



# Technical Manual

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## Before starting to work

### Characters and symbols used

The following characters and symbols are used for safety instructions and important information in the operating manual.

Try to memorize the symbols and their meanings.



#### **DANGER!**

Points in the text marked with this symbol draw your attention to immediately impending danger. Possible consequences are: very serious injury or even death.



#### **WARNING!**

These points contain information on dangerous situations. Possible consequences are: very serious injury or even death.



#### **CAUTION!**

This symbol draws attention to dangerous situations. Possible consequences are: light to moderately serious injuries and machine damage.



#### **NOTICE!**

Points in the text marked with this symbol draw attention to harmful situations. Possible consequences are: damage to the machine or damage in the immediate vicinity.



#### **IMPORTANT!**

Points in the text marked with this symbol contain useful tips and information intended to facilitate work for you. They do not warn about harmful or dangerous situations.

- Items in lists are marked with bullets.
  - Points in sub-lists are marked with a long dash at the start of the line.
- ☞ Points in text marked in this way describe individual operations. Follow these instructions step by step. They will help you carry out your work faster and more importantly, safer.



## Personnel

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### handling of hydraulic fluids

Avoid direct contact between the skin and hydraulic fluids. Hydraulic fluid can penetrate the skin and cause serious infection.

Never use hydraulic fluid for rinsing or cleaning. Hydraulic fluid represents a very serious danger to health.

### maintenance, repair

Only persons who have and can demonstrate a special knowledge of hydraulics are allowed to work on the hydraulic system.

Carry out a visual inspection of all the hydraulic components at regular intervals. In particular check that:

- the hoses are not pinched or trapped
- the hoses have no bubbles or blisters
- the hose or outer sheathes of the hose are not abnormally rigid or hard
- the outer sheath of the hoses is not damaged
- the connectors are securely inserted into the sockets
- the connections are leak-tight

Ensure that no dirt enters the hydraulic system during repair work. Dirt in the hydraulic system can cause serious damage in the whole system! Flush out the hydraulic lines thoroughly before connecting.

If hydraulic hose couplers are difficult to disconnect or cannot be disconnected, the hydraulic line may still be pressurized. Be sure to depressurize the line before disconnecting couplers.

Secure the connectors of the hydraulic elements only with the proper coupling clamps. Always fasten the clamps completely and with both sides. Never use nails, wire or similar materials for securing.

After finishing repair work, check all connectors and connections for leaks before pressurizing the system again.



## Personnel

### Chapter 6: Technical data



#### NOTICE!

**Use only hydraulic fluids approved by DBT America!**  
**These fluids have been tested at DBT America and guarantee reliable operation of the hydraulic system.**



#### IMPORTANT!

**The tightening torques stated in the spare parts lists must be observed, as well, for installation and maintenance.**

We expressly point out that the approval of the listed products relates only to the pure technical use in our hydraulic systems. The responsibility for the constituents used in the hydraulic concentrates lies solely with the respective manufacturer.

Be sure to observe the manufacturer's instructions for use.

The greases listed in the same table can be mixed. Other products may only be used if the supplier can guarantee that they are equivalent. Differently composed lubricating greases must not be mixed as this may change the consistency, i.e. the mixture can become thinner so that the lubrication effect is not sufficient. It may also be dangerous to use lubricating greases having the same specification base different origins. In case of doubt, the manufacturer of the lubricating grease to be used should be contacted as to the compatibility of the grease in question.

The instructions for the use of the lubricating greases given under "Important" also apply to lubricating pastes.



#### NOTICE!

**Use only lubrication fluids and greases approved by DBT America!**  
**These fluids and greases have been tested at DBT America and guarantee reliable operation of the mechanical and hydraulic functions of the machine.**



#### IMPORTANT!

**The lubrication fluids and greases listed in the same table can be mixed. Other products may only be used if the supplier can guarantee that they are equivalent.**  
**Differently composed fluids and greases must not be mixed as this may change the consistency, i.e. the mixture can become thinner so that the lubrication effect is not sufficient. It may also be dangerous to use lubricating greases and fluids having the same specification base but different origins.**  
**In case of doubt, the manufacturer of the lubrication to be used should be contacted as to the compatibility of the lubrication in question.**



## Overview of the feeder breaker

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In addition, various items of auxiliary equipment and machines are required at the point of installation.

These include i.e.:

- hoists with adequate lifting capacity
- means of attachment with adequate lifting capacity
- impact wrenches, including accessories
- jacks with adequate lifting capacity

### Notes on installation



#### CAUTION!

**Serious damage can be caused to the feeder breaker as a result of incorrect installation.**

**The unit should therefore only be installed under the instruction of specialists from DBT America.**

#### installation plan

The sequence of operations during installation must be adapted to the individual conditions prevailing at the site. Before starting the work a detailed list of steps to be taken with respect to transport and assembly should be prepared and a corresponding plan established.



#### IMPORTANT!

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## How to operate the feeder breaker

### Primary valve banks

The two (2) primary valve banks (Fig. 13) consists of the following hydraulic controls:



#### **WARNING!**

**Before operating either tram control lever, ensure that; all other personnel are completely clear of the machine; roof clamps are completely retracted (if equipped); trailing cable has sufficient slack; and the conveyor and crusher have been turned off.**

#### **“FRAME TILT”**

The first lever from the operator's left controls the movement of the cylinders mounted to the underside to the hopper and end of the crawlers, which adjust the discharge height of the machine. To raise the height, slowly push the control lever away from the operator and to lower the height, slowly pull the control lever towards the operator.

#### **“LEFT FRAME LIFT”**

The second lever from the operator's left controls the movement of the left cylinder at the pivot point of the crawler, which adjusts the ground clearance on the left side of the machine. To increase the ground clearance, slowly push the control lever away from the operator and to decrease the ground clearance, slowly pull the control lever towards the operator.

#### **“LEFT TRAM”**

The third lever from the operator's left controls the left hand crawler functions. To tram in the direction of the receiving end, slowly push the control lever away from the operator and to tram in the direction of the discharge end, slowly pull the control lever towards the operator.

#### **“RIGHT TRAM”**

The fifth lever from the operator's left controls the right hand crawler functions. To tram in the direction of the receiving end, slowly push the control lever away from the operator and to tram in the direction of the discharge end, slowly pull the control lever towards the operator.



#### **WARNING!**

**When tramping the machine from the operator's station, the operator should stand beside the machine facing the conveyor with the tram control levers at arms length. Care should be taken to ensure that the operator's feet do not get under the crawler tracks while the machine is moving.**

The tram/steering control levers are used for tramping and positioning the machine. To tram the machine in a straight direction towards the receiving end, push both tram control levers away from the operator and to tram the machine in a straight direction towards the discharge end, pull both tram control levers towards the operator. To steer left in the direction of the receiving end, push the right tram control lever away from the operator while the left tram control lever is in the neutral position or for tighter turns, pull the left tram control lever towards the operator. To



## How to operate the feeder breaker

### Infra-red transmitter

In conjunction with the radio transmitter, the machine has been equipped with an optional infra-red transmitter (Fig. 19 and 20). The transmitter allows the operator to start or stop the conveyor from a remote location. Before the remote control will function, the "LOCAL/OFF/REMOTE" selector switch on the control console must be placed in the "REMOTE" position. Each transmitter is preset at the factory to channel #1.

To change the transmitter to a different channel (Fig. 19):

- ☞ Remove the 9V battery from its compartment located on the back of the unit. **Be sure to disconnect the battery from the power clips before proceeding.**
- ☞ Using a small screwdriver, move the switch tab (down) for the desired channel (1 thru 7). **Be sure that all other switches are in the "UP" (off) position.** Only one location can be "ON" at a time.
- ☞ Re-install the battery and access cover



#### IMPORTANT!

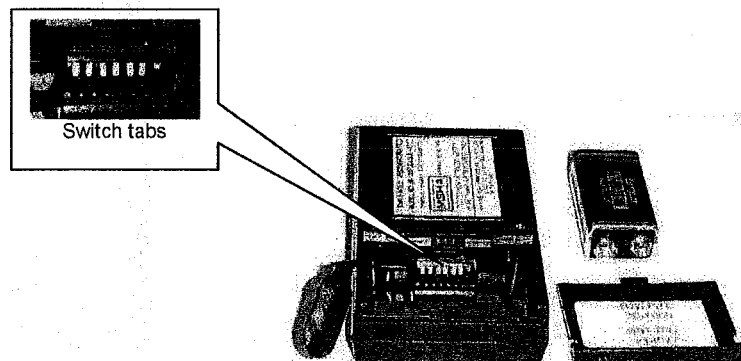
The "STOP" channel is factory preset to the same channel for all remotes and can not be changed.



#### IMPORTANT!

The transmitter is shipped with the battery disconnected. The 9V battery is included but must be attached to the power clips prior to operating. To extend battery life, it is recommended that the user disconnect the 9V battery if the unit will be unused for four (4) days or longer.

Fig. 19: Changing channels on the infra-red transmitter



How to operate the feeder breaker



Fig. 26: "START BREAKER" pushbutton (local)

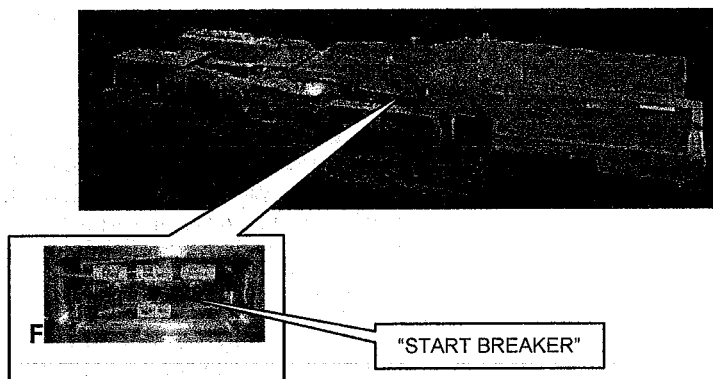


Fig. 27: "START BREAKER" pushbutton (local)

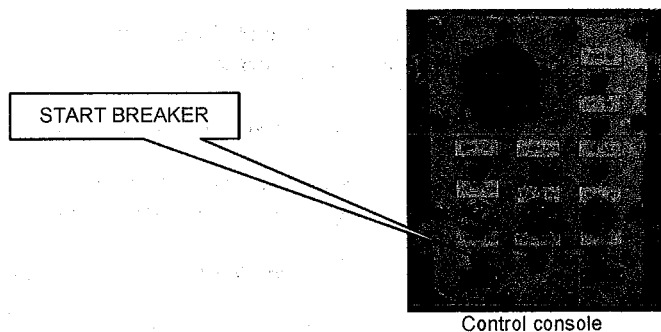
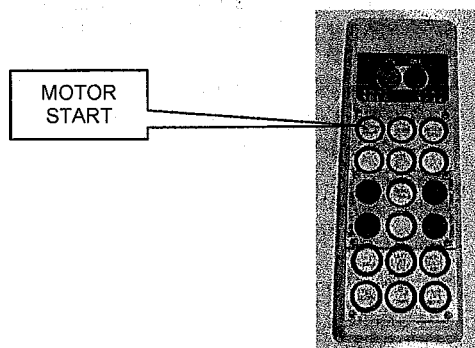


Fig. 28: "MOTOR START" pushbutton (remote)



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## How to operate the feeder breaker

### Start conveyor motor in reverse direction

To start the conveyor motor in reverse direction, proceed as follows:

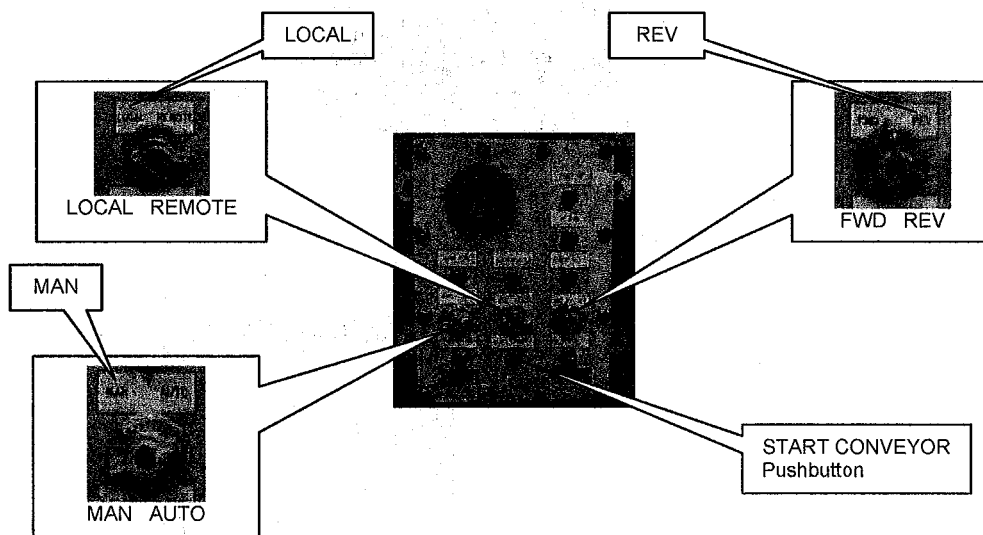
- ☞ Turn the "MAN/AUTO" selector switch located on the control console (Fig. 41) to the "MAN" position.
- ☞ Turn the "LOCAL/REMOTE" selector switch located on the control console to the "LOCAL" position (Fig. 41).
- ☞ Turn the "FWD/REV" selector switch located on the control console to the "REV" position (FIG. 41).



#### IMPORTANT!

The tram/breaker motor does not have to be running to start conveyor in the reverse direction.

Fig. 41: Start conveyor controls (Reverse direction)

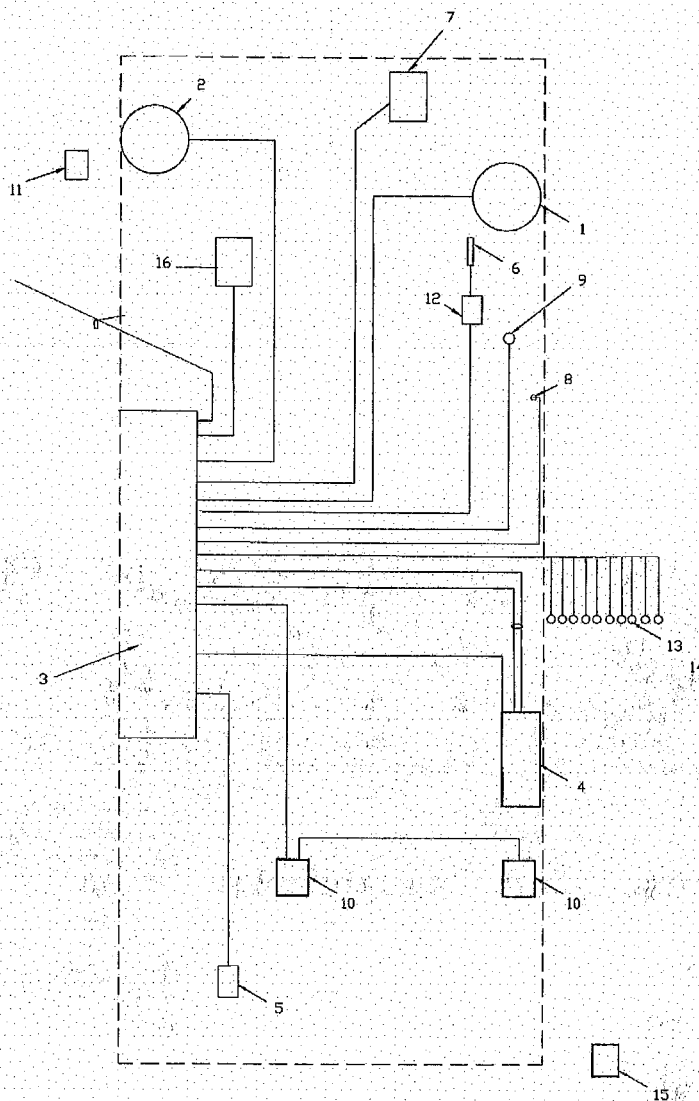


- ☞ The conveyor motor can be started in the reverse direction by either of the following:
  - Pushing the "START CONVEYOR" pushbutton located on the right cover of the starter enclosure (Fig. 42).

Electrical system on the feeder breaker



Fig. 49: Electrical layout



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- |                       |                           |
|-----------------------|---------------------------|
| 1. conveyor motor     | 9. temperature switch     |
| 2. breaker/tram motor | 10. infra-red receiver    |
| 3. starter assembly   | 11. radio transmitter     |
| 4. control console    | 12. connection box        |
| 5. pull cord switch   | 13. solenoids             |
| 6. speed switch       | 14. junction block        |
| 7. water solenoid     | 15. infra-red transmitter |
| 8. oil float switch   | 16. antenna               |

Hydraulic system on the feeder breaker



Fig. 58: Hydraulic component locator for the optional tail mounting assembly

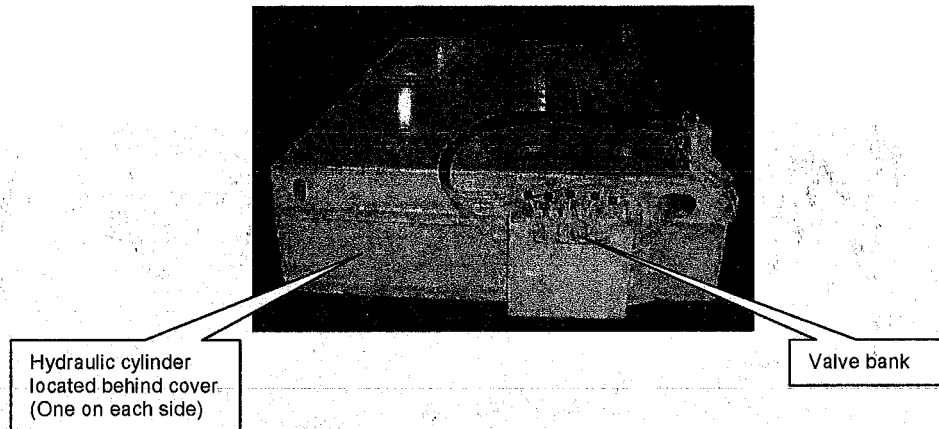
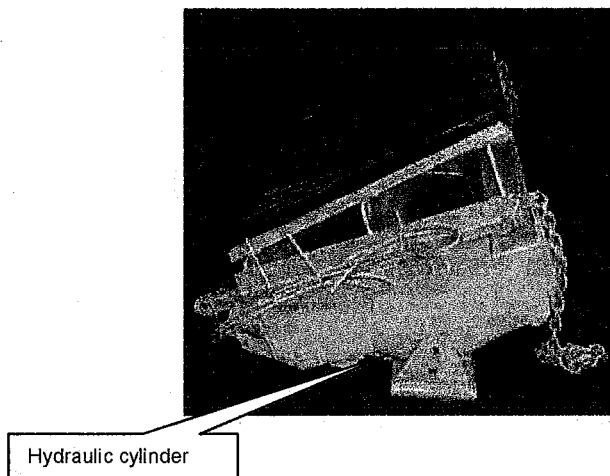


Fig. 59: Hydraulic component locator for the optional tail arm assembly



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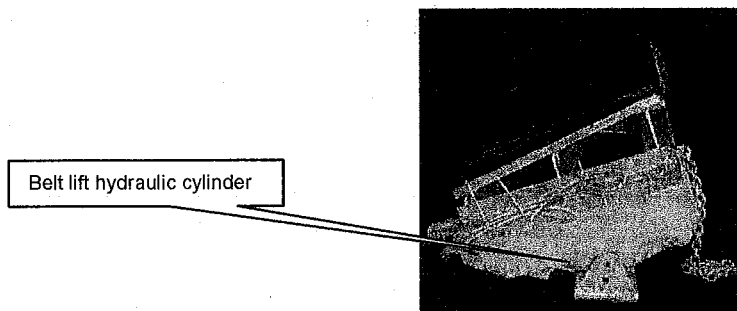
## Hydraulic system on the feeder breaker



### Belt lift hydraulic cylinder (s)

The two (2) belt lift hydraulic cylinders (Fig. 73) are located on each side under the tail arm assembly. The cylinders are used to adjust the height of the impact bed.

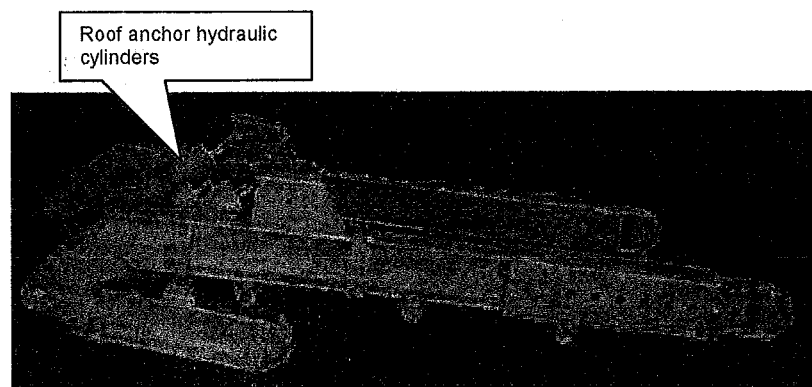
**Fig. 73: Belt lift hydraulic cylinder locator**



### Roof anchor hydraulic cylinder (s)

The two (2) roof anchor hydraulic cylinders (Fig. 74) are located on each on each roof anchor assembly. The cylinders are used to raise and lower the roof anchors.

**Fig. 74: Roof anchor hydraulic cylinder locator**





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## Instructions on the maintenance of the feeder breaker

### Instructions on the maintenance of the feeder breaker

Maintenance at regular intervals increases the operational safety and prolongs the service life of the machine.  
In particular, observe the safety instructions in chapter 2 "Your safety".

#### Important notes

Please observe the following:

- In order to avoid individual components not being serviced or being only inadequately serviced during maintenance work on the machine as a whole, we recommend that a general maintenance plan be drawn up. You can, for example, draw up a checklist using this operation manual and the manuals of the other components.
- Inadequate maintenance can result in machine damage which leads to considerable costs.
- Use only suitable and approved tools for maintenance work.
- Use only original DBT spare parts when replacing components.
- All electrical work must be supervised and inspected by a certified electrician.
- Anyone performing maintenance on this equipment must be trained to operate it and be familiar with this DBT America guide.

#### Before maintenance

Please observe the following:

- Shutdown the machine on level ground.
- Disconnect the electrical power. The circuit breaker must be in the "OFF" position and the power should be disconnected at the main power source.



#### **WARNING!**

**Before performing maintenance on the machine, the circuit breaker must be in the "OFF" position and the power should be disconnected at the main power source. Electrical shock and accidental machine movement can cause serious injuries or even death to you or the maintenance person.**

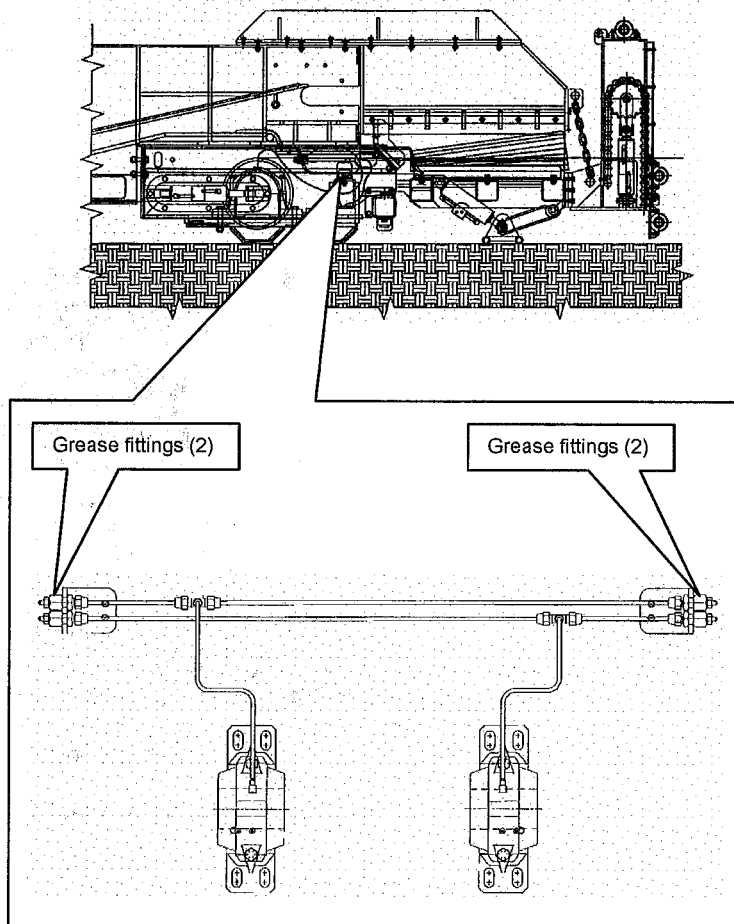


**Instructions on the maintenance of the feeder breaker**

**tail assembly bearings**

Lubricate the tail assembly roller bearings with Spec. 100-3 through the grease fittings located on either of the central lubrication panels. Bearings can be lubricated from either side of the tail assembly (Fig. 93). Pump grease into the fittings until new grease can be observed coming out of the bearing.

**Fig. 93: Tail assembly lubrication**



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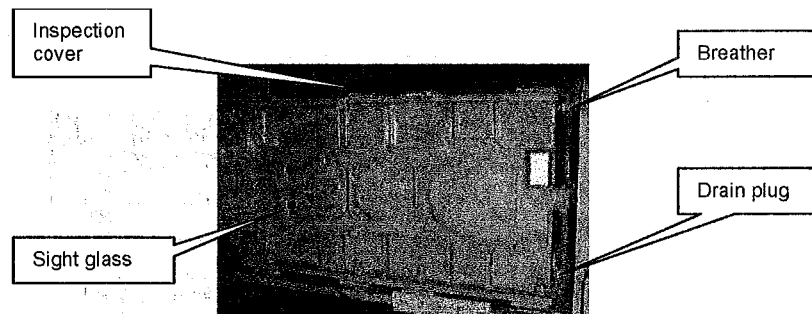


## Instructions on the maintenance of the feeder breaker

**conveyor reducer** Change the oil in the conveyor reducer (Fig. 106).

- ☞ Clean all dirt and debris from and around the level/fill plug, breather and drain plug.
- ☞ Remove the drain plug and allow the oil to completely drain.
- ☞ Clean and reinstall drain plug.
- ☞ Add oil spec 100-2 oil as required until fluid is visible in sight glass or begins to flow from the check plug that is slightly below the center line of the input shaft.
- ☞ When filling the reducer, allow enough time for all cavities inside the reducer to fill.
- ☞ Install level/fill plug.
- ☞ Do not overfill reducer.

**Fig. 106: Change oil in the conveyor reducer**





## Adjustment procedures on the feeder breaker

### Instructions on the adjustment procedures on the feeder breaker

It is essential that adjustments be made periodically to the conveyor chain and crawler tracks, as otherwise damage can be caused to other parts of the machine or to the assembly itself. Inspect the adjustments at regular intervals.

### Conveyor chain adjustment

The conveyor chain is a complete assembly and should be checked for correct tension at regular intervals.

To adjust tension on the conveyor chain with the take-up cylinders proceed as follows (Fig. 109):

- ☞ Close the top valve securely.
- ☞ Attach a grease gun to the grease fitting located at the bottom of the manifold and apply grease. The auto-relief indicator will vent grease when the required pressure is attained.
- ☞ The check valve will maintain pressure.
- ☞ After tensioning chain, remove the three (bolts) from the tail shaft retainers and lift out retainers.
- ☞ Insert shims over cylinder rod to maintain gap between bearing and end plate of box.
- ☞ Allow tail shaft pressure to rest completely on shims.



#### NOTICE!

**Make certain that the same amounts of shims are used on both sides of the conveyor to prevent chain from stretching unevenly. Incorrect tension or adjustment can cause premature wear of sprockets and chain.**

- ☞ Replace retainers.
- ☞ Release pressure on the take-up cylinders by opening the top valve to vent grease. After grease has vented, close valve.



#### WARNING!

**Due to grease cylinders being under high pressure, do not stand in direct line of grease fitting or bleeder valve when releasing pressure. You could be seriously injured from high pressure grease.**



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## Replacement of wear parts on the feeder breaker

### How to remove the tail shaft

To remove the tail shaft assembly from the receiving boom proceed as follows (Fig. 115):

- ☞ Release tension on the conveyor chain. (See Conveyor chain adjustment in this chapter).
- ☞ Remove the three (3) bolts and lock washers from each of the tail shaft retainers and lift out the retainers.
- ☞ Remove the tail shaft shims.
- ☞ Disconnect, tag, and cap the central lubrication hoses to the tail shaft.
- ☞ Separate conveyor chain and fold back to clear tail shaft. (See Conveyor chain replacement in this chapter)
- ☞ Lift out the tail shaft and repair as required.

### How to install the tail shaft

To install the tail shaft assembly into the receiving boom proceed as follows (Fig. 115):

- ☞ Insert tail shaft into receiving boom.
- ☞ Connect central lubrication hoses and lubricate tail shaft and slide plate bearings with Spec. 100-3 grease.
- ☞ Install the tail shaft retainers with the three (3) bolts and lock washers in each side.
- ☞ Fold the conveyor chain back over tail shaft.
- ☞ Connect conveyor chain (see Conveyor chain replacement in this chapter).
- ☞ Adjust tension on the conveyor chain (see Conveyor chain adjustment in this chapter).
- ☞ With machine running, visually inspect tail shaft to ensure that the shaft is turning and conveyor chain is not sliding across tail shaft.



## Replacement of wear parts on the feeder breaker



### **DANGER!**

When using an additional pulling device (e.g. winch or lifting tackle with adequate load limit) for pulling the crawler track, the connection could fracture under the load. You could be seriously injured or killed by the recoiling chain or cable.

Use only approved lifting equipment for connecting pulling devices to the crawler track.

- ☞ Inspect the crawler drive sprockets and idler rollers for wear or damage. Replace if necessary.

### **How to install the crawler track pad assembly**

To install the crawler track pad assembly proceed as follows (Fig. 119):

- ☞ Remove old crawler track pad assembly (see previous section, How to remove crawler track pad assembly)



### **DANGER!**

You could be seriously injured or even killed by falling loads.

Observe the safe working load of the lifting devices and keep a safe distance away from suspended loads.

- ☞ Check to ensure that crawler track tension cylinder is completely retracted (see Crawler track adjustment in this chapter).
- ☞ Slide crawler track pad assembly under crawler assembly.
- ☞ Fold pad assembly over both ends of crawler assembly. Ensure that pad assembly meshes with drive sprockets and idler roller.
- ☞ Connect crawler track pad assembly (see How to assemble crawler track pad assembly in this chapter for proper connection).
- ☞ Adjust tension on the crawler track pad assembly (see Crawler track pad adjustment procedure in this chapter for proper adjustment).



## Replacement of wear parts on the feeder breaker

### How to disassemble the breaker assembly

To disassemble the drive side of the breaker assembly proceed as follows (Fig. 124):

- ☞ Remove the breaker assembly from the machine. (See How to remove the breaker assembly in this chapter)
- ☞ Remove end cap (item 10) from the shaft by removing the three (3) bolts (item 3).
- ☞ Slide coupling half (item 9) from shaft.



#### IMPORTANT!

**Coupling half (item 9) is shrink fitted and must be heated to remove from shaft.**

- ☞ Slide backing ring (item 12) and o-ring (item 11) from shaft.
- ☞ Slide breaker mounting plate (item 7) and key (item 16) from bearing housing (item 5).
- ☞ Slide bearing housing (item 5) off of bearing (item 6).
- ☞ Slide bearing (item 6) off of shaft.
- ☞ Slide backing ring (item 4) off of shaft.



#### IMPORTANT!

**If the bearing has been allowed to fail completely, it may be necessary to cut the bearing from the shaft, using a torch. If a torch is required, care should be taken to prevent gauging or overheating of the shaft in the area of the bearing fit.**

- ☞ Visually inspect all components for damage or wear and replace as necessary.



## Replacement of wear parts on the feeder breaker

### How to install the hydraulic pump and pump disconnect

To install the hydraulic pump and pump disconnect proceed as follows (Fig. 128):

- ☞ Insert key into motor shaft.
- ☞ Slide pump and motor hubs onto motor shaft and tighten set screw in motor hub.
- ☞ Install connecting tube and secure with the eight (8) bolts and lock washers.
- ☞ Install key in pump hub.
- ☞ With the aid of a lifting device, slowly lift the pump and align shaft with pump hub and completely slide pump shaft into hub.



#### **WARNING!**

**You could be seriously injured or even killed by falling loads. Observe the safe working load limits of lifting or blocking devices and keep a safe distance from suspended loads.**

- ☞ Reach through door in connecting tube and tighten set screw in pump hub.
- ☞ Secure pump to connecting tube with the four (4) bolts and lock washers.
- ☞ Close door on connecting tube and secure with bolt and lock washer.
- ☞ Connect all hydraulic hoses to the hydraulic pump.
- ☞ Attach an appropriate lifting device to the hydraulic pump.
- ☞ Purge hydraulic system of air.

## Replacement of wear parts on the feeder breaker



### How to remove the conveyor power unit

To remove the conveyor power unit as a complete assembly proceed as follows (Fig. 131).

- ☞ Disconnect and tag all electrical wiring to the drive motor.



#### **WARNING!**

**Before performing maintenance on the machine, the circuit breaker must be in the "OFF" position and the power should be disconnected at the main power source. Electrical shock and accidental machine movement can cause serious injuries or even death to you or the maintenance person.**

- ☞ Remove conveyor coupling guard.



#### **WARNING!**

**Conveyor drive unit should be supported with an appropriate lifting device before removing any bolts from unit. You could be seriously injured or even killed by falling loads. Observe the safe working load limits of lifting or blocking devices and keep a safe distance from suspended loads.**

- ☞ Remove bolts from reducer coupling and separate coupling.
- ☞ Remove the eight (8) bolts, nuts, and washers that secure reducer to frame.
- ☞ Separate reducer coupling.
- ☞ Attach an appropriate lifting device to the conveyor drive unit.
- ☞ With the aid of the lifting device, slowly lift the complete unit from machine.



#### **WARNING!**

**You could be seriously injured or even killed by falling loads. Observe the safe working load limits of lifting or blocking devices and keep a safe distance from suspended loads.**



## Components of the feeder breaker

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## Permissible media

**Table 20 : Extreme pressure motor bearing grease (Spec. 100-3)**

	<b>Supplier</b>	<b>Brand name</b>
1	Amoco Oil Company	Amolith grease 2 EP Rykon Premium Grease 2 EP
2	Gulf oil	Gulfcrown grease EP#2
3	Mobil Oil Corporation	Mobilux EP-2
4	Chevron U.S.A.	Chevron Dura-Lith Grease EP-2 NLGI 2
5	Sun Oil Company	Sun Prestige 742EP
6	Unocal 76	Multiplex EP2
7	Shell Oil company	Alvania EP-2
8	Century Lubricating Oils, Inc.	Hullith EP2 Multipurpose Grease or Replex2 or Uniwrl 2 or Uniwrl EMB or Hullith GP 2 or Hullith EP 2
9	Texaco Lubricants Company	Texaco Multifak EP 2
10	Exxon	Lidok EP 2
11	Pennzoil	Pennlith EP 712 Grease
12	Lubricating Engineers	3752 Almagard Vari-Purpose Lubricant
13	Conoco Inc.	EP Conolith grease No. 2 or Super Sta Grease No. 2
14	Hydrotex	LC-65 Hyplex
15	Phillips	Philube EP Grease
16	Atlantic Richfield	Litholine H EP-2 Grease

**Table 21 : Semi-fluid grease (Spec. 100-4)**

	<b>Supplier</b>	<b>Brand name</b>
1	Texaco Lubricants Company	Novatex EP 000
2	Century oils Limited	Joy Loader Semi-Fluid grease
3	Hydrotex	MPD-60 Ultra E.P. 000
4	Pennzoil	Semi-Fluid 760 Grease
5	Unocal	MM Grease
6	Exxon	Lidok E.P. 000

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