JAW CRUSHER LINER CHANGE

All PPE must be worn

Practice safe maintenance

Understand service procedures before doing any work.

Never lubricate, clean, service or adjust machine whilst it is moving.

Keep hands, feet and clothing clear of power-driven parts and in-running nip points.

Disengage all the power and operative controls to relieve pressure.
Stop the engine.
Implement lockout procedure.
Allow machinery to cool.

Securely support any machine elements that must be raised for service work.

Keep all parts in good condition and properly installed. Tend to damage immediately. Replace worn or broken parts.

Remove any build up of grease, oil or debris.

Disconnect battery ground cable (-) before adjusting electrical systems or welding on machine.

Attached are procedures for:

Section	**9.5**	**Crusher – Adjustment of Discharge Opening**
	9.6	**Crusher – Fitting of Tension Rod Assembly**
	9.7	**Crusher – Toggle Plate Replacement**
	9.8	**Crusher – Fitting New Toggle Seat**
		Crusher – Manganese Replacement
		Crusher – Changing of Cheek Plates

DANGER

In-running nip points can cause serious injury or even death.

DO NOT reach into an unguarded machine.

Your arm could be pulled in and amputated.

SWITCH OFF and LOCKOUT machine before opening or removing guards.

NIP POINTS



DANGER

Hydraulic fluid under pressure can penetrate the skin causing serious injury.

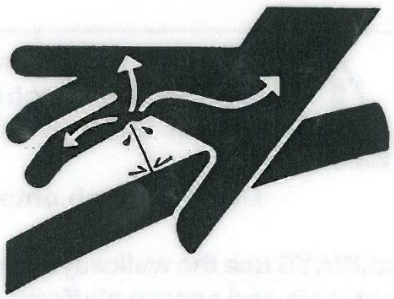
ALWAYS relieve the pressure from the hydraulic system before carrying out any kind of maintenance or adjustment.

ALWAYS use a piece of cardboard to check for leaks. DO NOT use your hand.

If fluid is injected under the skin, it must be surgically removed or gangrene will result.

Get medical help immediately.

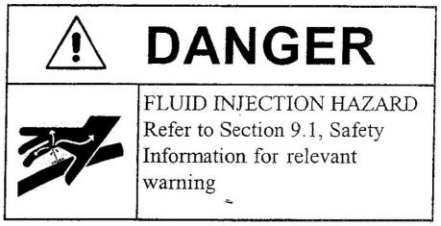
HYDRAULIC HOSES



BL-Pegson Limited, Coalville, England. Tel : +44 1530 510051, Fax : +44 1530 510041

9.7 Crusher - Toggle Plate Replacement

This will need replacing due to wear or breakage due to uncrushable feed. The toggle plate must be installed from beneath the crusher. A hoist suspended from a spreader bar positioned at the top-rear of the crusher is the most convenient method of lifting and lowering the toggle plate.





Procedure

9.7.1 Tension Rod Removal

1. Observe all safety warnings.
2. Run the crusher until completely empty. Close down the plant (refer to Section 8.2) and implement the Lockout Procedure.
3. Attach suitable support cables to the toggle plate (Figure 9f).
4. Remove the tension rod assembly (Figure 9d).

a Remove the two locknuts, washer, spring cap and spring.
b Remove the split pin with washer.
c Remove the pin from the tension rod bush through the cast eyes of the jawstock. The tension rod at the clevis end will then drop free - **BE PREPARED FOR THIS**.

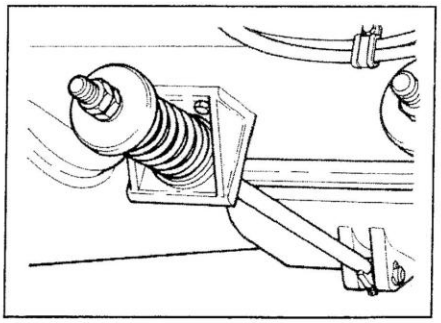


Figure 9e Tension Rod Location

9.7.2 Toggle Plate Removal

(Figure 9f & 9g)

In order to remove the toggle plate it is first necessary to take the weight of the jawstock off the toggle plate.

Procedure

1. Observe all safety warnings.
2. Run the crusher until completely empty. Close down the plant (Section 8.2) and implement the Lockout Procedure.
3. Take the hydraulic cylinder from the toolbox on the plant and attach by the quick release hose couplings to the hydraulic handpump unit.
4. Mount the hydraulic cylinder on the lug of the crusher body (Figure 9g) so that the ram will engage in the recess in the back of the jawstock.
5. Push the valve lever 'W' forward of the central position. Operate the handpump to locate the ram in the recess of the jawstock and move the jawstock forward. If the toggle plate is not broken allow it to become free and be lowered from the crusher.



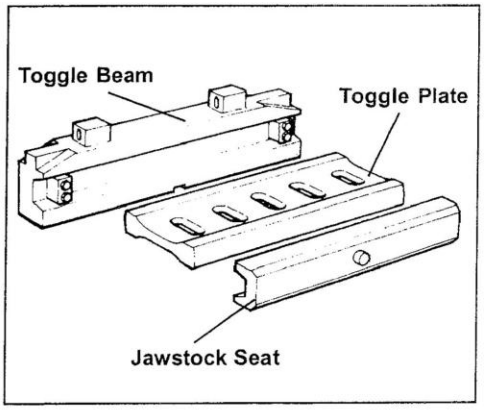


Figure 9f Toggle Plate Assembly

6. Provide temporary blocking at the lower jawstock edge to prevent accidental movement.
In addition use a chain pull lift to secure the free jaw.

DANGER

It is imperative that Part 5 is adhered to.
Nobody is to enter the gap between the jawstock and the crossbeam.
Failure to do so may cause injury or death.

7. Remove slings or chains from broken toggle plate.

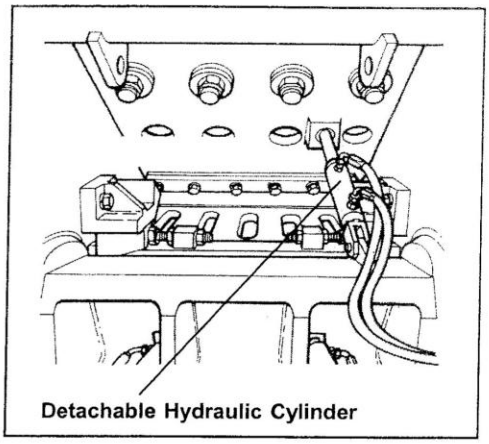


Figure 9g Hydraulic Cylinder Location

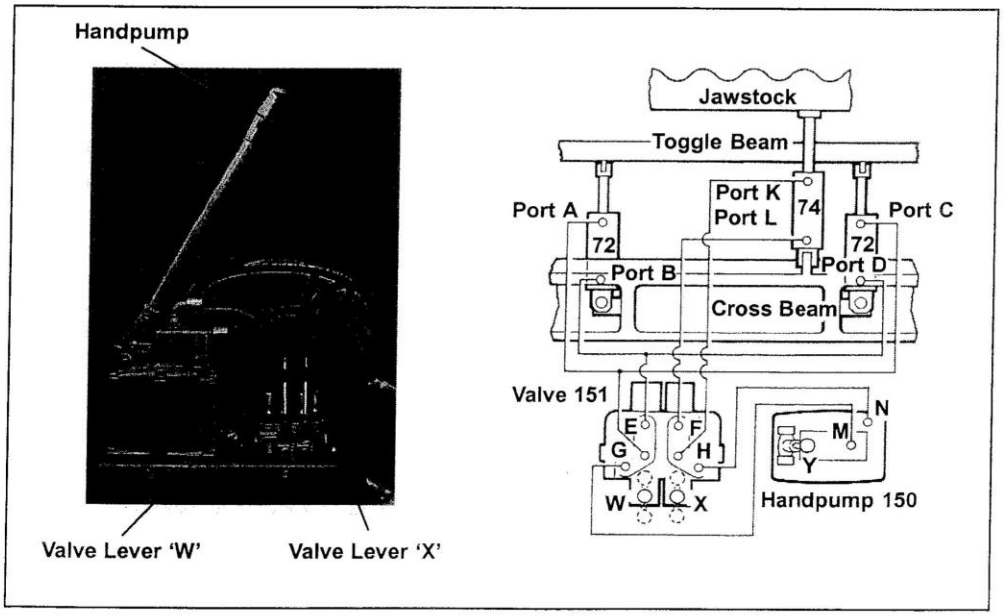


Figure 9h Hydraulic Hand Pump and Circuit Diagram

9.7.3 Fitting New Toggle Plate

Procedure

1. Observe all safety warnings.
2. Run the crusher unitl completely empty. Close down the plant (Section 8.2) and implement the Lockout Procedure.
3. Position new toggle plate beneath the crusher.
4. Hoist or jack the new toggle plate into position and remove the blocking from the jawstock.
5. Pull the valve lever 'W' backward of the central position and operate the the handpump and allow the jawstock to return under its own weight. The toggle plate must locate between the two retainers and the toggle beam.
6. When the jawstock has returned, support the hydraulic cylinder and operate the handpump to retract the cylinder ram from the jawstock.
7. Return the valve lever 'W' to the central position and relieve the pressure.
8. Detach the hydraulic cylinder from the crusher body and disconnect the hydraulic hoses. Replace the hydraulic cylinder in the toolbox.



NOTE: The detachable hydraulic cylinder must be removed before crusher start up.

Finally:

9. Fit the tension rod assembly (Section 9.6).
10. Check the discharge opening and adjust as necessary (Section 9.5).

9.8 Crusher - Fitting New Toggle Seat

Procedure

1. Observe all safety warnings.
2. Run the crusher until completely empty. Close down the machine (Section 8.2) and implement the Lockout Procedure.
3. Remove the toggle plate (Section 9.7.1)
4. Inspect the canvas apron (Figure 9i). Replace the apron if it is worn.
5. Using an oxy-acetylene cutting torch, cut the toggle seat in half lengthways. There is a groove in the toggle seat recess to minimise damage to the jawstock. The toggle seat can then be removed.
6. Inspect the recess for rough spots. Remove any rough spots with a file and smooth with emery.
7. Fit the dowel of the new toggle seat into the hole in the jawstock and press the toggle seat home. It is important that the toggle seat fits tightly.



8. Make several indents on the jawstock adjacent to one side of the seat with a centre punch to secure it in place.
9. Fit toggle plate (Section 9.7.3).
10. Fit tension rod assembly (Section 9.6).

Note : Toggle seat faces operate dry and must not be lubricated.

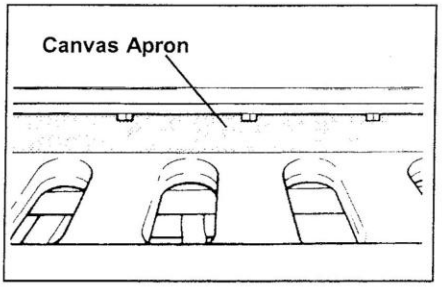


Figure 9i Canvas Apron

9.9 Crusher - Manganese Replacement

9.9.1 Changing the Swing Jaw

Procedure

1. Observe all safety warnings
2. Run the crusher until completely empty. Close down the plant (Section 8.2) and implement the Lockout Procedure.
3. Remove the swing jaw wedge nuts, washers and fabreeka washers.
4. Retract bolts and remove the two wedges.
5. Tip the top of the jaw forward and insert a lifting hook of a similar type shown in Figure 9j.

DANGER **Extreme care must be taken when moving the jaw forward. After moving the jaw forward wedge in place prior to locating the hook in the back of the jaw.**

6. Lift out the jaw and place it on blocks with the wearing side face down.



Lifting hooks are availible from
Lifting Gear Supplies Ltd,
Leicester.
England.
Tel : +(44) 0116 262 8023
Fax : +(44) 0116 251 8864

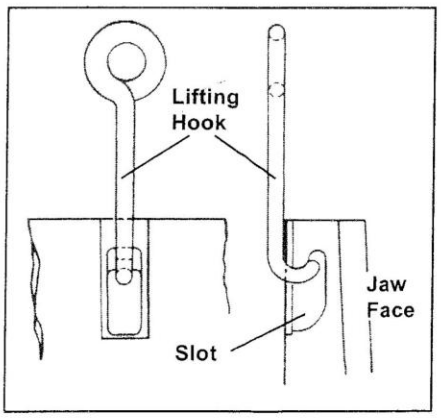


Figure 9j Lifting Hook

Remember - The manganese can be rotated through 180°, the worn area of the manganese then being at the top of the crusher.

DO NOT wear the manganese below the bottom of the grooves. Any wear below this level will result in the support block at the base of the manganese being worn.

Continued crushing with heavily worn manganese increases crushing forces and power consumption. This may limit the minimum closed side setting on hard materials.

7. Insert lifting hook in the back of the jaw (refer to Figure 9j).

8. Hoist the jaw into position and locate onto the centering key at the bottom of the jawstock.

9. Fit the wedge and the bolts.

10. Fit the washers, fabreeka washers and nuts - TIGHTEN SECURELY.

WARNING **After fitting the jaws operate the crusher for 15 minutes. Stop the crusher and check the bolt tightness. Continue to check the nuts at the beginning of each shift.**

9.9.2 Changing the Fixed Jaw

The fixed jaw is held into position by two fixed jaw wedges. When changing the fixed jaw it will be necessary to undo and remove the four wedge bolts holding the jaw wedges in place.

WARNING



WEAR PERSONAL PROTECTIVE EQUIPMENT. Refer to Section 9.1, Safety Information for relevant warning.



LOCKOUT MACHINE. Refer to Section 9.1, Safety Information for Lockout Procedure.

Removal of the Fixed Jaw

Procedure

!. Observe all safety warnings.

2. Run the crusher until completely empty. Close down the plant (Section 8.2) and implement the Lockout procedure.

3. Remove the jaw wedge nuts, washers, and fabreeka washers (Figure 9l).

4. Withdraw the bolts and remove the wedges.

5. Tip the top of the jaw forward and insert a lifting hook of the type shown in Figure 9j into the back of the jaw.

DANGER **Extreme care must be taken when moving the jaw forward. After moving the jaw forward wedge in place prior to locating the hook in the back of the jaw.**

10. Lift out the jaw and place it on blocks with the wearing side face down.

Remember - The manganese can be rotated through 180°, the worn area of the manganese then being at the top of the crusher.

DO NOT wear the manganese below the bottom of the grooves. Any wear below this level will result in the support block at the base of the manganese being worn.

Continued crushing with heavily worn manganese increases crushing forces and power consumption. This may limit the minimum closed side setting on hard materials.

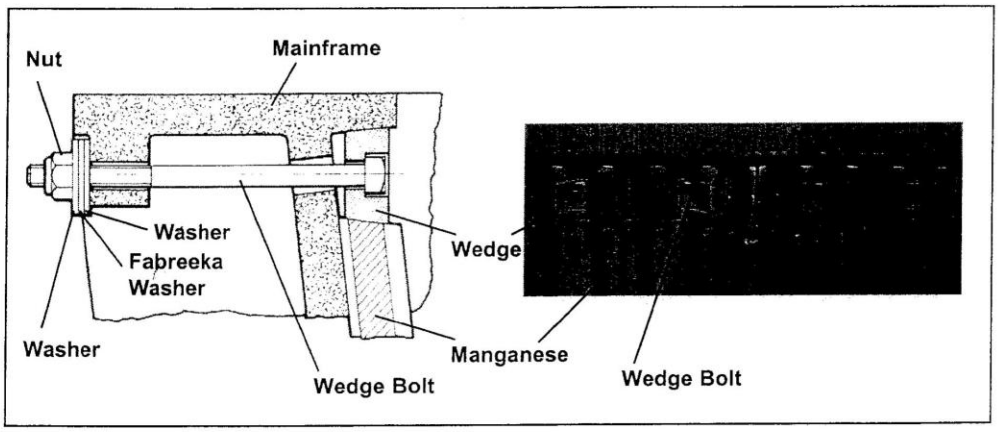


Figure 9l Fixed Jaw Wedge and Bolt Assembly

Replacement of the Fixed Jaw

11. Insert the lifting hook into the slot at the back of the new jaw (Figure 9j).

12. Hoist the jaw into position and locate onto the Jaw Support at the bottom of the Front wall.

13. Fit the wedges and bolts.

14. Fit the washers, fabreeka washers and nuts. TIGHTEN SECURELY.

CAUTION **After fitting the jaws operate the crusher for 15 minutes. Stop the crusher and check the bolt tightness. Continue to check the nuts at the beginning of each shift.**

9.10 Crusher - Changing of Cheek Plates

Cheek plates should be inspected regularly for wear and all cheek plate bolts checked for tightness.

Note : Cheek plates are not reversible.

There are four cheek plates, two on each side of the machine; the upper plate is retained at three fixing points. The cheek plates are not interchangable.



9.10.1 Removal

Lift and lower cheekplates with a crane. **DO NOT ATTEMPT TO MOVE BY HAND.**

Procedure

1. Observe all safety procedures.
2. Run the crusher until completely empty. Close down the plant (Section 8.2) and implement the Lockout Procedure.
3. Remove necessary guards to gain access.
4. Remove the upper fixing nut, bolt and washer from the cheek plate and machine frame and loosen the remaining fixing bolt(s) - (Figure 9m).

5. Insert a lifting hook in the bolt recess in the cheek plate with the lifting equipment.

6. Take the weight of the cheek plate with the crane.

7. Remove the remaining fixing nuts, bolts and washers from the cheek plate then lift it clear of the machine.

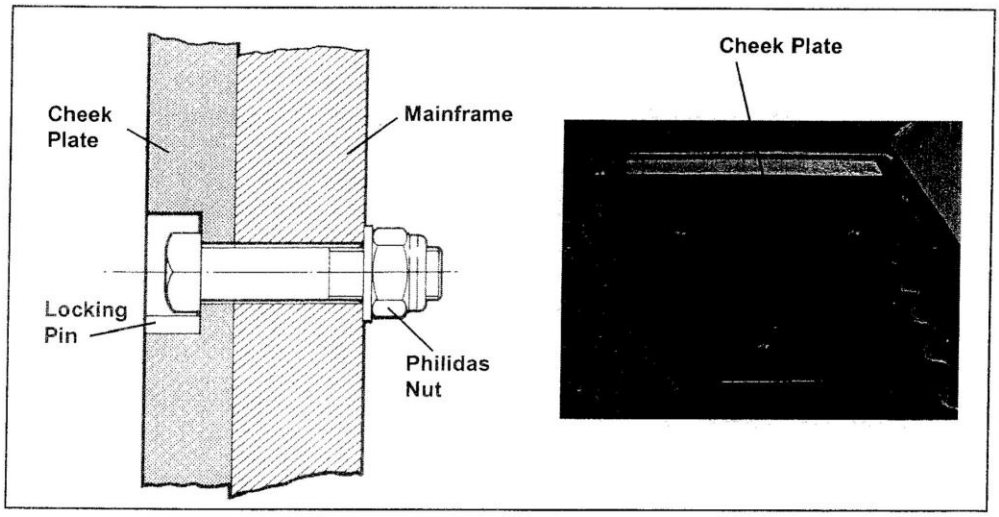


Figure 9m Cheek Plate Fixing and Bolt Assembly

9.10.2 Fitment

When fitting both cheek plates on one side, always fit the lower plate first.

Lift and lower cheekplates with a crane. **DO NOT ATTEMPT TO INSTALL BY HAND.**

Procedure

1. Observe all safety warnings.
2. Run the crusher until completely empty. Close down the plant (Section 8.2) and implement the Lockout Procedure.
3. Insert a lifting hook in the upper fixing bolt recess in the cheek plate; lower the cheek plate into the machine, align the lower bolt holes in the cheek plate and the machine side.
4. Insert the lower fixing bolt, washer and nut, but do not tighten.
5. Remove the lifting hook from the upper bolt recess in the cheek plate and fit and tighten the upper fixing nut, bolt and washer, tighten the remaining fixing bolts.
6. Replace any guards removed to gain access.

WARNING



WEAR PERSONAL PROTECTIVE EQUIPMENT. Refer to Section 9.1, Safety Information for relevant warning.



LOCKOUT MACHINE. Refer to Section 9.1, Safety Information for Lockout Procedure.