation	Opening and closing of the gate using the hydraulic ram under the control of the gatehouse control system
Pump bypass valve	Emergency valve controlling the flow of hydraulic oil also known as the pressure release valve
Leading wheel box	Wheel box located at the leading edge of the gate
Cable ball	Spherical restraining stop mounted 200 mm (approx.) from the end of the power cable housed in the wall mounted reel.

2 MANUAL GATE OPERATION PROCEDURE

Operating the gate manually by-passes interlocking and operational procedures built into the gatehouse control system. Before manual operation ensure that the relevant authorization has been obtained and local interlocking procedures are not violated.

2.1.1 Procedure Steps

There are three steps to the procedure for manual gate operation

- The gate is isolated from the gatehouse control system, please refer to section 2.2 Isolating the gate from the gatehouse control system.
- The gate is operated using an electric or hand winder, please refer to sections 2.3 Manual gate operation using an electric winder and 2.4 Manual gate operation using a hand winder.
- The gate is reconnected to the gatehouse control system please refer to section 2.5 Restoring connection to the gatehouse control system.

2.1.2 Procedure Requirements

Before commencing this procedure ensure that the following permissions, equipment and access are available:

- Authorisation to work on and open the gate.
- Hand winder crank (if handing winding is required).
- Electric winder remote control (if electric winding is required).
- Access to the gate.
- Access / keys to location of control equipment (usually the gate park) Access / keys for the hydraulic pump bypass valve.
- Access / keys for the Bowden box.
- Access / keys for the leading wheel box.

2.2 ISOLATING THE GATE FROM THE GATEHOUSE CONTROL SYSTEM

2.2.1 Disengage the Hydraulic Ram

Access the hydraulic pump bypass valve according the local procedures. The release valve is normally located in the gate park, if unsure refer to local procedures.

Turn the pump bypass valve clockwise through 45 degrees to the 'ALL PORTS OPEN' position. This will release the hydraulic pressure on the RAM.

2.2.2 Raise the Lock Bolt

Access, unlock the blue Bowden box according to local procedures. The Bowden box is normally located in the gate park.

Open the Bowden box and raise the lock bolt by pulling down on the quadrant arm. Tighten the knob to secure the position of the bolt.

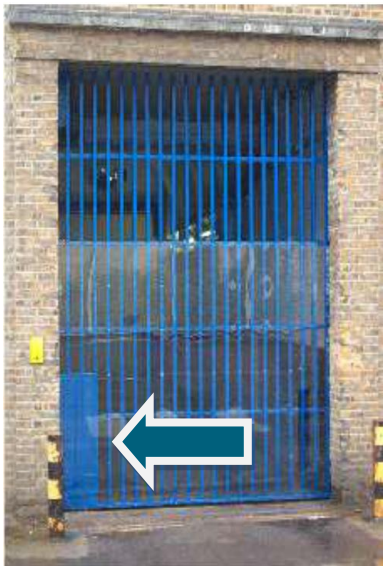
Close and secure the Bowden box according to local procedures.

Check that the gatehouse control system is indicating that the vehicle gate is in manual mode or off line, please refer to local procedures and gatehouse control system documentation.

If the gatehouse control system is not indicating gate that vehicle gate is not in manual mode or off line. do not attempt to hand wind the gates and report this issue according to local procedures.

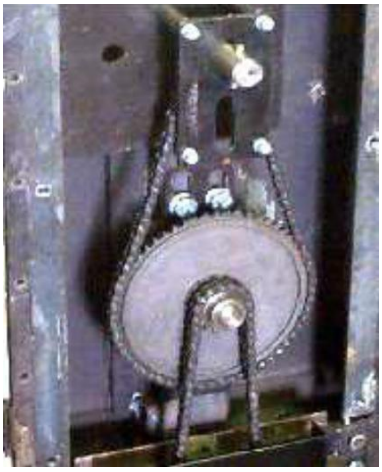
2.2.3 Is an Electric Winder Fitted

Access the leading wheel box according to local procedures. The leading wheel box is located at the leading edge of the gate.



2:1 Example Leading Wheel Box Location

If the gate is not fitted with an electric winder the leading wheel box will contain a system of cogs and chains similar to:



2:2 Inside Wheel Box Without an Electric Winder

If the leading wheel box is not fitted with an electric winder the gate must be operated using a hand winder please refer to section 2.4 Manual gate operation using a hand winder.

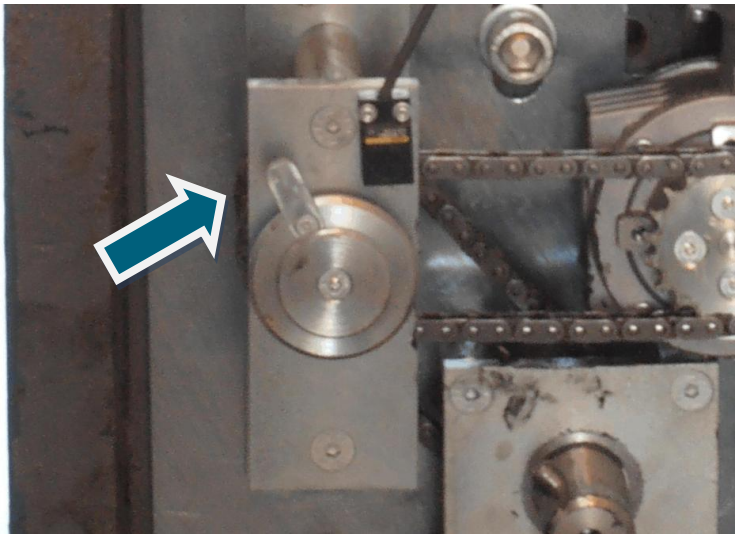
If the leading wheel box is fitted with an electric winder the wheel box will contain a system of cogs, chains and an electric motor similar to:

2:3 Inside Wheel Box Fitted with an Electric Winder

If the leading wheel box is fitted with an electric winder the gate can be operated using a hand winder or electric winder. Whichever method is chosen the winder mechanism clutch must be engaged.

2.2.4 Engage the Winder Mechanism Clutch

The clutch control wheel is located to the left hand side of the leading wheel box.



2:4 Typical Clutch Control Wheel

To engage the clutch

- Pull out the clutch control wheel until it will not move any further.
- Rotate the clutch control wheel clockwise through 45 degrees to the 2 o'clock position.
- Release the clutch control wheel.

The gate is now fully isolated from the control system and can be opened and closed using a manual winder or electric winder (if fitted).

If the gate is to be operated using the electric winder close and lock the leading wheel box.

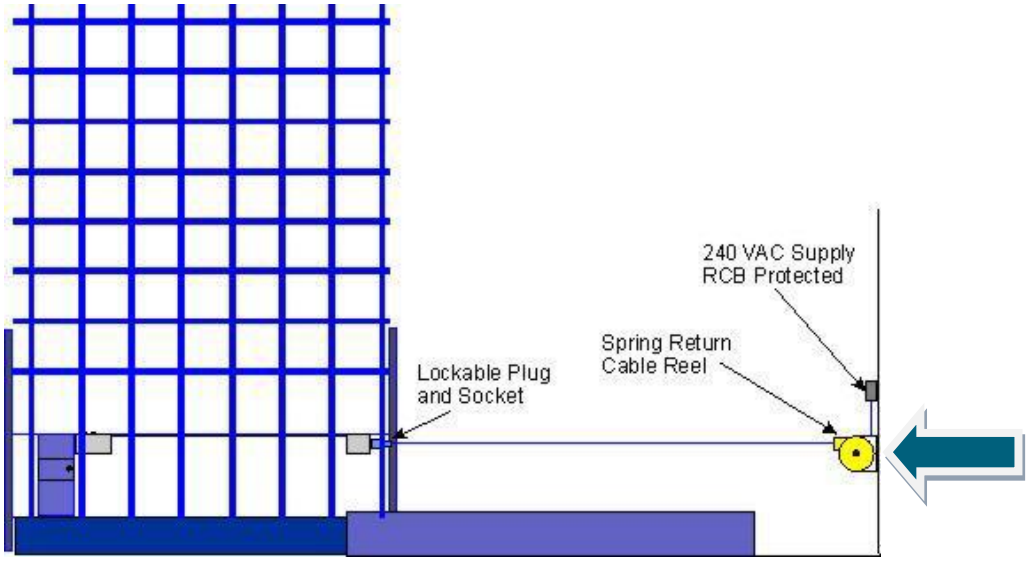
2.3 MANUAL GATE OPERATION USING AN ELECTRIC WINDER

Before operating the gate ensure that the relevant authorization has been obtained and local interlocking procedures are not violated.

Obtain the electric winder remote control according to local procedures.

2.3.1 Connect the Power Cable

Locate the power cable reel:



2:5 Typical Electric Winder System

- Ensure the system is Isolated from the mains, check that cable reel mains socket is switched off and cable reel plug is removed from its mains socket.
- Retrieve the power cable socket from the behind the pulley (cable guide).
- Grasp the cable ball (large ball around the cable) and pull the cable to the vicinity of the power connection point.
- Engage the cable ball with the special retaining bracket located on the trailing edge of the gate.
- Connect the power cable socket into the nearby power connection point plug.

2:6 Typical Door Mounted Power Connection Point

Ensure that the power cable can move freely. If the system has pulleys and guides for the power cable, ensure that the power cable is properly seated on any pulleys guides according to local procedures.

HEALTH AND SAFETY

Always pull the power cable using the cable ball (spherical cable stop).

Always disconnect mains before unwinding and connecting the power cable.

2.3.2 Connect the Remote Controller

Locate the electric winder control box.

The electric winder control box is a square gray metal box located near the leading wheel box.

Connect the plug on the remote control cable to the socket on the electric winder control box.

2:7 Electric Winder Remote Control Connection

2.3.3 Operate the Gate

Plug the cable reel mains plug into its mains socket. Switch on the cable reel mains socket.

The gate is operated by means of the buttons on the remote control.

2:8 Electric Winder Remote Control

The up arrow (black arrow on white background) must be pressed and held to open the gate.

The down arrow (white arrow on black background) must be pressed and held to close the gate.

If the electric winder does not operate revert to hand winder operation, please refer to section 2.4 Manual gate operation using a hand winder.

When operating the gate always stand well clear of the gate and ensure that the remote control cable does not become entangled with parts of the gate or mechanism. Always ensure that the power cable is free to move and is not entangled with parts of the gate or mechanism.

To protect the gate always open the gate so that the edge of the gate is aligned to the gate open indicator before allowing traffic through. The gate open indicator is typically a screw or other mark on the 'road' surface.

HEALTH AND SAFETY

The safe edges are not operative when winding the gate. Operators must always stand well clear of the gate maintain the safety of others when operating the gate with an electric winder.

Always ensure the remote control cable is held well clear of the gate and does not become entangled.

Always ensure the power cable does not become entangle with the gate and is free to move.

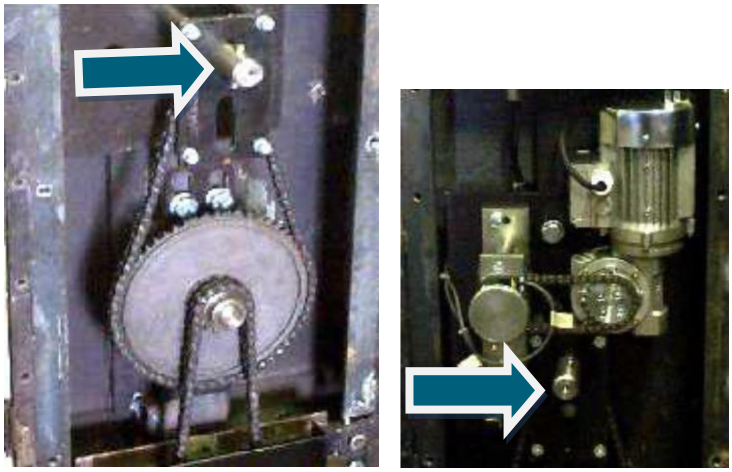
Do not power the door beyond the limit indicators situated on the roadway and the indicator arrow situated on the gate ram cover, otherwise premature wear to the torque limiters will occur.

2.4 MANUAL GATE OPERATION USING A HAND WINDER

Before operating the gate ensure that the relevant authorization has been obtained and local interlocking procedures are not violated.

Obtain the hand winder according to local procedures.

Attach the hand winder to the drive shaft coupling.



2:9 Drive Shaft Coupling Location for Wheel Boxes With and Without Electric Winders

Wind the handle to open or close the gate. The direction of wind will be site dependent.

To protect the gate always open the gate so that the edge of the gate is aligned to the gate open indicator before allowing traffic through. The gate open indicator is typically a screw or other mark on the 'road' surface.

2:10 Typical Gate Open Indicator

HEALTH AND SAFETY

To avoid injury always minimise the number of times a gate is operated using the hand winder

2.5 RESTORING CONNECTION TO THE GATEHOUSE CONTROL SYSTEM

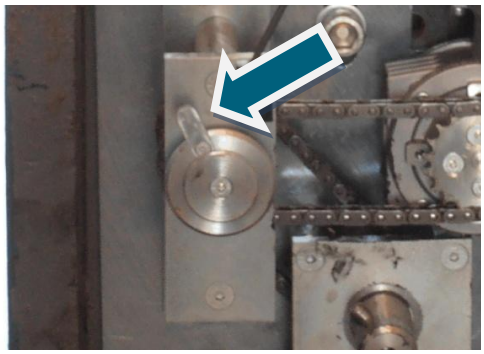
2.5.1 Close the gate

Close the gate using the electric or manual hand winder as appropriate.

2.5.2 Disengage the Winder Mechanism Clutch

If the gate has an electric winder fitted slightly open the gate either by 'taping' the electric hand winder remote open button or by turning the hand winder handle a quarter turn.

The clutch control wheel is located to the left hand side of the leading wheel box.



2:11 Typical Clutch Control Wheel

To disengage the clutch

- Pull out the clutch control wheel
- Rotate the clutch control wheel anti-clockwise to the 10 o'clock position
- Release the clutch control wheel

Close and lock the leading wheel box according to local procedures.

2.5.3 Disconnect the Electric Winder

If a hand wider was used to operate the gate, disconnect the hand winder from the drive shaft and store the hand winder according to local procedures.

If an electric winder was used to operate the gate
Isolate the mains by switching off the cable reel mains socket

- Remove the cable reel mains plug from its socket
- Disconnect the power cable socket from the power cable connection plug on the gate
- Disengage the cable ball from its retaining bracket
- Holding the cable ball allow the cable to reel in until the cable ball is in contact the cable reel.
- Position power cable socket neatly behind pulley (roller guide)
- Store the remote control according to local procedures

HEALTH AND SAFETY

Always pull the power cable using the cable ball (spherical cable stop)

Always disconnect the mains before disconnecting and rewinding the power cable

2.5.4 Close the Leading Wheel Box

Close and the lock the leading wheel box according to local procedures.

2.5.5 Release the Lock Bolt

Access, unlock the blue Bowden box according to local procedures.

Open the Bowden box and release the lock bolt by lifting the quadrant arm. Tighten the knob to secure the position of the bolt.

Close and secure the Bowden box according to local procedures.

2.5.6 Engage the Hydraulic System

Access the hydraulic pump bypass valve according the local procedures.

Turn the pump bypass valve anti-clockwise through 45 degrees to the ‘ALL PORTS CLOSED’ position.

2.5.7 Check Automatic Operation

Check that the control system is indicating that the vehicle gate is in automatic mode or on line, please refer to local procedures and control system documentation.

Note: At this point in the procedure the gatehouse control system may indicate that the gate is not locked. The gate should automatically lock the next time it is closed. Ignore this indication until after the gate has been tested. If this indication persists, report the error according to local procedures.

Open and close the gate using the gatehouse control system to ensure that the system is fully operational if the gate operates correctly and all gatehouse control system indicators are normal. The gate is now ready for normal operation.

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