

**BVM Corporation**  
**Rotary Side Door Elevator – Type “SX” & “SLX”**  
**100, 150, 250, 350, 500 & 750 Ton**

Part number: \_\_\_\_\_

Serial Number: \_\_\_\_\_



**Safety**

***CAUTION:** Practice safety in the operation and maintenance and use only approved safety methods, materials and tools. Keep hands away from any pinch point or undesignated areas; use only the provided handles for operating the elevator.*

**WARNING:** Elevators which have experienced wear beyond established wear criteria set by OEM, or are found to have cracks must be replaced or repaired by a BVM authorized repair facility.

**WARNING:** Only original BVM parts may be used. Elevators are produced from cast alloy heat treated steel and must not be welded in the field. Improper welding can cause cracks and brittleness in heat-affected areas which can result in dramatic weakening of the part and possible failure. Repairs involving welding and/or machining should be performed only by a BVM authorized repair facility. Using an Elevator that has been improperly welded or repaired is dangerous.

**NOTE:** The owner and user together with the manufacturer should jointly develop and update inspection, maintenance, repair and remanufacture procedures

**consistent with equipment application, loading, work environment, usage and other operational conditions. These factors may change from time to time as a result of new technology, equipment history, product improvements, new maintenance techniques and changes in service conditions. Alternatively, BMV recommends using the Periodic inspection and maintenance Categories and Frequencies as mentioned in API RP8B Table 1.**

### **Load test**

**WARNING: BMV elevators are load tested after manufacture or repair. Load testing is mandatory on elevators which have not been load tested before. Load testing is required on elevators which have been overloaded, for example jarring operations or operations that have induced elevators to high accelerations or high impact loads.**

## **SECTION 1- INTRODUCTION**

### **PURPOSE:**

This manual contains operation and service instructions for SLX and SX Elevators- 100 ton, 150 ton, 250 ton, 350 ton 500 ton and 750 ton. Included are assembly drawings and complete parts breakdown. This manual provides a guide for assembly and disassembly and repair.

### **DESCRIPTION:**

BVM side door elevator is used for handling plain or upset collar-type drill pipe, casing and tubing. The BVM elevator comes in sizes ranging from 3” through 36”, with a capacity of 100, 150, 250, 350, and 500 tons. They are made from alloy steel; load tested and are magnetic particle inspected.

## **SECTION 2- INSTALLATION**

The SLX and SX type elevators are easily installed on the links.

- 1) Remove cotter pin and nut from link block bolt and remove link block bolt.
- 2) Lift the bottom of the link block and hook the small end to the link through the link block and link arm.
- 3) Lower the link block and re-install the link block bolt, nut and cotter pin.
- 4) Repeat this procedure on the other link block.
- 5) To remove, simply reverse the installation process.

### **OPERATION:**

The latch and safety latch lock of the SLX and SX elevators lock automatically when the elevator is closed around the pipe. To open the elevator, simply pull the safety pin and then pull the latch lock handle out and swing the elevator halves apart.

**CAUTION:**

- Elevators are manufactured to operate only in a vertical direction and should never be used for laying down or picking up pipe.
- Be sure to use the handles provided for opening, closing and handling the elevator. Keep hands away from all other areas when the elevator is in use.
- Check the latch and latch lock for full engagement when closed around the pipe.
- Make sure the SLX and SX elevators are used with the correct size, tubing or pipe. (per API specifications). Oversized pipe could result in the elevator latching partially or not at all. Undersized or oversized pipe could cause uneven stress distribution. Inadequate load-bearing area, and possible elevator failure.
- Never use the elevator other than what it is intended for: size and tonnage, which is clearly marked on elevator.

**MAINTENANCE**

Caution: Safety should be practiced at all times when servicing the equipment always use BVM Corporation, approved safety methods, material and tools. Always wear protective gear for eyes, head and hands.

1. Check for worn hinge pin, latch pin, latch lock pin, and their mating parts. These may hinder proper opening and closing of door, latch and latch lock.
2. Check for proper operating of latch stop mechanism. Latch should not stop against the body when engaged.
3. Open elevator and check hinge pin for wear by checking the radial play between the body and door.
4. Check latch pin for wear by checking the radial play between the latch and body. Close elevator and check that the latch and latch lock mechanisms function properly. Open and close elevator several times, check for proper latch and latch lock function each time. Check for proper operation of latch stop mechanism.

**LUBRICATION**

Lubricate the Elevator regularly during usage and storage to prevent corrosion. Use an extreme pressure, multipurpose, lithium-based grease of No. 1 or No 2 consistency and multi-weight motor oil.

1. Lubricate on a regular basis when in use.
2. Oil or grease hinge, latch and latch lock pin
3. Grease hinge and latch pin through grease nipples.

4. Grease underside of link arms.
5. Grease springs.
6. Grease link retainer fasteners.
7. Lubricate regularly during usage and storage to prevent corrosion from  
Attacking any part of the elevators operating mechanism.

### **BVM CORPORATION EQUIPMENT REPAIR**

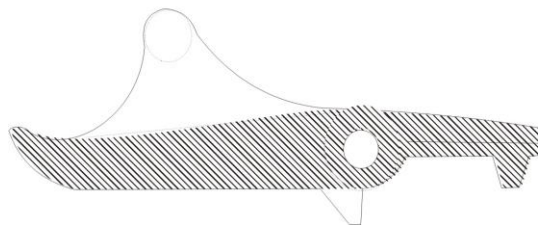
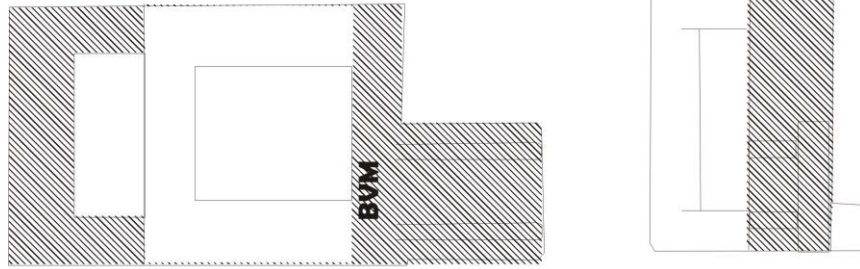
Worn elevators are repaired to original high quality standards. When tools are received for repairs, they are dismantled and checked for dimensional accuracy and undergo magnetic particle inspection which includes a load test. Worn parts are replaced with new parts. After a second magnetic particle inspection the tools are reassembled and carefully checked.

#### **Caution:**

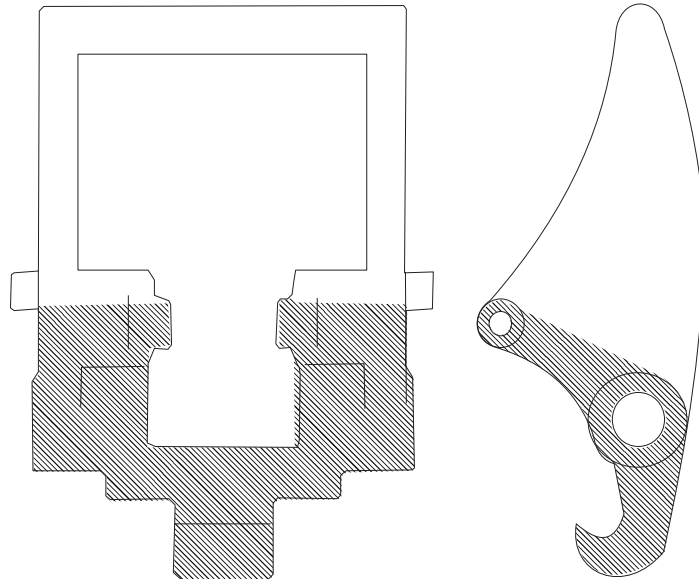
- Do not use any elevator if the Latch and Latch lock do not function properly.
- Use only parts manufactured and sold by BVM Corporation
- Re-machining of parts should be performed only at BVM Corporation. Improper machining could result in increased stress (Decreased Load carrying capability) or improper alignment of component parts. Either condition could be hazardous to personnel and equipment.
- Bodies and Doors should be matched by trained BVM personnel. For this reason, a body or door from one elevator should never be exchanged with a body or door from another elevator.
- Always wear gloves and eye protection when grinding, striking or handling parts.
- Do not use any elevator with wear in hinge pin, latch pin, and lock pin areas. Wear in these areas will cause latch and latch lock to function improperly and may cause failure.

### **Critical Wear Areas**

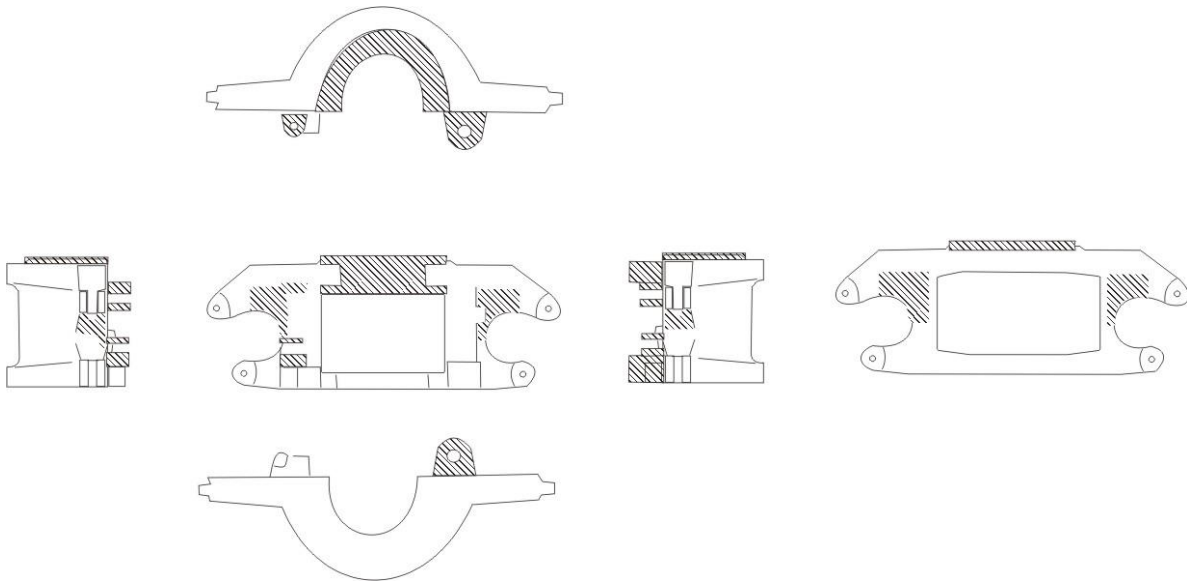
**SX Latch**



**SLX Latch Lock**



**SX SLX Body**



“Hatched” areas are considered Critical Wear areas – all other areas are non-critical areas.

ELEVATOR TYPE	SLX	SLX	SLX	SLX	SLX	SLX	SLX
RATED CAPACITY	150 TON	150 TON	150 TON	150 TON	150 TON	150 TON	150 TON
PART NUMBER	33854	31239	33950	33982	33632	33175	33180
SIZE							
HINGE PIN SIDE							
TOTAL CLEARANCE 'A'	0.025"	0.030"	0.030"	0.035"	0.035"	0.045"	0.045"
HINGE PIN MIN DIA NEW	0.996"	1.121"	1.496"	1.746"	1.871"	1.996"	1.996"
BORE DIA NEW MAX	1.002"	1.127"	1.502"	1.753"	1.876"	2.001"	2.001"
BORE DIA USED MAX	1.017"	1.145"	1.520"	1.771"	1.894"	2.020"	2.020"
LATCH PIN SIDE							
TOTAL CLEARANCE 'A'	0.025"	0.030"	0.030"	0.030"	0.035"	0.035"	0.035"
LATCH PIN MIN DIA NEW	0.622"	0.621"	0.621"	0.621"	0.621"	0.746"	0.746"
BORE DIA NEW MAX	0.626"	0.625"	0.625"	0.625"	0.625"	0.752"	0.752"
BORE DIA USED MAX	0.640"	0.639"	0.639"	0.639"	0.639"	0.770"	0.770"

ELEVATOR TYPE	SLX	SLX	SLX	SLX	SLX	SLX
RATED CAPACITY	250 TON	250 TON	250 TON	250 TON	250 TON	250 TON
PART NUMBER	43239	43950	43982	43632	43175	43180
SIZE						
HINGE PIN SIDE						
TOTAL CLEARANCE 'A'	0.035"	0.035"	0.035"	0.045"	0.045"	0.045"
HINGE PIN MIN DIA NEW	1.746"	1.746"	1.746"	1.996"	1.996"	1.996"
BORE DIA NEW MAX	1.753"	1.753"	1.753"	2.001"	2.001"	2.001"
BORE DIA USED MAX	1.771"	1.771"	1.771"	2.020"	2.020"	2.020"
LATCH PIN SIDE						
TOTAL CLEARANCE 'A'	0.035"	0.035"	0.035"	0.035"	0.035"	0.035"
LATCH PIN MIN DIA NEW	0.746"	0.621"	0.746"	0.746"	0.746"	0.746"
BORE DIA NEW MAX	0.752"	0.625"	0.752"	0.752"	0.752"	0.752"
BORE DIA USED MAX	0.770"	0.639"	0.770"	0.770"	0.770"	0.770"

**Assembly Drawing and List of Parts** – see attachemnt.