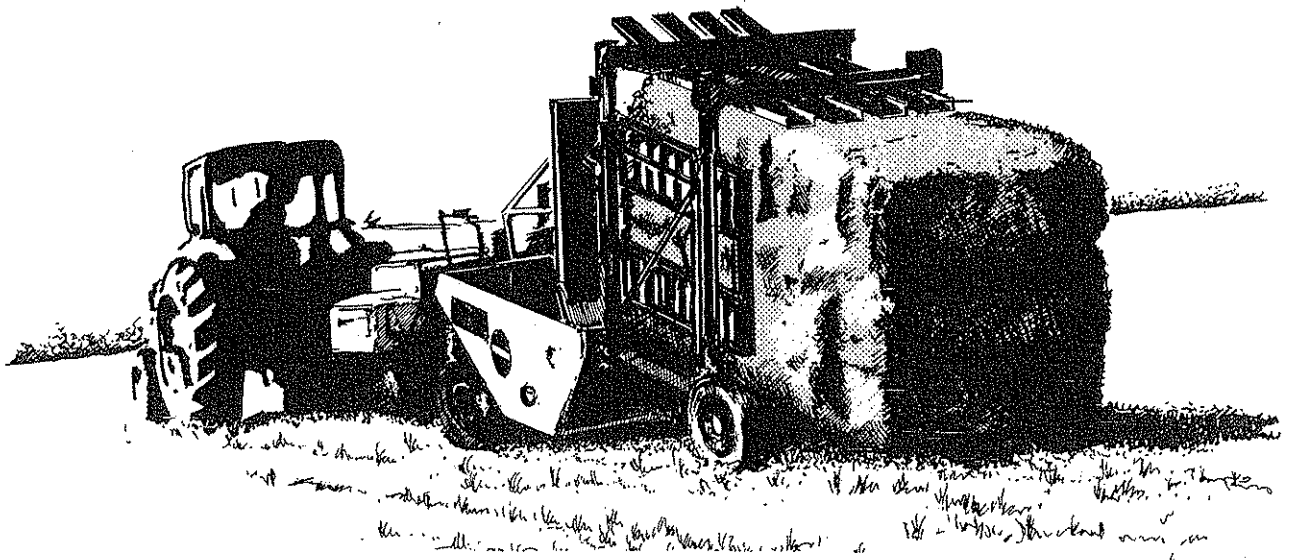


# Instruction and Spare Parts Manual

# BALEPACKER MARK III



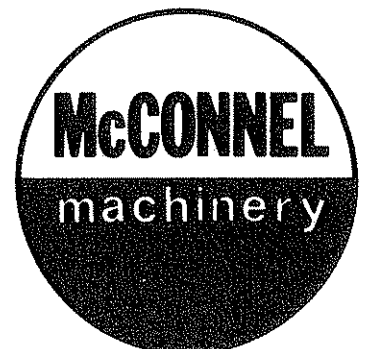
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## INTRODUCTION

Read this manual before fitting or operating the machine. Whenever any doubt exists contact your dealer or the McConnell Service Department for assistance.

## DEFINITIONS

The following definitions apply throughout this manual:

### WARNING

An operating procedure, technique etc., which can result in personal injury or loss of life if not observed carefully.

### CAUTION:

An operating procedure, technique etc., which can result in the damage of either machine or equipment if not observed carefully.

### NOTE:

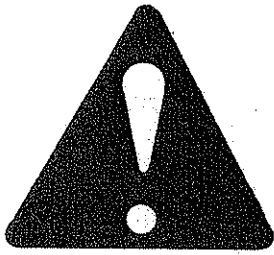
An operating procedure, technique etc., which is considered essential to emphasise.

### Left and Right Hand

This term is applicable to the machine when fitted to the tractor and viewed from the rear. This also applies to tractor references.

Record the serial number of your machine on this page and always quote this number when ordering spares. Whenever information concerning the machine is requested remember to also state the type of tractor to which it is fitted.

MACHINE SERIAL NUMBER		INSTALLATION DATE
MODEL DETAILS		
DEALERS NAME		
DEALERS TELEPHONE NUMBER		



# **WARNING**

## SAFETY PRECAUTIONS

- NEVER
- ... Attempt to make any adjustments while the hydraulic supply is switched on at the machine.
  - ... Clamber over the machine or otherwise attempt to reach in to clear a machine blockage without first making the machine safe with the isolation valve and stopping the tractor engine.
- ALWAYS
- ... Keep all guards in place while working – they are for your protection.
  - ... Before starting work check the drawbar attachment bolts on the Baler for security.
  - ... Park machine on level ground before disconnecting from the baler.
  - ... Block one of the rear wheels before removing Drawbar Pins allowing the machine to slew to the transport position.
  - ... Use a tractor with sufficient power and weight when operating on sloping ground.
  - ... Operate the machine whenever possible up and down rather than across a slope.

## SECTION 2.

### 1. SELECTION AND PREPARATION OF TRACTOR

The fully laden weight of the Balepacker can be in excess of 2½ tons, add the weight of the baler and take into account the probability of working on soft or sloping ground when deciding on the choice of a tractor.

The hydraulic system of the tractor must be in good condition with a minimum relief valve setting of 2200 psi and a minimum flow rate of 5 gpm. For an average operating speed of one bale every five seconds a flow of 7 gpm is required.

The Balepacker should not be powered by tractors that utilize part of their hydraulic delivery or return flow for essential services like power steering, brakes or gearbox lubrication unless cleared for such use by their dealer or by F.W. McConnel Service Department.

John Deere tractors which have a 'closed centre' hydraulic system can be used satisfactorily provided that the unloader valve on the Balepacker is screwed in completely. Consult Service Bulletin HY/02 for further information on the John Deere hydraulic system.

Ford tractors equipped with Dual Power can be used provided that a return by-pass valve is installed. This valve divides the return line oil to give a constant 1½ gpm at 50 psi to the transmission system for lubrication, the remainder of the oil is returned to the tractor via the gearbox filler cap at a greatly reduced pressure. The return hose by-pass assembly, part no 80 02 279 is 'works' calibrated and supplied complete with tractor return connection adaptor and hoses.

On Ford 600 & 700 line tractors which are equipped with 'Q' cabs, no provision is made for a filler cap on the gearbox housing. These tractors which are fitted with hydraulic cooler transmission pressure lubrication maintain a back pressure in the system up to a maximum of 45 psi. The return hose from the Balepacker must be connected into the lubrication system at the cooler valve manifold cap nut. Use McConnel return kit part no 80 02 284.

Alternatively, Fords can supply a return kit under their part no SF670 191 S1 and SF 670 179 S1.

Recommended oil. The Balepacker has been designed to operate on a wide range of oils which are found in the hydraulic systems of modern tractors.

Oil change. To reduce the risk of contamination by dirt and condensation it is strongly advisable to change the oil in the hydraulic system of older model tractors and those that have done a great deal of work.

## 2. SELECTION AND PREPARATION OF BALER

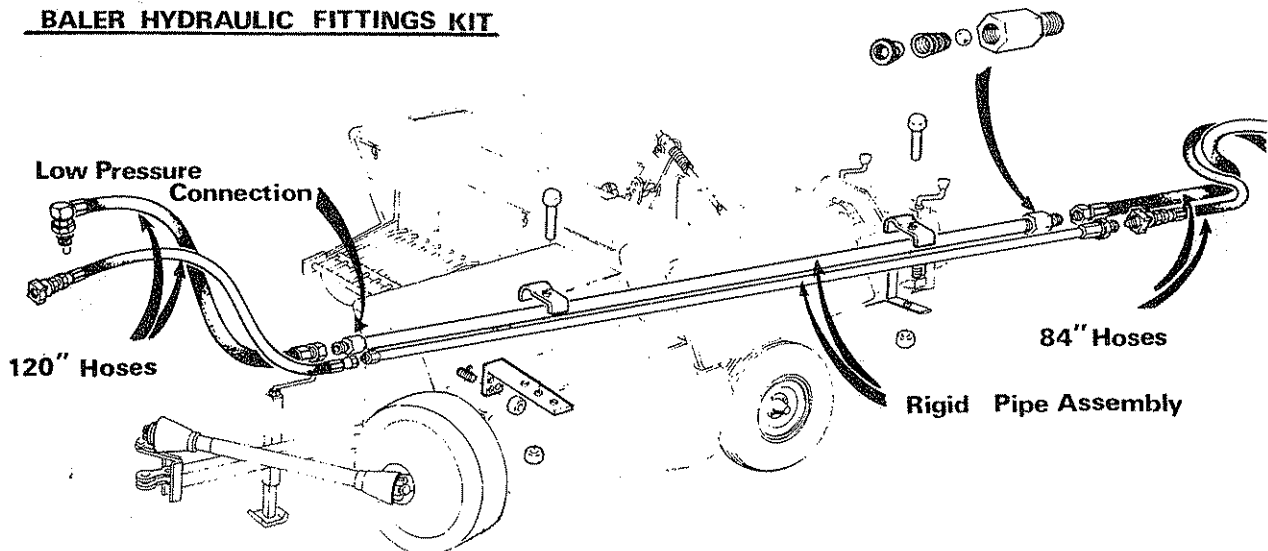
a) It must be realised that the performance of the Balepacker is entirely dependent on the efficient functioning of the tractors hydraulic system and the reliability and output of the baler. It is most important that the baler is in first class condition and particular attention should be paid to the setting-up of the knotter mechanism, the bale length register and trip device. Both the fixed and plunger knives should be sharp and correctly set up so that bales are completely separated.

b) Drawbar An essential requirement of the Balepacker is a reasonably straight bale. Lowering the tractor hitch point raises the rear end of the baler, allowing the bale to emerge onto the bale platform in as straight a line as possible. Added advantages to lowering the hitch point will be improved ground clearance of the towbar assembly and improved visibility of the emerging bales.

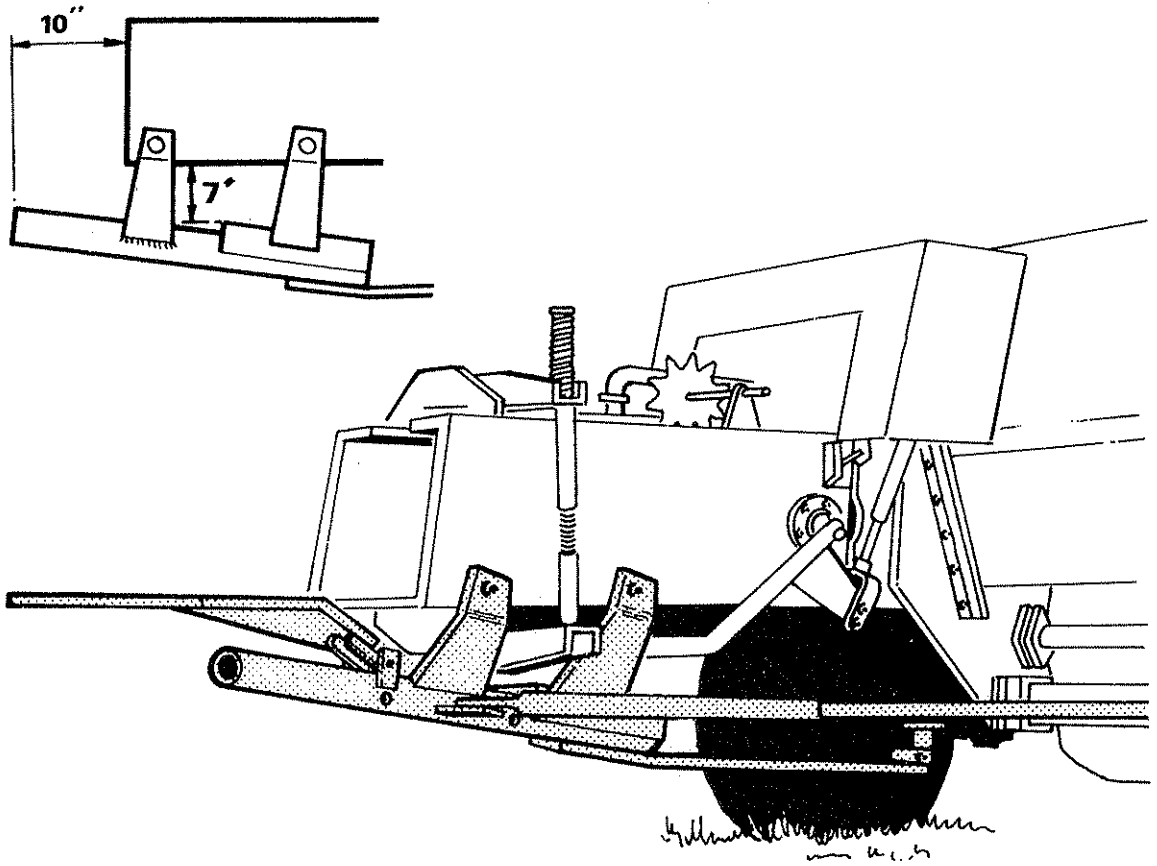
c) Bale Dimensions The Balepacker will accept bales of 18" x 14" and 18" x 16" up to a maximum length of 44". It is recommended to tie bales of 38" to 40" in length. If short bales are being produced difficulty can sometime be experienced in getting sufficient pressure on the gripper arms for lifting the pack. It is also more difficult to get sufficient side-gate pressure to tie a firm pack. Regular shaped bales of equal length and density will reduce the number of blockages that may occur in the Balepacker. Careful preparation of the crop with even, tidy windrows prior to baling can have an enormous effect on the quality of the finished bale. In the interests of economy, to reduce the amount of twine used, as well as the number of journeys involved in travelling between field and stack, the bales can be made rather longer and heavier than is usual when manual handling is involved.

d) Hydraulic Installation The illustration shows a typical hydraulic pipe installation to a baler. Note that both pipes can be bent slightly to requirements when attaching the front mounting bracket to a convenient point on the baler.

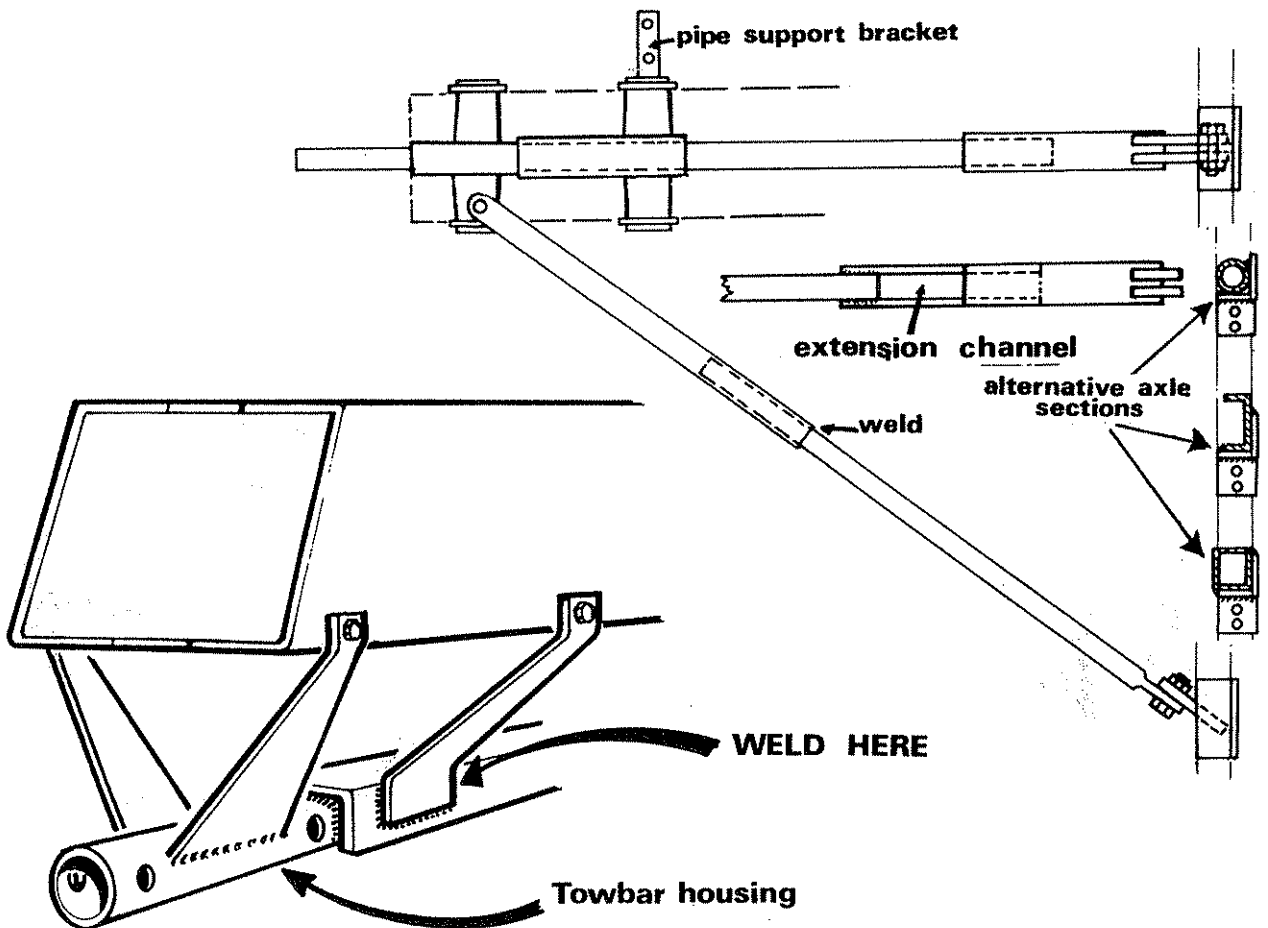
### BALER HYDRAULIC FITTINGS KIT



#### 4 Bolt attachment



#### Towbar fitting details



e) Fitting the Towing Attachment.

The basic kit is designed to fit most balers and comprises a tow bar housing which is rigidly bolted to the bale chamber by means of two brackets. The forward end of the towbar housing is then welded to a bracket that is pinned to an assembly welded to the main baler axle.

The order in which the fitting is carried out is as follows:-

Note: Access to an electric power point for drilling, and welding equipment is essential.

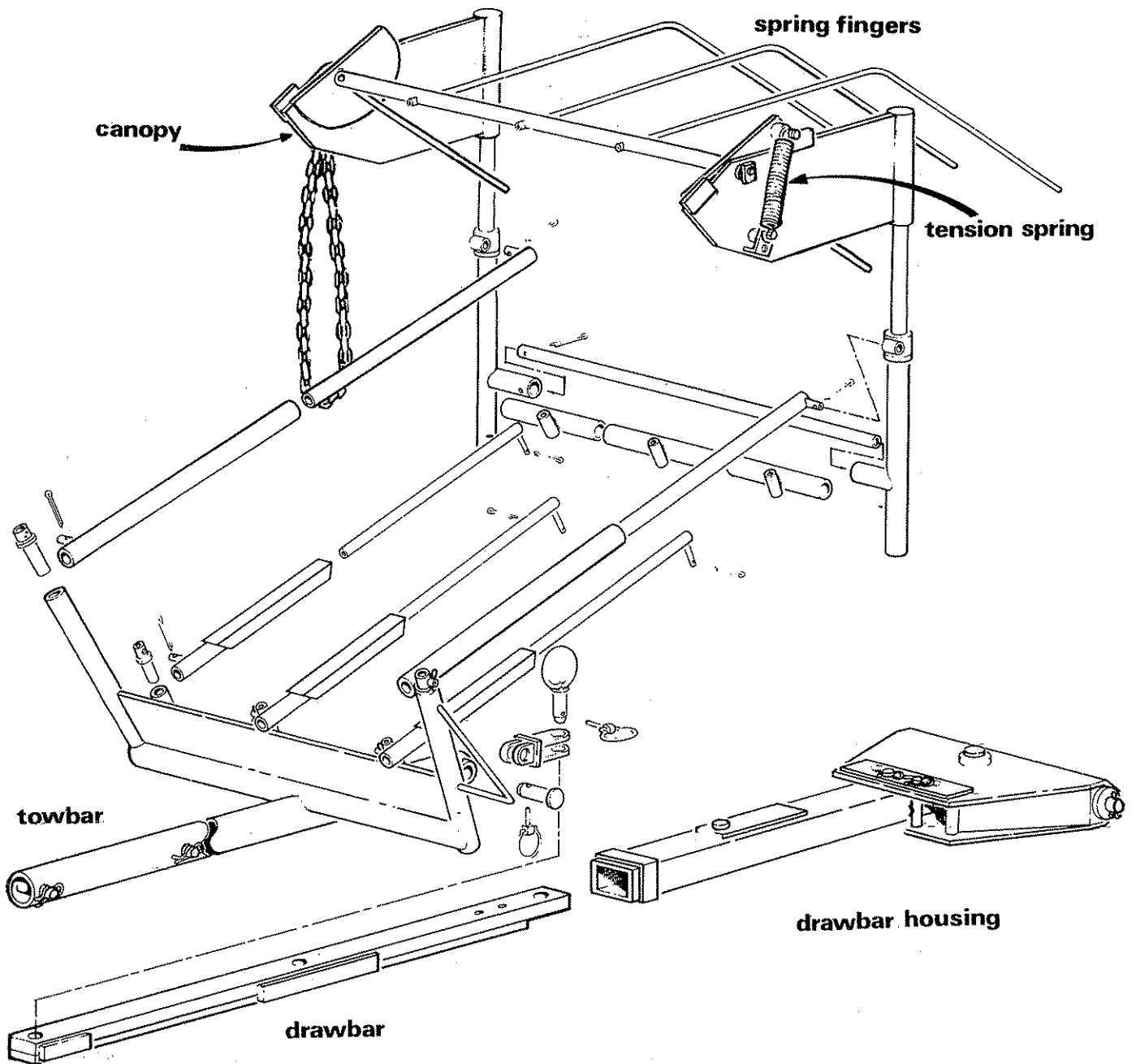
- i) Offer up the towbar housing to the underside of the bale chamber and locate the rear brackets so that the tubular section extends approx. 10" beyond the end of the bale chamber as shown in the diagram opposite. Mark and drill the bale chamber and bolt up loosely.

Swivel the housing around the two bolts to obtain a measurement of approx. 7" between the bale chamber and the top of the housing. Block in this position.

Drill and bolt the two cranked brackets to the bale chamber as far forward as possible and clamp against the channel section of the towbar housing. Recheck measurements and weld securely. before tightening the housing bolts.

The pipe support bracket can be welded to either the front or rear towbar housing bracket.

- ii) Locate and weld the box section lug to the mounting angle which is then aligned and welded to the baler axle as shown in the diagram. Alternative methods of welding to round, square and channel section axles are also shown.
- iii) Loosely bolt the diagonal strut in position and locate the mounting lug in the widest possible position on the axle before welding. Weld the two halves of the strut firmly together where they overlap and then tighten the bolts.
- iv) Balers that have a chamber of 70" or more in length require an extension piece welded to the forward end of the tow bar housing.



### Bale Chute and Canopy Installation

The towbar should be inserted in the towbar housing on the baler and the telescopic steel pipes which form the chute fitted as shown in illustration. For transportation, the lower ends of the pipes can be withdrawn from their sockets on the towbar, gathered up and held against the canopy by the chain provided. It is not necessary to dismantle any of the assembly.



## SECTION 3.

### HOW IT WORKS.

Bales leaving the baler are pushed up a chute and enter the front of the machine individually via a sloping ramp. Complete separation of the bales is vital to enable the Balepacker to work, and the emerging bale as it is pushed up the chute can be clearly seen by the operator.

When the machine is switched on hydraulically by the isolation lever, constant pressure is maintained to the gland ends of all the rams the whole time.

As the bale slides down the ramp, assisted by feed rollers, its weight is sufficient to 'trigger off' a ram operated swing arm which, when at rest, is close against the side of the main frame and held there by an 'over centre' mechanism.

A swinging deflector plate is held in position by a mechanically operated peg in the floor of the platform. It ensures that the bale strikes the trigger end-first. The trigger releases the over-centre mechanism of the swing arm which immediately releases the peg holding the deflector and sweeps the bale round through an arc of  $90^{\circ}$  to place it on the lift forks. The deflector plate is pushed aside by the bale action and is returned to its parked position by spring assistance.

As the bale is turned onto the lift forks it strikes a trip lever set in the rear of the main frame which returns the swing arm.

This trip lever through linkage operates a tappet on the sequence valve and oil is passed via a multi-directional lift control valve to the swing arm ram returning the swing arm to the side of the frame.

When in the parked position, the swing arm opens the lift control valve by a mechanically linked rod, allowing oil to flow to the ram beneath the lift platform. The bale is lifted into position in front of the pusher plate and is held in place by one way pusher flaps.

When the platform is fully raised, a striker plate attached to the platform operates a tappet on the sequence valve. The oil pressure to the base end of the ram then collapses and the platform drops. As the platform descends, it advances by means of an adjustable striker plate a profiled camwheel 'A' by one peg. This operation is repeated three times. On the fourth stroke, the profile on the cam lifts a roller which in turn operates the pusher in tappet on the sequence valve and oil is diverted to the twin pusher rams. The pusher forces the column of bales to the rear and the needles enter the knotters which do not tie.

Attached to the pusher is an arm which operates a tappet signalling the platform to lower, thus the platform can only drop when the pusher is extended to its maximum. At the bottom of its platform stroke the 'pusher out' tappet is operated by a striker plate on the platform and the pusher returns due to collapse of oil pressure in the base ends of the pusher rams.

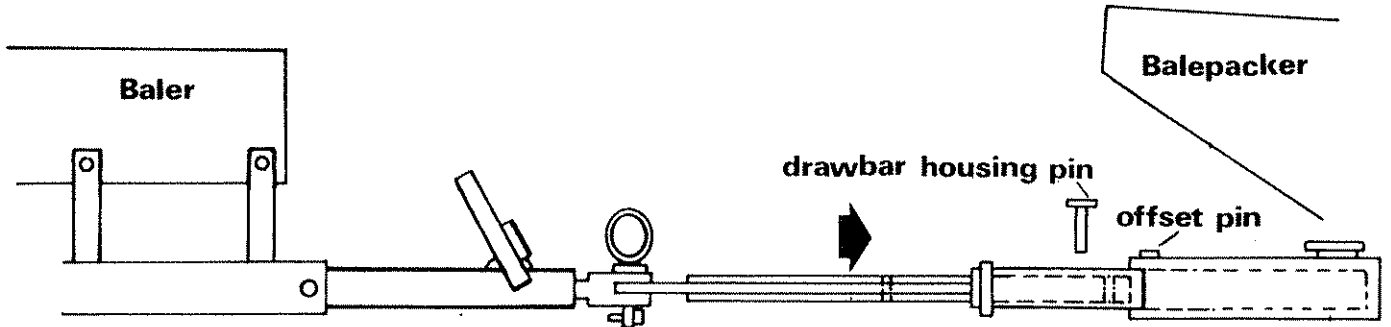
As the platform drops, this same arm also advances a second camwheel 'B' by one peg. After the appropriate number of strokes, the raised profile on camwheel 'B' triggers off the knotter clutch and the knotters operate to form a completed pack.

### Section 3 OPERATION

#### 1. Hitching Balepacker to Baler.

This requires a certain amount of operator technique.

- a) Remove offset pins in the hitch-housing and the drawbar housing pin.
- b) Telescope the drawbar and swing to one side.
- c) Reverse baler to its approximate position, extend drawbar and swing it into place.
- d) Reverse the baler to telescope the drawbar and locate it into its required position.
- e) Relocate offset pins and drawbar housing pin and secure with linch pins.

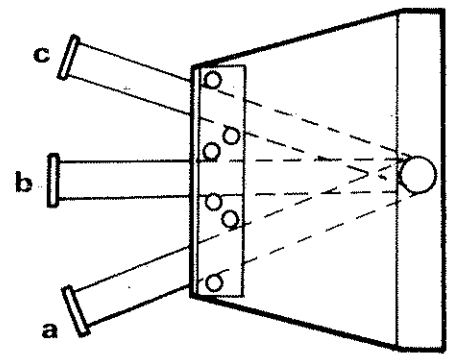


#### 2. Travelling

Three hitch adjustments are provided:

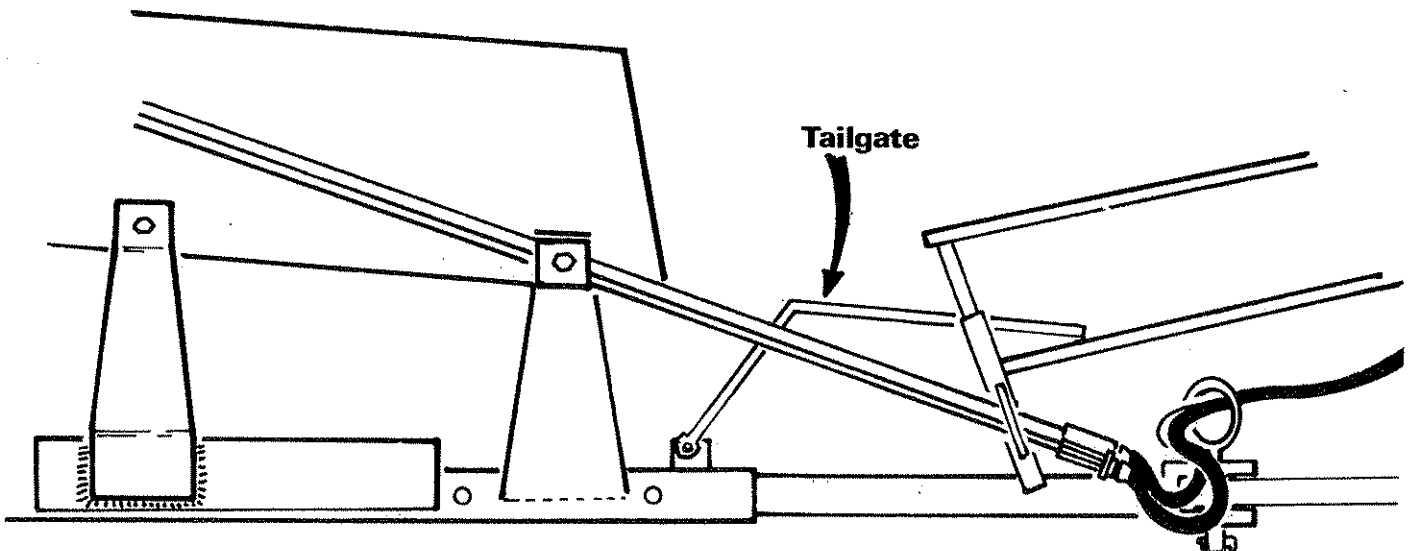
- a) On the road behind a baler.
- b) On the road behind a tractor.
- c) In the field behind baler.

Note. When towing behind tractor in position (b) use the drawbar in extended position.



#### 3. Attachment of Tailgate & Chute

Refer to diagram below for assembly. Note that the tailgate should be adjusted to support the bale level as it emerges from the bale chamber.



#### 4. Coupling up the hydraulic system

- a) Make sure the isolation lever on Balepacker is in the SAFE position.
- b) Place tractor quadrant lever in neutral.
- c) Fit the return hose to the filler plug connection on tractor.
- d) Couple the high pressure hose from the baler to the tractor self-seal coupling on its external services connection.
- e) Couple both the supply and return hoses that are fitted to the Balepacker. They should be passed through the ring in the top of the drawbar pin.

#### WARNING

It is most important that the return line to the tractor is unobstructed. Under no circumstances should a self-seal coupling be used in the return line which could cause a blockage. A pressure build-up in the return line could cause both the lift platform and pusher to operate even when the isolation lever is down in the 'SAFE' or 'STOP' position.

- f) Operate the tractor quadrant lever to charge the Balepacker hydraulic system.
- g) After a few seconds running, when all air has been 'purged' from the lines, the unloader valve will be heard to operate. This indicates that the hydraulic system is fully charged and it will be accompanied by a change in the engine exhaust note as the tractor 'comes off load'. The flexible hoses will also be seen to 'kick' or flex when the valve operates. Observe the pressure gauge on the manifold block which should be registering approx. 2000 psi.

If the tractor is unable to raise any pressure, check that external services has been selected on tractor; the self-seal couplings are fully engaged and the unloader valve is not sticking, (see Unloader valve adjustment page

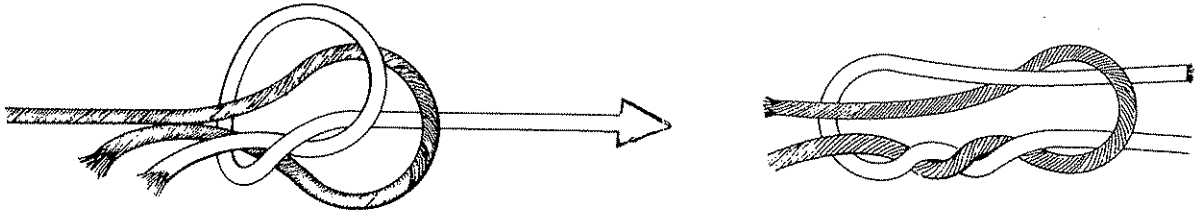
- h) After initially running up the Balepacker, the oil level in the tractor's hydraulic system should be checked.

#### Important Note

At all times when starting-up the Balepacker, and especially at the beginning of the season, the engine RPM should be reduced to high idle speed when selecting tractor external service. This reduces the risk of the initial surge of oil raising the by-pass relief valve in the manifold which would allow unfiltered oil to enter the system.

5. "Stringing up"

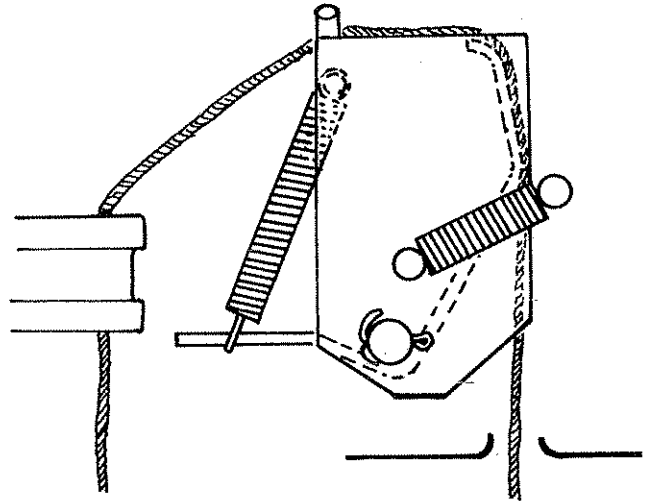
- a) Twine specification – heavy duty polypropylene.
- b) Four balls of twine can be held in the twine box. Both types of knot illustrated have been found satisfactory when joining the twine.



One twine pack i.e. 2 balls of twine will tie approx. 100 packs of 20 bales.

c) Twine tension

The twine tension boxes are mounted above the balls of twine inside the container. The twine is threaded through the box and tension is applied by a spring loaded slipper arm. The spring position should be adjusted so that a pull of approx. 6 pounds is required to draw the twine out.



d) Threading needles

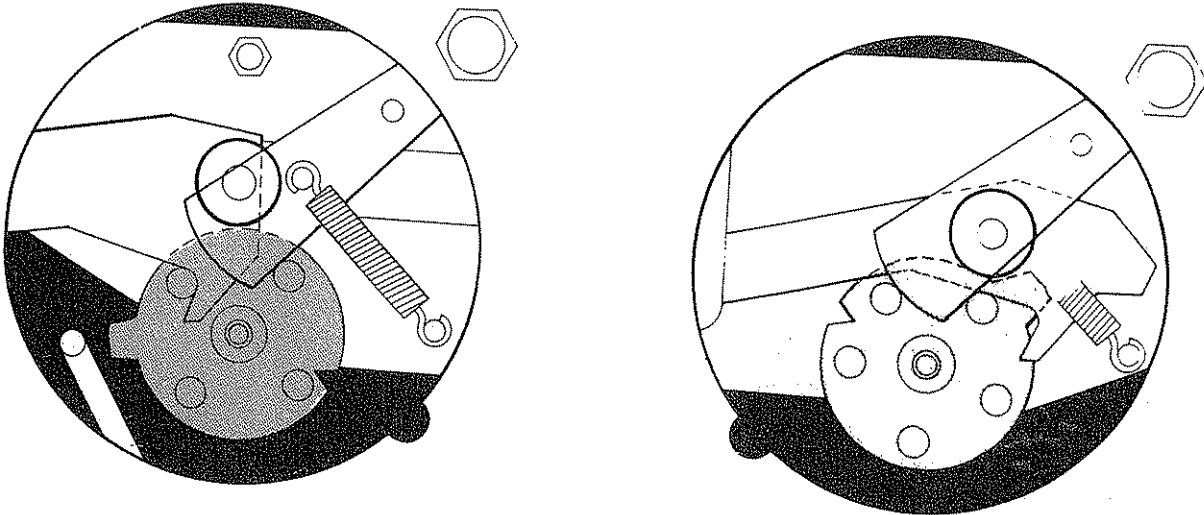
A minimum amount of twine should be drawn out from the twine tension boxes, passing through the porcelain slip rings and behind the pusher crossbeam before entering the funnel on the back of the needle. Pass the twine up through the needle eye and pull up all slack twine when securing the twine end to a fixed point of the pusher.

6. Selecting pack size

A pack size of either 16 or 20 bales can be made. Packs are stacked four bales high and the length is determined by fitting either the 4 peg or 5 peg counter cam to give a 16 or 20 bale pack respectively.

## 7. Counter cams

Cam 'A' controls the pack height and regulates the platform and pusher sequence allowing the pusher to go in on every fourth platform movement. Cam 'B' controls the length of the balepack by activating the knotter drive assembly on every fourth or fifth pusher stroke.



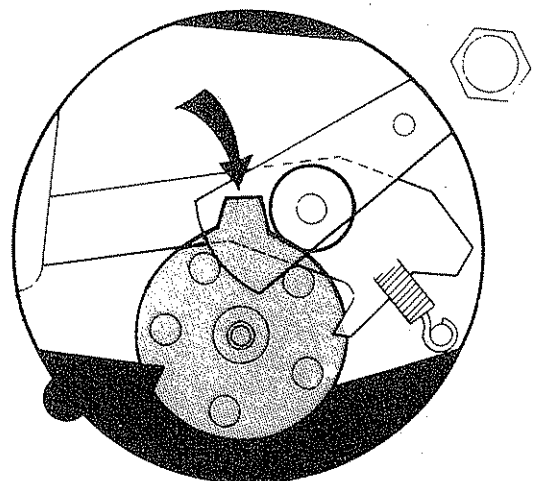
## 8. Cam setting

- If no twine is held in the knotters, zero both counter cams as indicated in the diagram. The bale trip lever can be operated with the machine empty and on the fourth platform raise, the pusher will move in and a knotter cycle will be completed, both twines should then be held in the knotters.

### CAUTION

Ensure side gates and top press are sufficiently loosened off, to give clearance to the pusher on its first stroke.

- If twine is held in the knotters advance Cam 'B' so that the profile is immediately in front of the cam roller (see diagram). Cam 'A' should remain at zero.



## 9. Starting the pack

Select external services on tractor and charge the Balepacker hydraulic system. Ensure the swing arm is in its parked position and move the isolation lever to the working position. The machine is now ready to receive its first bale.

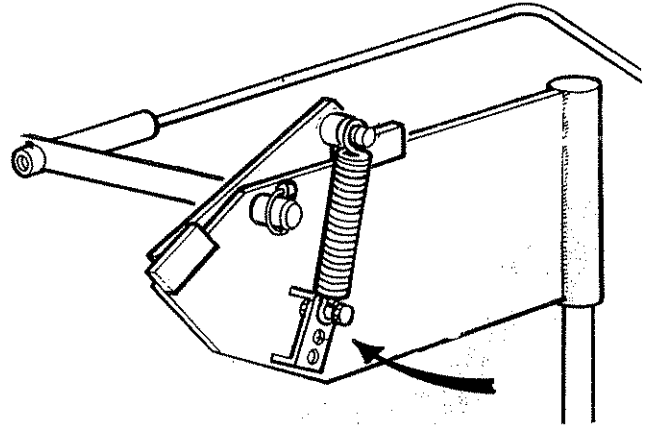
## OPERATIONAL ADJUSTMENTS

### WARNING

Before carrying out any operational adjustments, ensure that the isolation lever is down in the 'STOP' or 'safe' position and stop tractor engine. Ensure all guards are in position before starting work again.

#### 1. Canopy

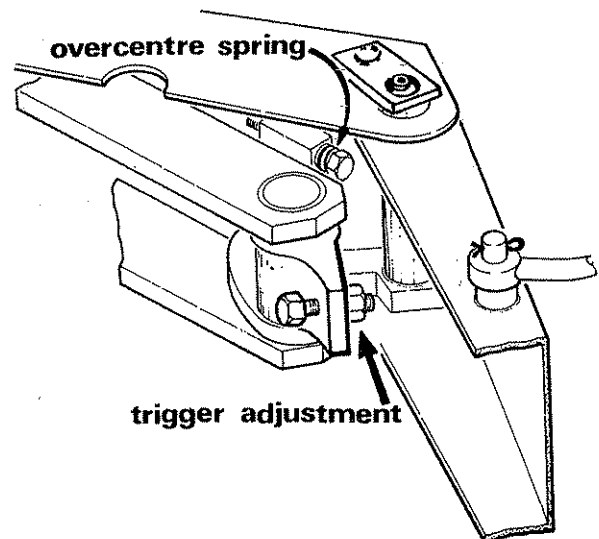
Tension on the canopy fingers can be adjusted by placing the spring anchor bolt in any of three positions. Additionally the fingers themselves can be bent to give more tension. Too little tension can cause the swing arm to swing round beneath the bale and be trapped. Too much tension can cause the bales to 'stick' on the ramp.



#### 2. Swing Arm and Trigger Adjustment

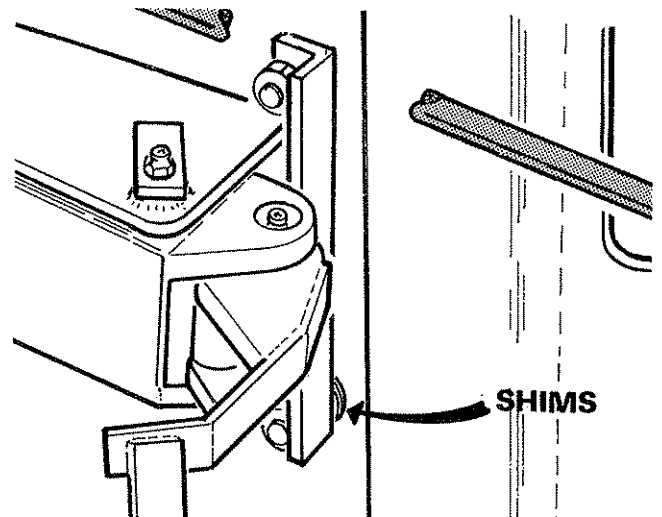
The swing arm turns the bale through  $90^\circ$  and lays it across the platform forks.

- a) Overcentre check. The swing arm must remain locked against any force that can be applied by hand at the end of the arm.
- b) Overcentre trigger spring. This is not an adjustment. It ensures that the overcentre link holds the trigger assembly in the locked position.
- c) Trigger adjustment. The trigger pressure for releasing the swing arm may need to be altered to suit the weight of bale. Adjust by screwing out the adjusting screw until a bale sliding down the platform is able to trip the mechanism. Lock the screw securely with the locknut.



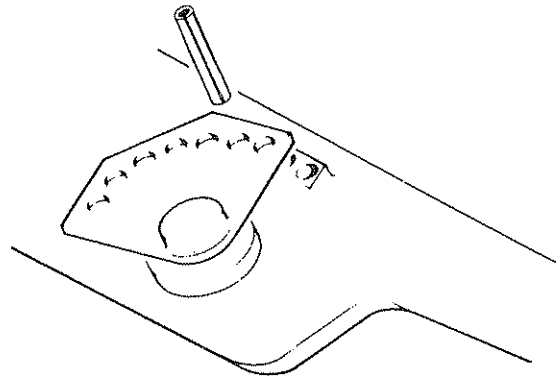
#### d) Swing arm alignment.

In operation, the swing arm travels through the opening in the bale deflector plate. Alignment of the swing arm is achieved by the addition of shims on the lower mounting bolt. If it is found necessary to remove the swing arm for servicing, these shims should be carefully replaced.



## 2e) Eccentric in

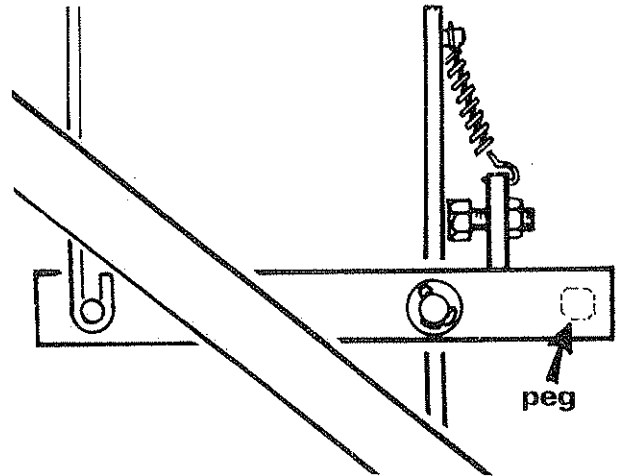
This adjustment is set at the factory and should only be altered if wear has taken place in the linkage after a long period of service. Engaging the roll pin through any one of a series of holes in the pin flange alters the position of the swing arm when in its parked position. The rubber buffer should just contact the swing arm when correctly set. When making adjustment, the roll pin should be removed by driving it right through the housing.



## 3. Bale Deflector Plate

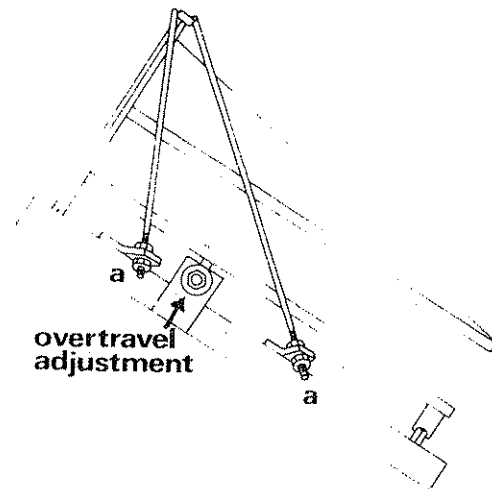
This is a guide which directs the bale endways to the swing arm trigger mechanism. It is prevented from moving by an interlock peg.

a) Interlock adjustment. The interlock peg is held in position by an arm which is connected to the trigger and adjustment is provided by a setscrew to centralize the arm under the peg.



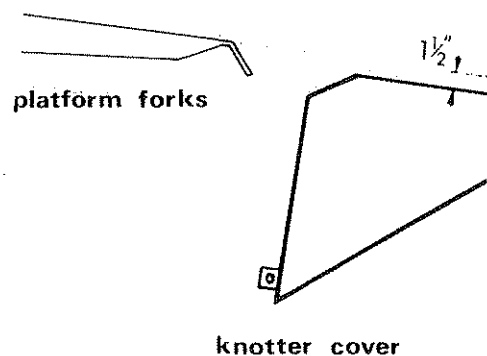
b) Parallel alignment. The hinge post can be adjusted by the nuts A on the two threaded rods so that the interlock catch clears the platform by approx. 3/8" throughout its arc.

c) Overtravel adjustment. The nut on the spring loaded rod must be adjusted so that the interlock catch when it returns to its parked position is just behind the interlock peg.



## 4. Lift platform adjustment

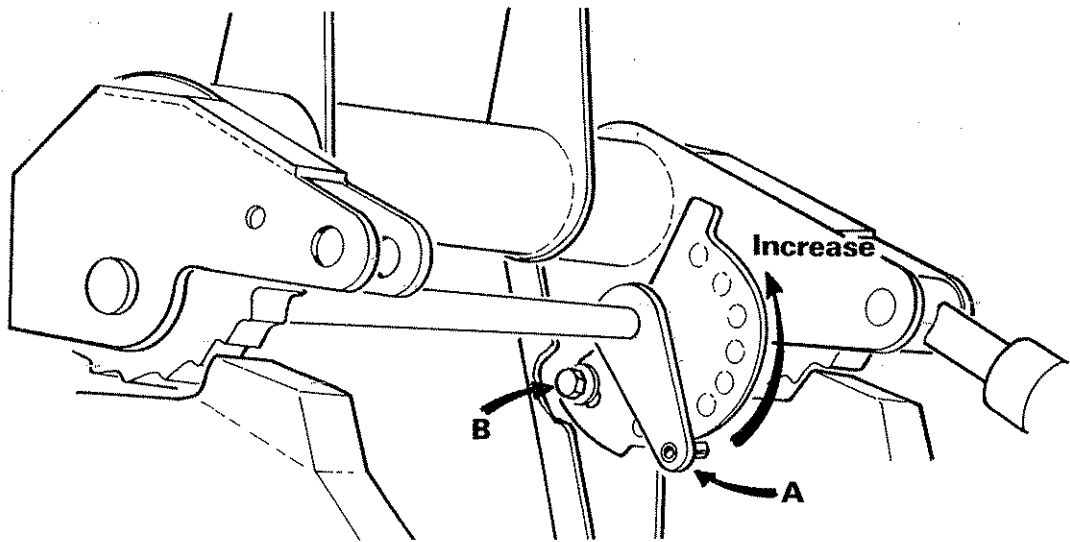
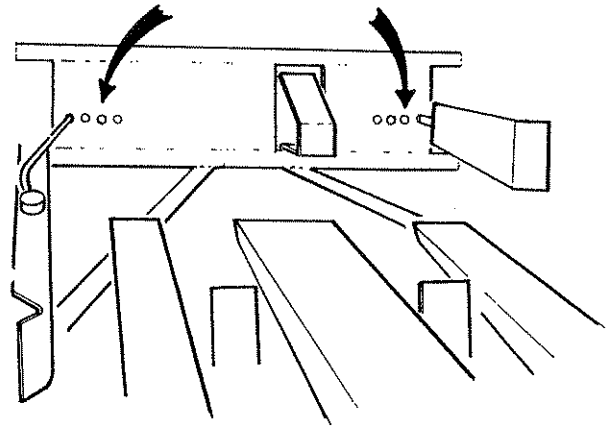
In the fully raised position the platform should be at least 1.1/2" above the knotter cover. This can be checked by placing a straight edge along the forks and extending over the top of the knotter cover. Adjustment is provided by a threaded tube under the platform. Should the material foul the knotter cover it is permissible to raise the forks. Excessive adjustment will result in slack twine around the bale packs. This is set at the factory and no further adjustment should be necessary.



## 5. Centralizing bale on platform

It is essential that the bale is placed on the platform forks so that the pack is built up centrally in the machine and the twines spaced equally from the bale ends.

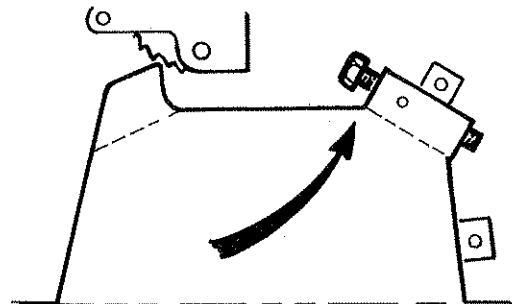
On level ground the bale will tend to be thrown to the left, so the correct adjustment on this side is most important. Some allowance must also be made for uneven lengthed bales. An extra long bale can become wedged between the two sides of the rods and so fail to engage the bale trip lever. Adjustment is made through a series of holes in the rear frame through which the rods can be positioned. A hole in the left side of the frame allows access to the spring loaded catch on that side.



## 6. Bale dimension adjustment

An adjusting cam is provided for altering width between the pusher and the formed column of bales. If the aperture is not wide enough, the lifting bale will foul the previous bale column. This dragging effect has the symptom of insufficient power on the platform stroke. If the aperture is too wide then the bale will tend to fall back down and twist. Adjustment of aperture width is made by closing the pusher tap, and opening it on a pusher stroke to allow the pusher to travel halfway before reclosing. Rotate the eccentric cam by moving the lever 'A' up or down. A spring loaded ball engages with indents on a register plate which is bolted to the inside of the pusher frame. The slotted bolt hole 'B' allows for marginal adjustment of the register so that the eccentric tooth on the cam can be fully engaged against the back-stop.

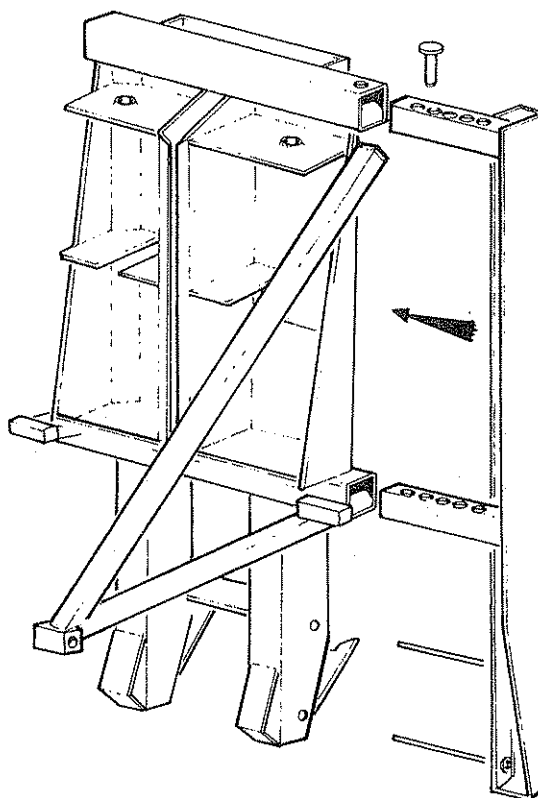
The large screw is an abutment stop for the pusher controlling the depth of the needles entering the knotters. This adjustment is pre-set at the factory and locked by a roll pin. It should not be disturbed unless major replacements are necessary.





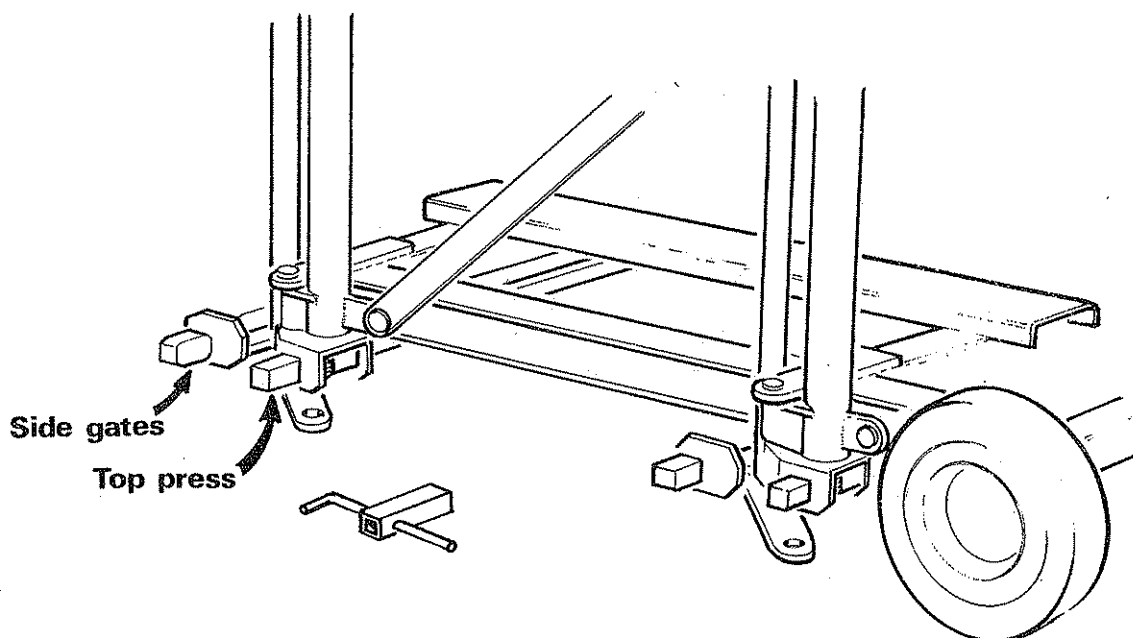
### 7. Pusher width adjustment

Adjustment of the side rails on the pusher assembly can be altered to suit the average bale length. The overall pusher width should be approximately 6" less than the bale length. If the pusher is too narrow, the bale ends will curl round as they are pushed into the side gates. Both side rails should be adjusted equally. A series of five holes on either side gives a variation of approximately 11" in pusher width.



### 8. Top press adjustment

When starting, the forward end of the top press should be slackened right off, and only moderate pressure applied at the rear. After the first pack, pressure should be increased at the front until the correct tension on the pack is reached. The rear adjustment should always have greater pressure than the front end.



### 9. Sidegate adjustment

The main purpose of the sidegates is to centralize the forming pack within the machine. When starting a pack only moderate sidegate pressure should be applied to the front end to hold the column of bales upright. After three columns of bales have been made apply pressure to the rear end.

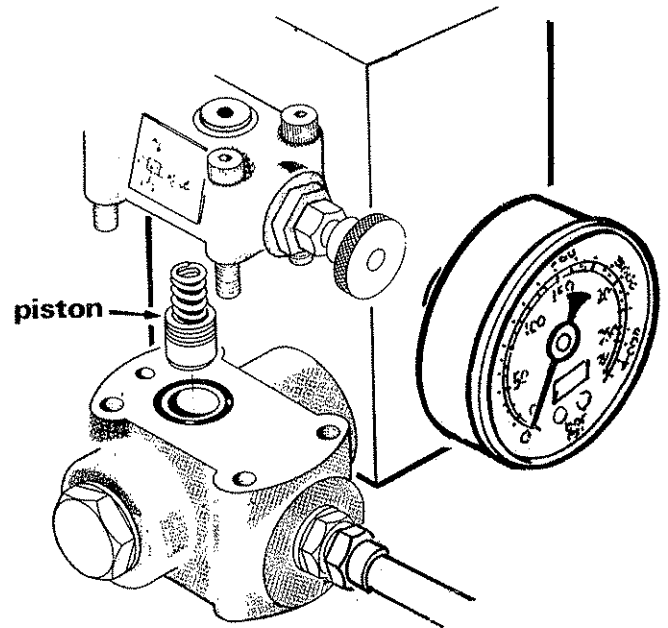
## HYDRAULIC ADJUSTMENTS

### 10. Unloader Valve adjustment

The unloader valve is provided to maintain pressure in the Balepacker circuit without constant loading of the tractor hydraulic system and resultant oil overheating. The valve is adjustable and must always be set to unload before the tractors relief valve setting is reached.

The pressure gauge situated on the side of the manifold should register a reading of 2000 psi and the unloader valve is set at the factory to this figure. If a considerable reduction in psi is required to allow the unloader valve to operate then the machine will lack power and the platform or pusher could 'stall' when fully loaded. During work and particularly in a knotting cycle if pressure falls below 1500 psi then the tractor oil flow is suspect and should be investigated.

Before attempting to dismantle the valve, remove the return pipe connection at the tractor to ensure that there is a steady return flow. If there is no flow, it is intermittent or aerated, the problem will be in the tractor. Check oil level, external services selection, and the self-seal couplings in the supply line for full engagement.



If there is a steady flow, and no pressure can be raised, then a sticking unloader valve piston can be suspected. It will be necessary to remove the four socket-headed screws and lift off the cap.

Lift out the return spring and extract the piston. Examine for dirt and contamination. Clean off and lubricate with oil before re-assembly. Do not use emery cloth on the piston and ensure that 'O' rings are in place before tightening down the cap evenly.

To adjust the valve, loosen the locking nut and turn the knurled wheel until a reading of 2000 psi. is obtained on the gauge before relocking.

Note. By screwing the knurled wheel fully in, the tractor's hydraulic relief valve pressure can be obtained.

11. Platform tap

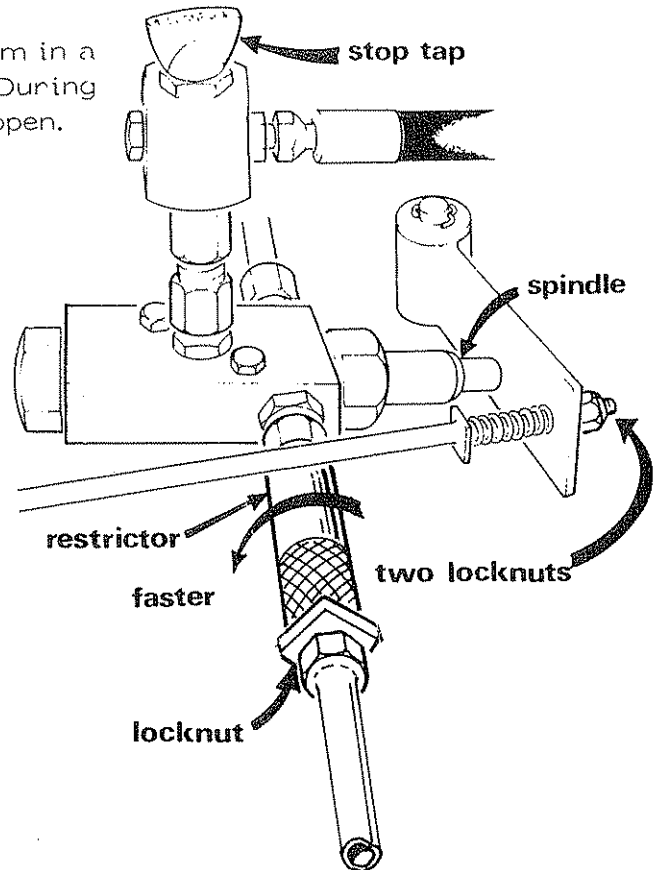
This tap is provided to hold the platform in a fixed position when making adjustments. During normal operation the tap should be fully open.

12. Lift Control Valve

Its purpose is to separate the operation of the platform from the swing arm so that the two do not meet. The valve is located on the main frame below the platform rollers.

With the swing arm in the parked position, the valve should be adjusted by tightening or loosening the self-locking nut until there is a further 1/8" of movement when the spindle is fully depressed by hand.

Note: Considerable effort may be required to fully depress spindle.



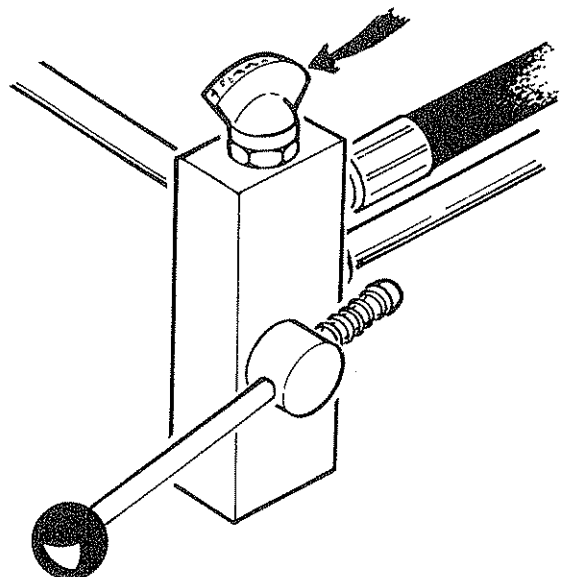
13. Swing Arm Restrictor

Situated in the hydraulic line between the lift control valve and the swing ram, this hand-adjusted restrictor can be set to regulate the speed of the swing arm. Too rapid an arm movement can fling a light bale and wedge it across the corner of the frame.

When making adjustment, the oil should be at operating temperature. Turn the knurled barrel of the restrictor anti-clockwise to increase arm speed (see above illustration). Secure barrel with the locking nut.

14. Pusher Ram

The tap which is situated in the top of the isolation valve controls oil flow to the base end of the pusher ram. It is provided for making adjustments only and should be fully open during normal operation.

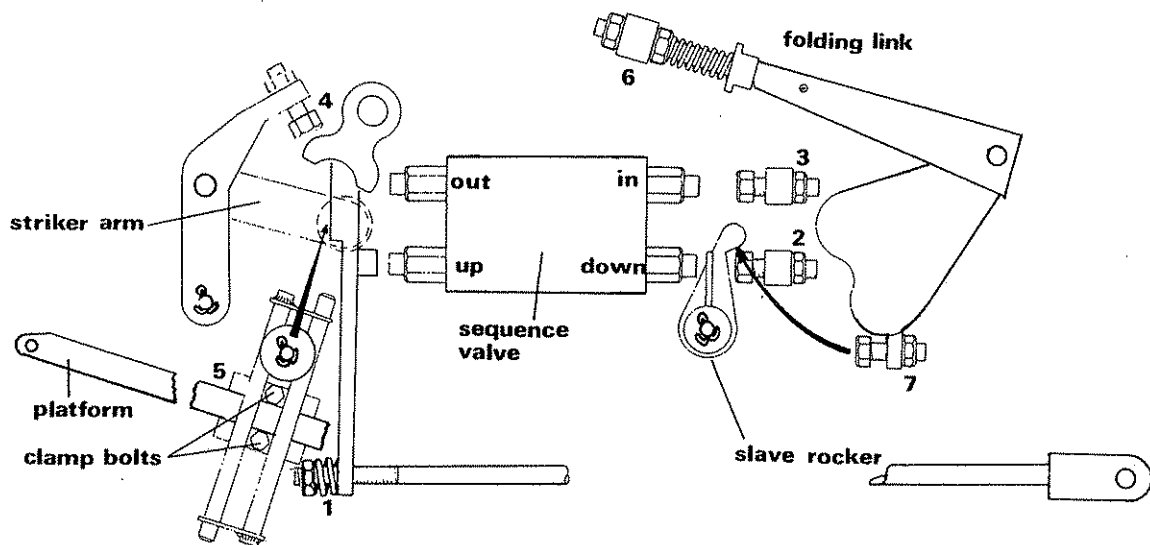


## 15. Sequence Valve adjustment

The operating tappets that control the operation of the sequence valve are correctly adjusted at the factory and their threads are sealed with a mastic sealing paint. If the sequence valve is removed or exchanged, it should not be necessary to readjust the valve tappets.

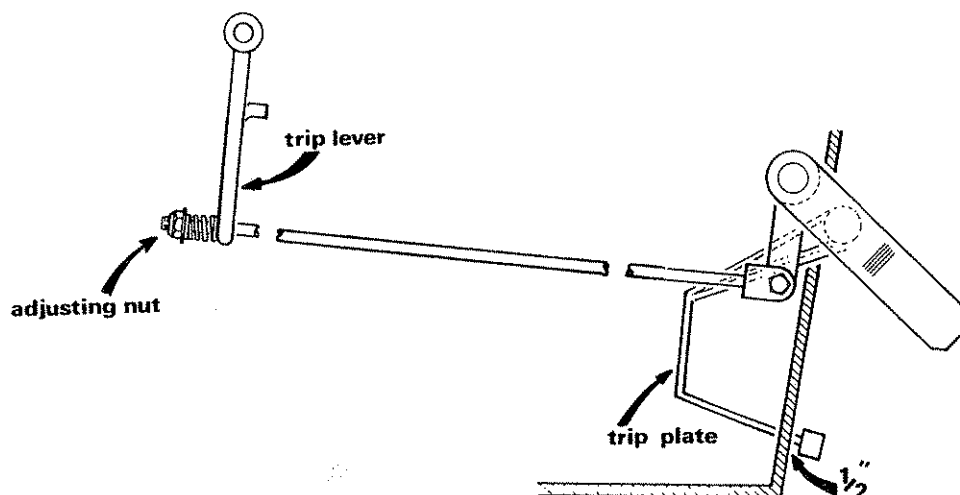
Tappet adjustment is critical. Adjusting one tappet can affect the operation of the others. If for some reason it becomes necessary to make a complete readjustment, then the setting up of the valve should be carried out in order of the numbering shown from No 1 to No 7.

Note. When making each adjustment ensure that all free movement is taken up in the various linkages, all return springs are in position, and when provided, the adjustment is firmly secured with the locknut.



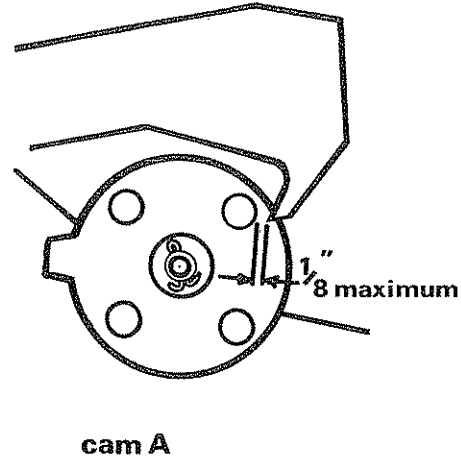
### Adjustment 1

- a) With the machine stopped, set counter cams to zero.  
See page 12 paragraph 8 (a).
- b) Operate bale trip plate and ensure that there is  $\frac{1}{2}$ " of free movement of the trip plate from the rear of the main frame before contact is made between the trip lever and valve spindle. Adjust to this clearance by the self-locking nut on the trip rod.



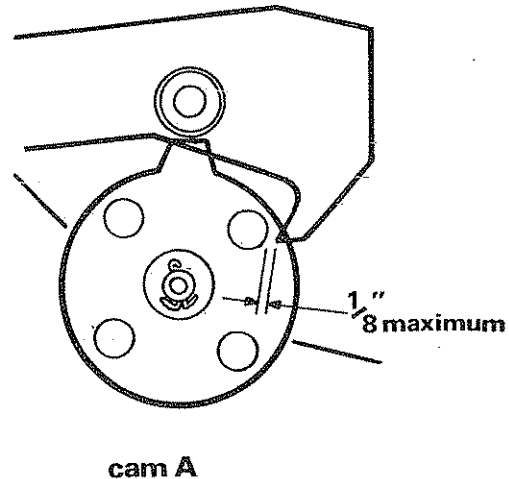
### Adjustment 2 - Platform down

- a) Close platform tap, start tractor, raise isolation lever and operate bale trip.
- b) Open tap and allow platform to raise about halfway before reclosing ie, the roller on the striker arm mid-way between upper and lower striker plates. Lower isolation lever and stop tractor.
- c) Raise the striker arm to remove free play at tappet 2 and check that there is clearance up to a maximum of 1/8" between the counterhook tip and the peg on cam wheel 'A'.
- d) Adjust tappet 2 to give minimal clearance and rotate cam wheel to check that clearance also exists on the other two pegs.



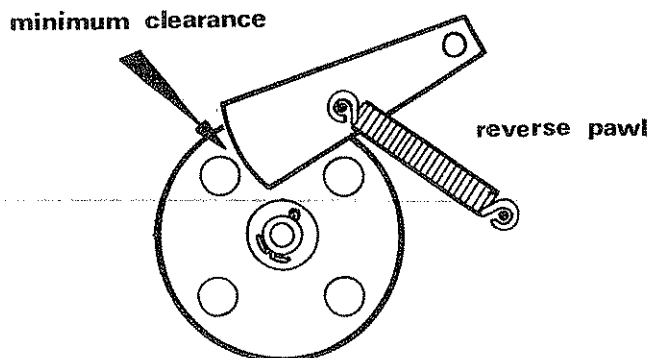
### Adjustment 3 - Pusher IN

- a) Select pusher stroke by rotating cam wheel 'A' until roller is lifted by profile.
- b) Raise the striker arm to remove free play at tappet 3 and check that there is clearance up to a maximum of 1/8" between counter hook tip and peg.
- c) Adjust tappet 3 to give a minimal clearance with contact just being made with the valve spindle.



### Adjustment 4 - Pusher OUT

- a) Press down striker arm until reverse pawl just drops down behind counter peg.
- b) Adjust tappet 4 to give this minimum clearance.
- c) Release striker arm and unscrew tappet 4 out two complete turns and lock.

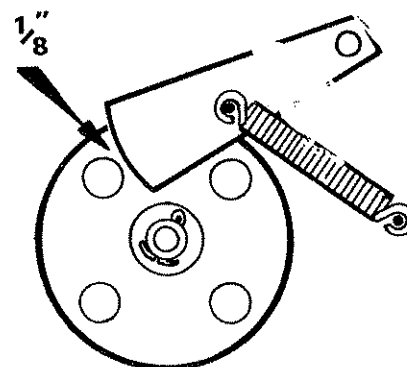
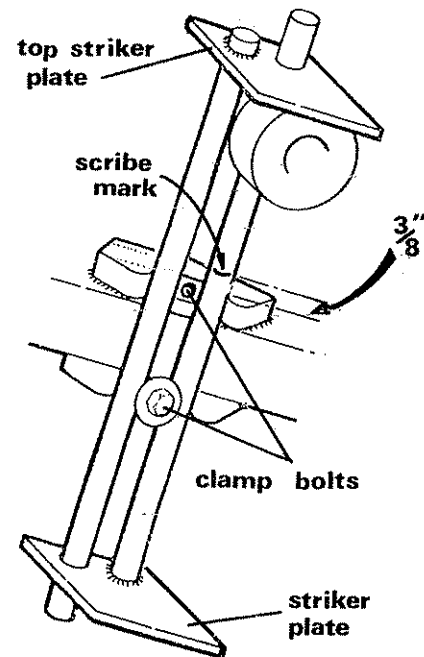
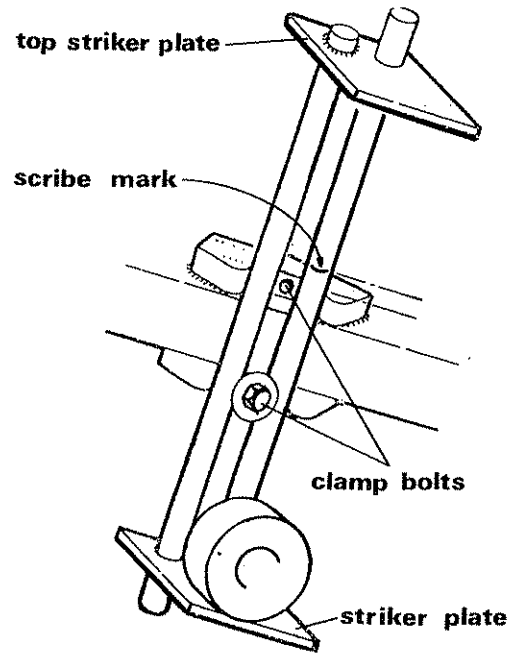


## Adjustment 5 - Striker rod adjustment

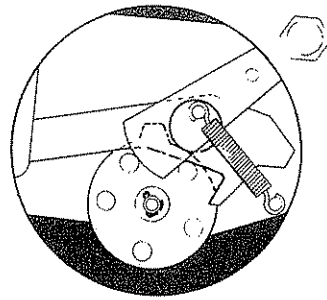
- a) Open tap to allow platform to drop.
- b) Set camwheel A on pusher stroke with roller on top of profile.
- c) Close pusher tap.
- d) Start tractor, raise isolation lever and operate bale trip lever. The platform will rise and remain at the top of its stroke.
- e) Close platform tap before lowering isolation lever and stopping tractor.
- f) Slightly loosen the striker rod clamp bolts and hammer up the lower striker plate until there is no clearance between striker roller and plate. Remember that free play must also be taken up at the tappet.
- g) A scribe mark or indent made by a centre punch is positioned on the lower striker plate rod flush with the top of the clamp block. Raise the mark a further  $\frac{3}{8}$ " by tapping the lower plate with a hammer.
- h) Open platform tap, start tractor and raise isolation lever.
- i) This next adjustment must necessarily be carried out with the gland end of the lift ram pressurised holding the platform against the rubber buffers. Standing in front of the machine, raise or lower the top striker plate to give an  $\frac{1}{8}$ " clearance between the reverse pawl and counterhook peg on Cam 'A'.
- j) Recheck the scribe mark on the lower striker rod to ensure that no movement has taken place before firmly tightening both rod clamp bolts.
- k) Lower isolation lever and stop tractor.

### CAUTION:

When the tappets and striker rods are correctly adjusted, approx.  $\frac{3}{16}$ " of tappet spindle should still be visible when they are fully depressed. Any finer adjustment will apply pre-load and result in internal damage to the valve.



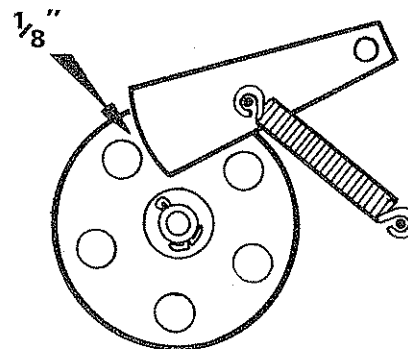
**CAUTION:** Before proceeding further, the knotter Cam 'B' should be rotated clockwise by raising the reverse pawl and turning the camwheel until the profile is immediately in front of the roller. This is done to prevent the operation of the knotters resulting in slack twine being entangled in them.



#### Adjustment 6 – Folding link adjustment

- a) Ensure link is in locked position and fully screw in tappet bolt No 7.
- b) Place cam wheel 'A' in pusher stroke ie. roller on top of profile.
- c) Close pusher tap.
- d) Start tractor, raise isolation lever and operate bale trip lever. The platform will raise, but the pusher is unable to move.
- e) Close platform tap.
- f) Open the pusher tap slowly and allow the pusher to complete its full travel, coming to rest against the abutment stop. If the pusher does not meet the abutment stop, the needle alignment must be checked before proceeding further.
- g) Isolate Balepacker and stop tractor engine.

- h) The threaded rod 6 in the locked position should now be adjusted to allow the reverse pawl of the knotter cam 'B' to drop behind the counter peg with 1/8" clearance between pawl and peg.

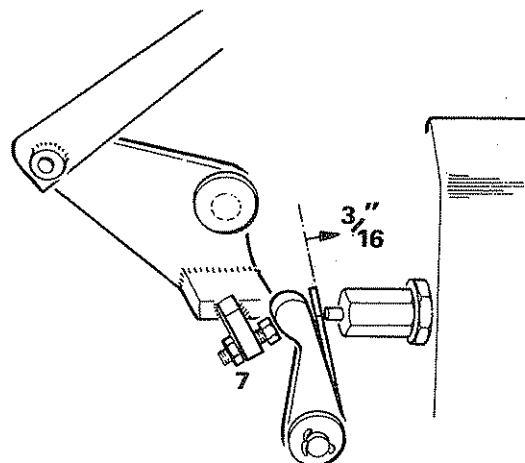


cam B

#### Adjustment 7 – Pusher slave rocker

Ensure platform tap is closed

- a) Screw out tappet 7 until it contacts the slave rocker.
- b) Continue to screw out until the rocker has depressed the spindle approx. 3/16" (approx. four full revolutions of the tappet bolt).
- c) Open pusher and platform taps – start tractor raise isolation lever and the pusher should return to its parked position.



## 16. Needle adjustment

When carrying out needle adjustments, the pusher should be firmly against the abutment stops and the pusher tap closed. If it has been necessary to remove the knotter cover to make adjustments the pusher should be operated very slowly by using the tap so that no damage will be caused and any misalignment may be remedied.

Three adjustments are provided for setting the needles:-

### i) Side to side movement of the needles

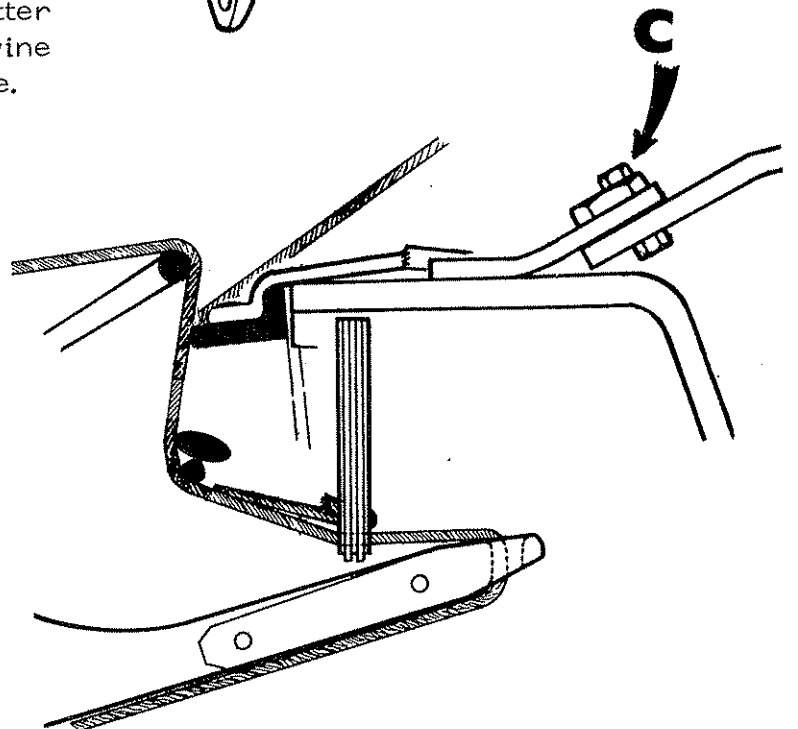
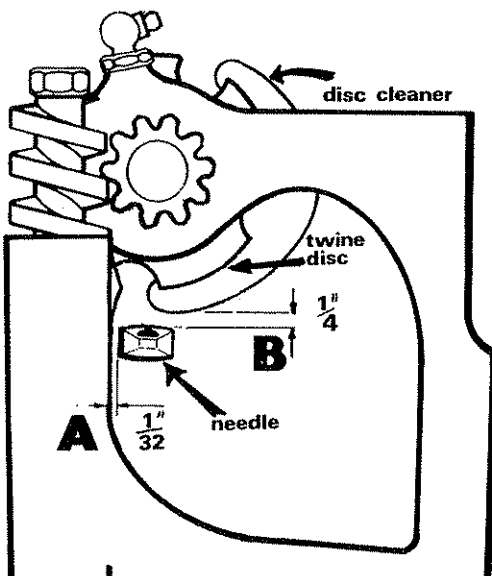
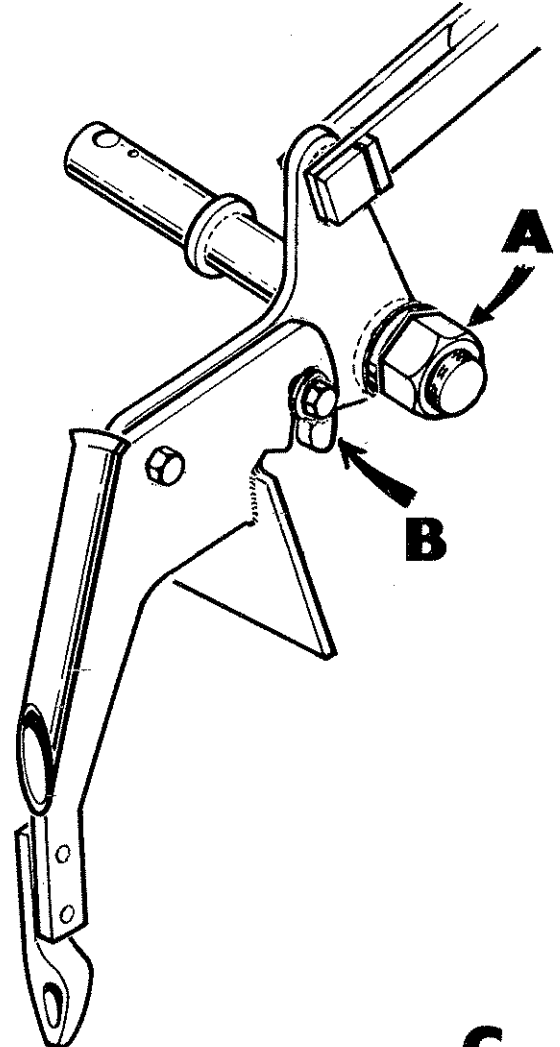
A clearance of approx.  $\frac{1}{32}$ " between the needle and the knotter frame must be maintained. Loosen off locknut 'A' and screw fulcrum pin in or out with a tommy bar through the hole provided before relocking nut.

### ii) Needle height

The lower section of the needle is pivoted and adjustment is provided for up and down movement of the needle by a slotted bolt "B". The needle end should have a  $\frac{1}{4}$ " clearance when it passes beneath the cleaners in the twine disc.

### iii) Needle arc

The distance which the needle eye travels beyond the twine disc can be altered through a limited range of movement by swinging the knotter forwards or backwards. An eccentric sleeve and locking bolt "C" is provided on the stripper arm support. The adjustment should be rotated until the twine finger carries the twine into the bottom of the stripper arm groove, holding it against the side of the knotter bills with the minimum of twine deflection when viewed from above.





## 17. Knotter adjustments.

We strongly recommend all owners and operators to examine closely the mechanism of the knotters, because familiarity of the function of the various parts will be of tremendous help in making any adjustments in a quick and easy manner.

All knotters are properly adjusted and tested before they leave our Works and they should work efficiently without immediate adjustments. If the Balepacker, when new, misses tying a few knots do not re-adjust knotter immediately, as this defect may be caused by paint on the knotter components. The Balepacker should be operated until the action of the twine smoothes out any roughness due to the paint. Also make sure that there is no grease on the bill hooks and twine discs; these parts should always be absolutely clean and smooth. If the knotter still fails to tie properly after this initial operation period, turn to the Trouble Summary Chart.

### a) Twine holder.

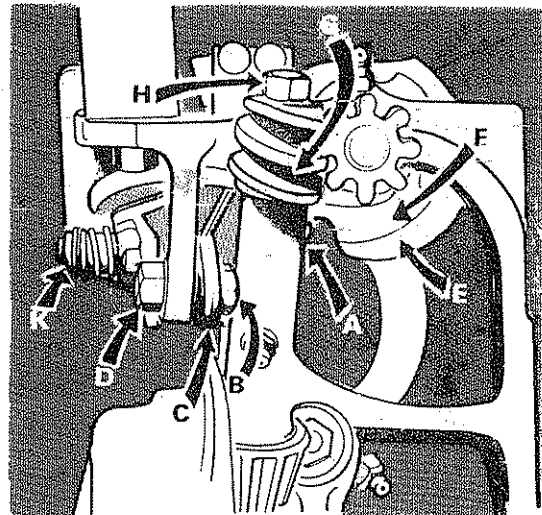
The twine holder (A) consists of a double plate which holds the twine in the disc under pressure from the two springs (C) which can be adjusted with the bolt and nut (B) & (D). Release the nut and tighten the bolt to increase the pressure on the springs.

If the pressure on the twine holder is too great, sufficient twine may not slip through the twine disc, resulting in the twine being broken at the bill hook.

Should the pressure on the twine holder be insufficient the twine may slip out of the twine disc as the pack is being formed.

If the above adjustments do not correct the problem:-

1. Reduce the tension on the pack.
2. Check that the pressure on the twine tension plates is correct.



### b) Twine disc.

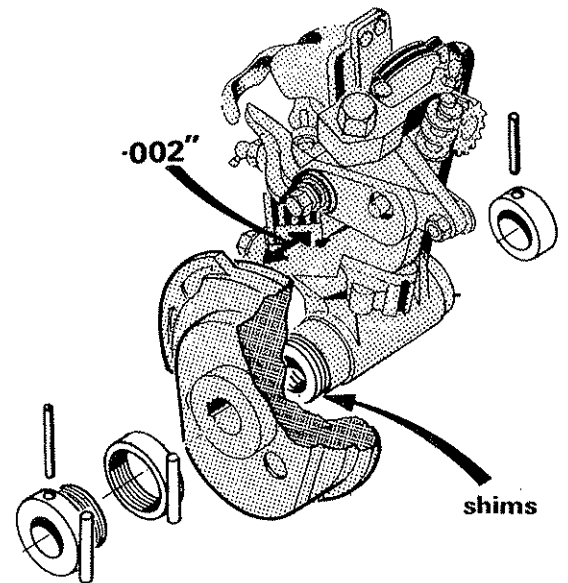
When correctly adjusted to receive the twine, the left side of the notch in the twine disc (F) should be positioned 1/16" in front of the edge of the cleaner (E) when the cleaner is moved to the left as shown. The twine disc can be adjusted to this setting by repositioning the worm gear (G) on the shaft.

To release the worm gear from the tapered shaft, unscrew the nut (H) and tap the worm gear along the shaft towards the nut. The worm gear can then be rotated as required in order to advance or retard the twine disc position. Finally, securely tighten up the lock nut (H) to lock the worm gear in the required position. Check that both knotters are timed the same.

### c) Knotter Bill tension

This is achieved by the tongue roller pressing against a spring-loaded cam and adjusted by locking nut (K). Excessive tension will cause the knots to hang on the bill hook while too little tension will result in loosely tied knots that will pull apart.

d) All free movement of the bill hook is removed and a light .002" rubbing clearance between the drive cam gear and the flat of the bill hook pinion is obtained by fitting of shims on the knotter shaft between cam gear and knotter frame. The screw type lock ring should be unwound to bear against the cam gear and the rings then bound with soft wire to prevent them becoming undone.



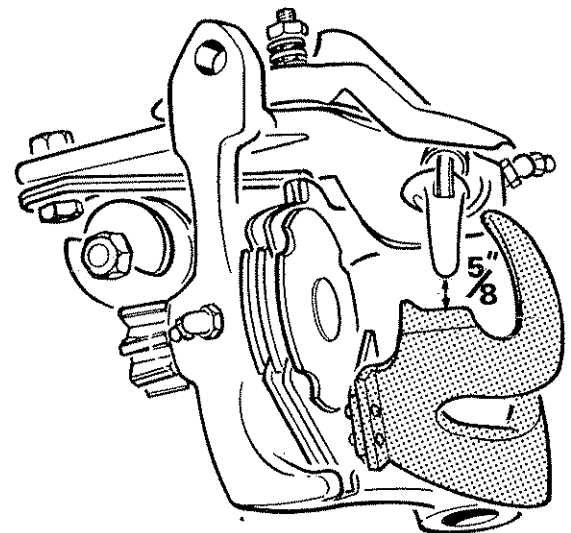
e) Stripper arm

As the bill hook rotates, the jaw opens and picks up twine from the twine disc. The stripper flange rides down the heel of the bill hook and strips the loop of the knot off the bill hook and over the two ends of the twine which are held by the tongue in the bill hook jaw thus completing the knot.

The stripper arm is properly adjusted when the stripper lightly rubs against the curved surface of the bill hook with sufficient pressure to cleanly strip the loop of the knot off the bill hook. Should adjustment be required, the stripper arm can be slightly bent, taking care not to overbend the arm or damage the knife.

If the stripper arm is bent down too far, it will be unable to ride back over the tip of the knotter-bill and the roller end of the stripper arm will be broken off.

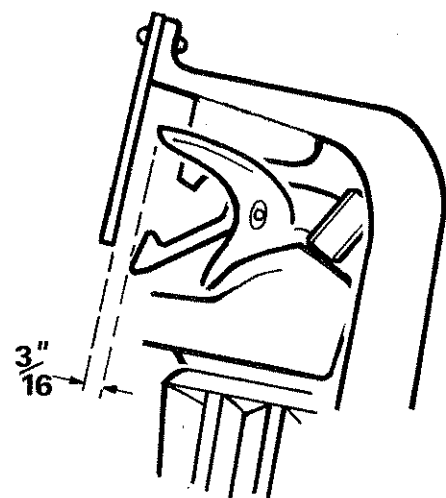
There should be a clearance of  $\frac{1}{2}$ " -  $\frac{5}{8}$ " between tip of the knotter bill and the stripper when arm is at maximum stroke.



f) Twine knife

A tungsten carbide tipped knife is riveted to the stripper arm and swings between the bill hook and the twine disc cutting the twine. Because heavy duty twine is used, it is most important that the knife is kept really sharp. The knife, though virtually self-sharpening, should be regularly checked. The stripper arm should be removed completely to sharpen the knife.

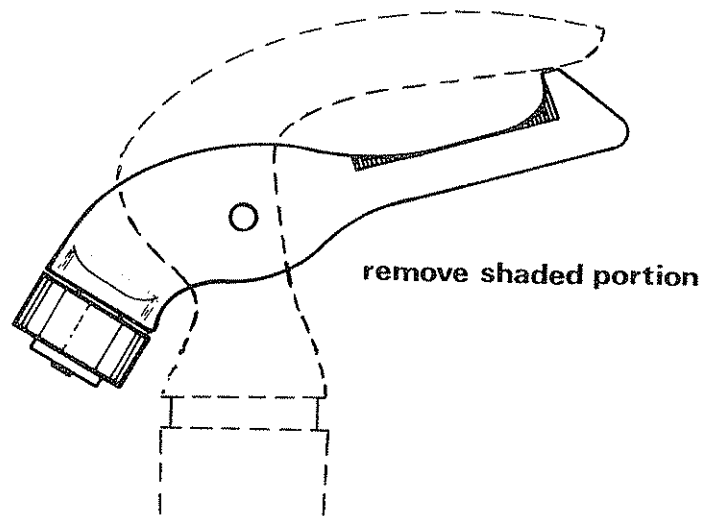
Clearance between the knotter bill and the knife should be approx.  $\frac{3}{16}$ "



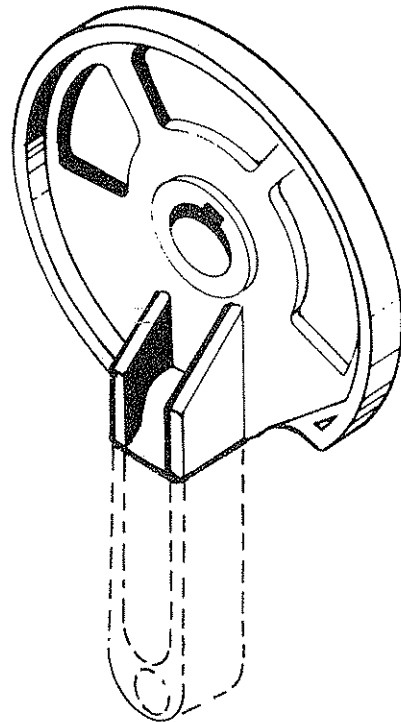
g) Knotter modifications.

The knotters used on the McConnel Balepacker are standard Bamford assemblies with two modifications made:-

- i) Bill Hook. To accommodate the larger diameter polypropylene twine the notch in the tongue must be deepened if a replacement is made. Use a fine file and polish up with emery cloth to remove any roughness.



- ii) Clutch housing. Bamford pt no. B451 H must have the crank arm cut off with a hacksaw.



Note: The knotter camgear and twine retainer pinion gear are matched assemblies and for identification purposes are painted yellow. They should not be interchanged with their equivalent parts supplied for machines earlier than 01BP00 which are not matched and are painted black.

## 1. Retiming knotter drive assembly

- i) Raise counter hook and rotate Cam A until roller is on top of profile.
- ii) Close hydraulic tap on pusher ram.
- iii) Start tractor to pressurise system and raise isolation lever.
- iv) Operate bale trip lever. The platform will rise but the pusher is unable to move.
- v) Close tap on lift ram to prevent platform dropping.
- vi) Move isolation lever to SAFE position and stop tractor engine.
- vii) Remove knotter cover completely to improve accessibility.
- viii) Place the large T spanner on the squared end of the knotter shaft and rotate knotters until the spring loaded pawl comes up hard against the clutch trip arm. Do not move the shaft further until timing is completed.
- ix) Release spring pressure on the roller lever and remove bolt, split pin, trip arm and chain idler roller.
- x) Rotate knotter drive sprocket until the cam roller is in position shown in upper drawing with  $\frac{1}{4}$ " clearance.
- xi) Pull the chain tight and pass it up round the sprocket and replace the chain idler roller which will secure it against the sprocket. The timing is now unable to slip. Recheck clearance before proceeding further.
- xii) Reassemble the trip arm and the roller lever assembly. Replace bolt and spring and tighten nut sufficiently to tension the roller against the clutch housing.
- xiii) Connect up the chain as shown in upper diagram.
- xiv) Rotate knotter shaft until spring loaded pawl engages against the clutch trip arm and adjust the nut on the threaded rod until the depth of engagement of the pawl against the arm is  $\frac{3}{16}$ " approx.
- xv) Open taps on both the lift and pusher rams.
- xvi) Replace the knotter cover.

Note: To facilitate assembly of the spring loaded chain, open lift ram tap momentarily to allow the platform to drop a little. This will enable the end of the chain to be released from its anchor pin. Engage the lower end of the chain in the spring, draw it round the bottom sprocket and with a piece of string threaded through the chain two or three links from the end and passed over the ram rod pin the chain can be drawn tight to refit it to the anchor pin.

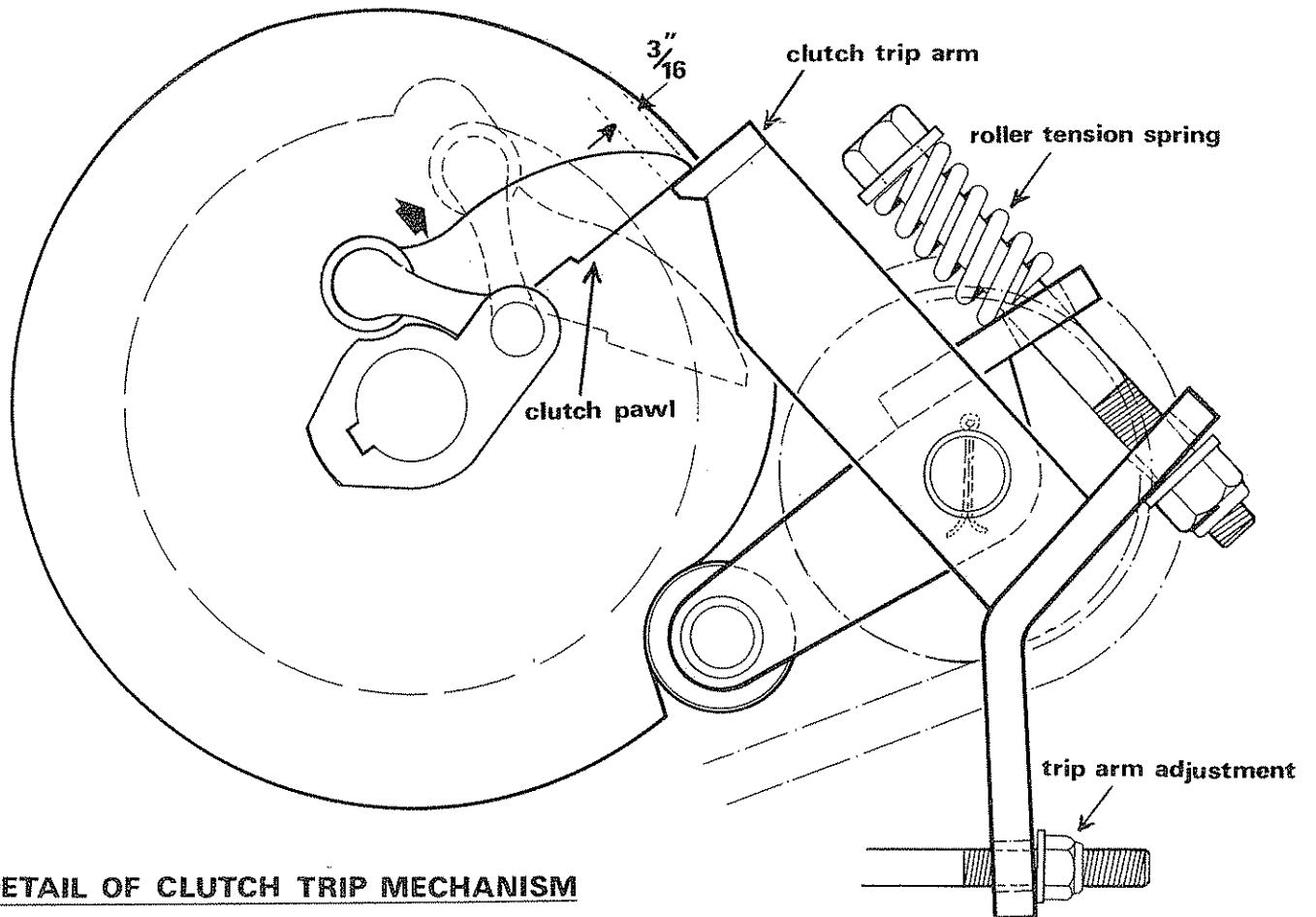
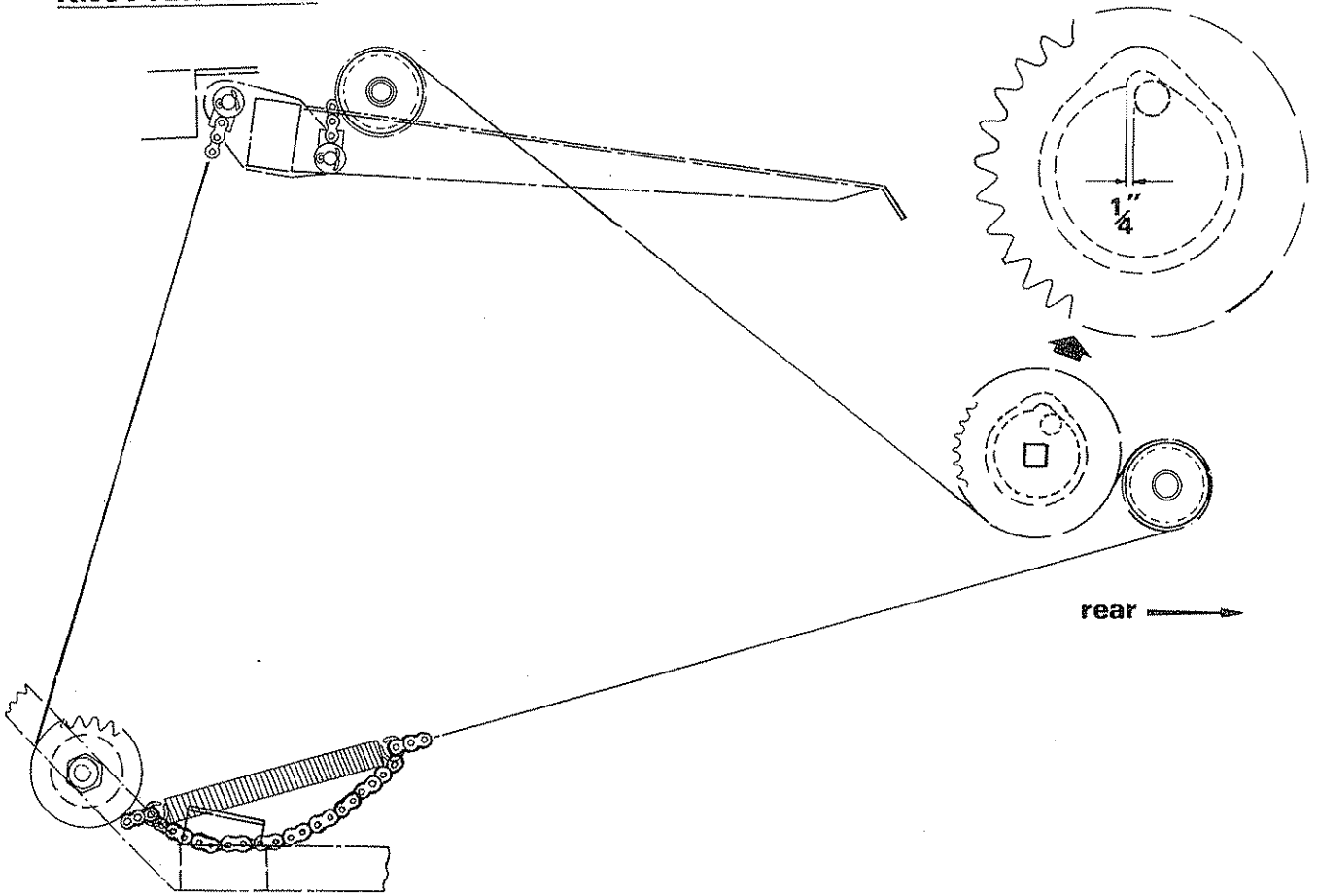
### Important Note:

Unlike a baler the knotters are not synchronised. The knotter drive shaft has its keyways cut  $95^{\circ}$  out of alignment. This is done to stagger the load on the hydraulic system during the knotting cycle.

Baler knotters work at high speed and maintain momentum through the knotting cycle with the aid of the flywheel and the heavy lobe which is usually an integral part of the knotter drive gear. The knotters on the Balepacker do not have this momentum and so appear to work in an untidy jerky fashion.

If the knotting cycle appears to halt momentarily it is because the 'platform up' and 'pusher in' strokes have temporarily exhausted the accumulator. This is evidence that the tractor hydraulic system requires attention.

**KNOTTER DRIVE**



**DETAIL OF CLUTCH TRIP MECHANISM**

## SECTION 4. FAULT FINDING.

<u>TROUBLE SHOOTING GUIDE</u>	
<u>Fault</u>	<u>Cause and Remedy</u>
1. Hydraulic system fails to pressurise.	a) Tractor external services selection incorrect. b) Self seal couplings not properly engaged. c) Unloader valve sticking.
2. Lack of power.	a) Check tractor hydraulic system. b) Check pressure gauge on Balepacker. At 2000 psi the tractor should be off load.
3. System pressurised but no movement of swing arm when bale strikes trigger.	a) Overcentre adjustment not properly set.
4. Swing arm rotates out of sequence when the machine is pressurised.	a) Trigger mechanism set too sensitive. b) Overcentre locking springs are suspect.
5. Bale does not strike the trigger arm.	a) Interlock peg not engaging with bale deflector plate. b) Bale deflector plate out of adjustment. c) Interlock lever seized or out of adjustment.
6. Bale triggers the swing arm but fails to release interlock peg.	a) Drop arm between trigger arm and interlock pull rod requires bending. b) Interlock peg seized in platform.
7. Swing arm becomes trapped beneath bale.	a) Spring fingers of bale canopy need bending down a little.
8. Swing arm rotates but fails to return.	a) Bale trip plate lever seized. b) Sequence valve tappet not operated, check adjustment No 1. c) Deformed bale fails to strike trip plate.
9. Swing arm returns, but platform fails to raise.	a) Lift control valve needs adjustment.
10. Swing arm and platform collide.	a) Re-adjust lift control valve. b) Seized lift control valve spindle. c) Swingarm linkage to lift control valve seized.
11. Bale is flung across corner of platform or stuck under the needle supports on the pusher.	a) Swing arm action too fast – screw in barrel – restrictor in hydraulic line to swing arm.
12. Platform keeps raising bales but pusher does not operate.	a) Counter hook fails to drop behind peg because of insufficient clearance of counterhook. b) Counter cam A is pulled round too far. c) Top striker plate incorrect. d) Broken or missing reverse pawl spring.

<u>Fault</u>	<u>Cause and Remedy</u>
13. Platform does not lower	a) Providing that the seal is not broken on Tappet 2, the lower striker plate is incorrect. Raise plate approx. 1/8".
14. Apparent loss of power when platform raises bales.	a) Too little clearance between pusher and pack - adjust bale dimension stop. b) Tractor oil level low.
15. Apparent loss of power on the pusher in stroke.	a) Side gate adjustment too tight. b) Top press too low.
16. Pusher in but platform fails to lower.	a) Check pusher is hard against abutment stop. b) Tappet 5 adjustment incorrect. Adjust to compress valve spindle 3/16". Make adjustment with pusher fully in and pusher tap closed. c) Folding link not locked.
17. Platform lowers but pusher fails to return.	a) Tappet 4 adjustment incorrect. b) Striker plates incorrect. } Complete sequence valve set up required.
18. Failure to tie knot.	a) Knotter fails to operate due to incorrect clutch trip arm adjustment. Adjust to give 3/16" engagement with clutch pawl. b) Incorrect adjustment of folding link. c) Knotter operates but fails to tie knot, see knotter trouble chart.
19. Platform stops during downward travel on the knotter stroke.	a) If intermittent stoppage, suspect low oil flow. Check oil level. b) Knotter drive jammed.
20. Slack twine around the pack.	a) Insufficient pressure on top press and side gates. b) Insufficient twine tension.
21. Bale keeps falling down onto the platform forks and retripping mechanism.	a) Too much clearance between pusher and pack - adjust bale dimension stop. b) Spring bale retainers not working properly - check for broken spring. c) Insufficient pressure on side gates.
22. Bale jammed beneath pusher.	a) Swing arm action too rapid - bale is bounced forward after striking trip plate. b) Anti-bounce flaps not working - broken or slipped spring; more noticeable when working downhill.
23. Pusher stops before completing its full travel and platform drops.	a) Incorrect setting of tappet No. 7. b) Incorrect folding link adjustment No. 6.
24. Unloader valve 'chatters' or vibrates when platform is lifting.	a) Faulty accumulator - this is confirmed when ram has reached end of stroke the 'chatter' should stop.

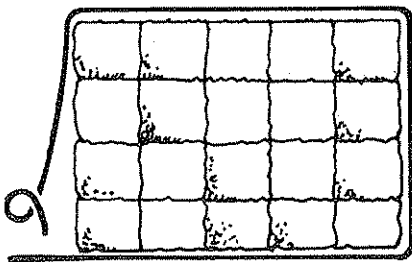
KNOTTER TROUBLE SUMMARY CHART

<u>Trouble</u>	<u>Cause</u>	<u>Remedy</u>
<p>1. Knots hanging on bill hook.</p>	<p>1a. Stripper is not functioning properly.</p> <p>1b. Insufficient travel of the stripper arm - this should be a minimum of 1/2" past the toe of the bill hook.</p> <p>2. Excessive tension on bill hook.</p> <p>3. Rough surface on bill hook.</p>	<p>1a. Bend stripper arm so that it barely touches heel of bill hook.</p> <p>1b. Check for distorted stripper arm or worn cam.</p> <p>2. Loosen tension.</p> <p>3. Smooth surface of bill hook with emery cloth.</p>
<p>2. Failure to form knot.</p>	<p>1. Loose twine tension spring allowing twine to slip out of disc.</p> <p>2. Twine tension spring too tight, not allowing sufficient twine to slip through disc to form knot.</p> <p>3. Worn bill hook.</p> <p>4. Rough edges on twine holder or disc.</p> <p>5. Needles out of adjustment.</p>	<p>1. Tighten twine tension spring.</p> <p>2. Loosen twine tension spring.</p> <p>3. Replace bill hook.</p> <p>4. Remove sharp or rough edges with emery cloth.</p> <p>5. re-adjust needle clearance.</p>
<p>3. Twine disc timing fluctuating.</p>	<p>1. Worn gears.</p> <p>2. Twine disc pinion pin worn or sheared.</p> <p>3. Worm slipping on shaft.</p>	<p>1. Replace gears if badly worn.</p> <p>2. Replace pin.</p> <p>3. Re-time and tighten up securing nut, if loose.</p>
<p>4. One end of twine longer than other.</p>	<p>1. Insufficient tension on twine holder.</p> <p>2. Excessive tension on twine holder.</p> <p>3. Dull twine knife.</p> <p>4. Insufficient twine tension on twine box.</p>	<p>1. Tighten tension on twine holder spring.</p> <p>2. Decrease tension on twine holder spring.</p> <p>3. Sharpen blade of twine knife.</p> <p>4. Increase twine tension on twine box.</p>

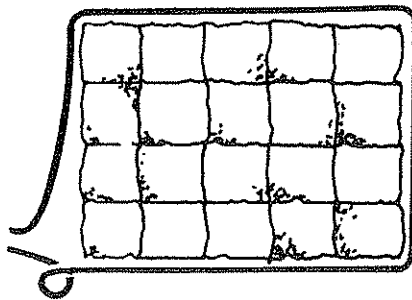


KNOTTER TROUBLE SUMMARY CHART

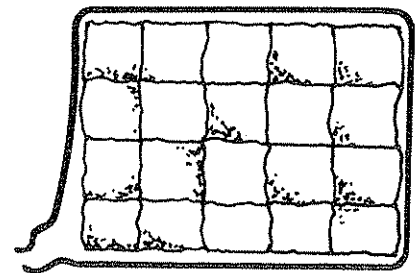
<u>Trouble</u>	<u>Cause</u>	<u>Remedy</u>
5. Twine is looped in one end of knot. (Do not adjust the knotter unless the looping is excessive).	1. Not enough bill hook tension.	1. Slightly increase bill hook tension.
6. Knot tied only in the top strand of twine.	1. Not enough tension on twine disc. 2. Excessive tension on twine disc. 3. Rough or uneven twine. 4. Excessive twine tension. 5. Knot in twine.	1. Twine disc should be adjusted for proper tension. 2. Decrease tension. 3. Remove bad portion of twine. 4. Decrease twine tension on twine can. 5. Remove knot and tie a smaller knot.
7. Knot tied in the bottom strand of the twine.	1. Placing of twine on bill hook is faulty.	1. Check needle adjustment.
8. Frayed or broken twine in knot.	1. Insufficient clearance between face of stripper arm and the back of the bill hook. 2. Excessive tension on twine holder.	1. Bend the stripper arm to eliminate binding and allow bill hook to rotate freely (be careful not to bend too far or the stripper will not strip the twine from the bill hook). 2. Decrease tension on twine holder.
9. Frayed or broken twine.	1. At about ½" (13mm) from the knot - rough surface on stripper arm. 2. If elsewhere look for any rough edges that could cut twine.	1. Smooth the stripper arm. 2. Smooth rough edges.



Excessive twine tension



Knotter bill fails to pick up twine from needle.



Crop build up in knotter. Knot is tied, then pulls apart.

## **SECTION 5. MAINTENANCE**

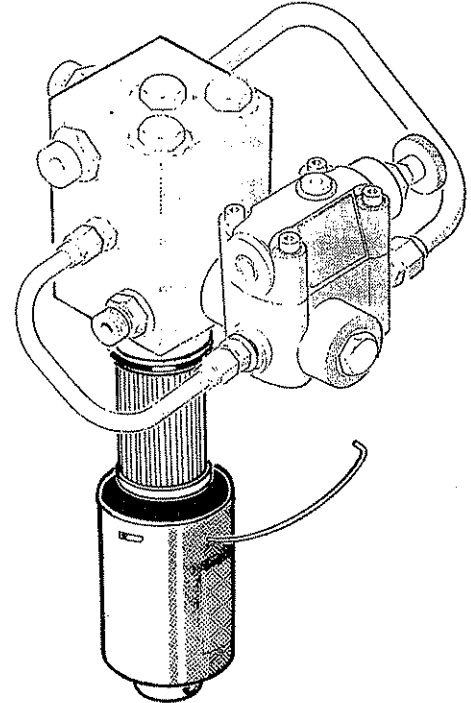
Machine maintenance has been reduced to a minimum but the following points should be followed.

Lubrication. Grease all pivot points daily and in particular remember that the knotter mechanism only operates a small number of times in relation to the baler knotters so these should be greased sparingly.

Please note that there are six greasers on the knotter mechanism.

The full flow, high pressure filter of 10 micron rating is situated at the base of the manifold valve assembly and should be changed after 25 hours and thereafter every season.

Place a shifting bar through the hole in the base of the filter bowl and rotate bowl to expose tail end of the retainer wire through the slot in the side. Counter rotate to wind wire out of groove and pull down bowl to reveal filter element which is held in place by an internal 'O' ring.



### Accumulator

The accumulator stores hydraulic oil to maintain working pressure which is required by the machine. It exhausts itself automatically when the oil flow or tractor engine is stopped.

Positively no maintenance or any kind of adjustment should be attempted on the accumulator. It is precharged with pure Nitrogen to 1000 psi. Should the accumulator fail it should be returned to the factory for a replacement.

### Wheels

Tyre pressures should be maintained to 35 psi on all wheels.

Routine maintenance should include regular checking of all nuts and bolts for tightness - particular attention should be paid to the baler tow bar bolts and wheel nuts.

### Storage

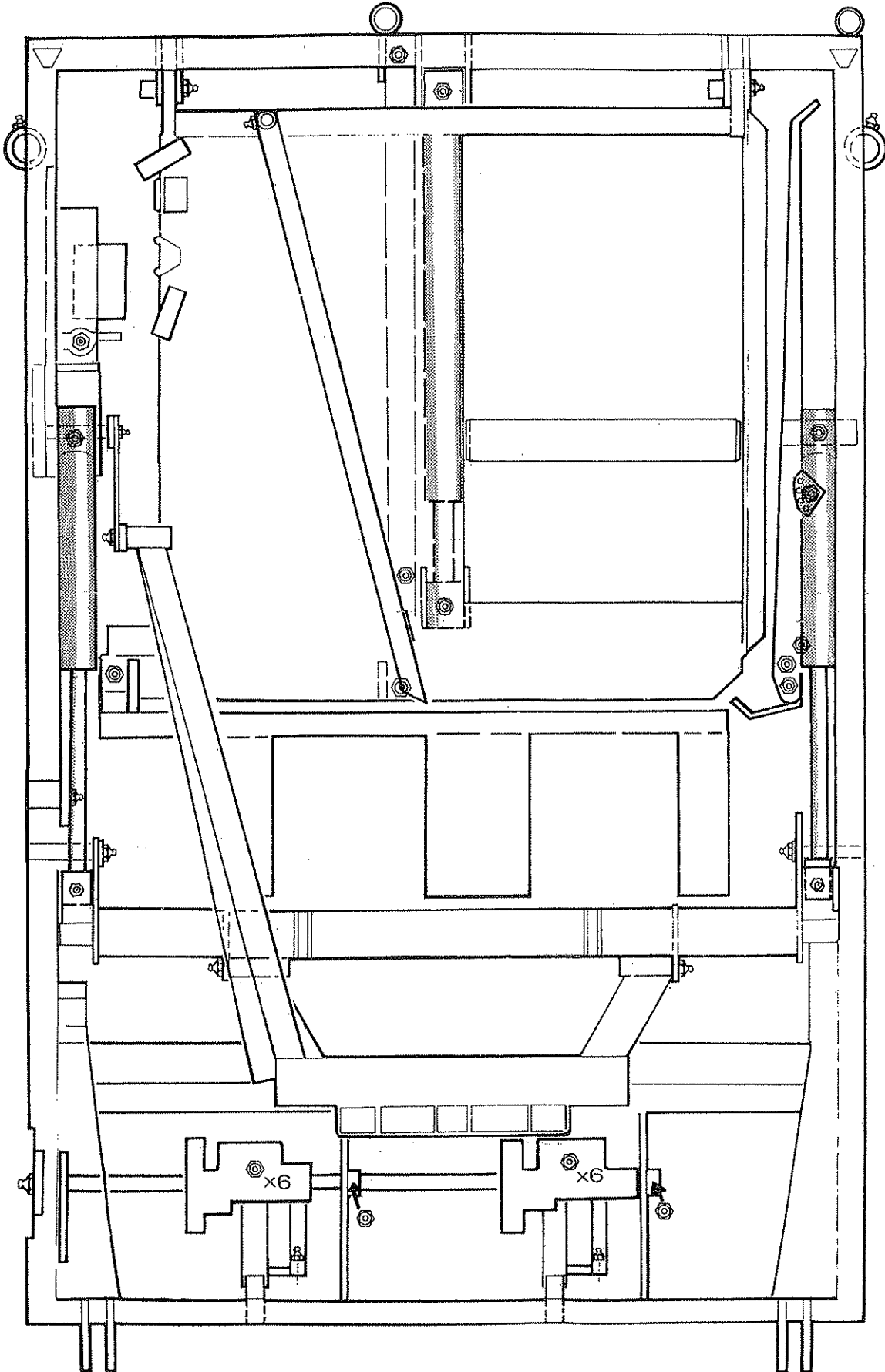
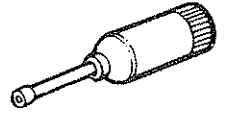
The Balepacker should be emptied of hay or straw and cleaned down. Grease and lubricate all pivot points and bushes. Apply a coating of grease to the bright surfaces of the knotters also grease or paint the bright worn surfaces of the platform and bale chamber.

Any part used packs of twine should be removed and stored in a cool dry place.

Tyres should be inflated to their correct pressure, the machine placed under cover and if possible supported on blocks to take the weight off the tyres and wheel bearings.

**GREASER LOCATIONS**

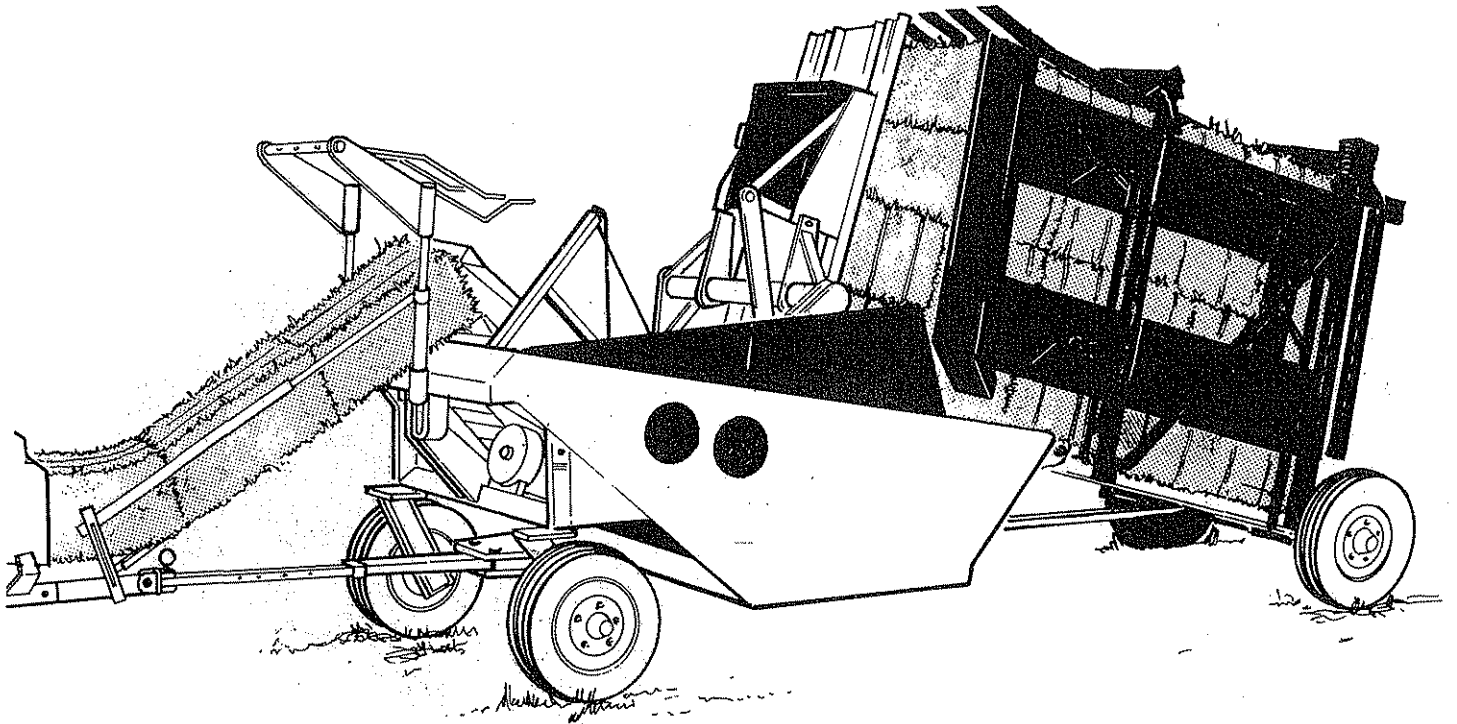
GREASE DAILY





# Spare Parts Section

## BALEPACKER



### USE ONLY McCONNEL SPARE PARTS

To be assured of the latest design improvements purchase your genuine replacements from the original equipment manufacturer F.W.McConnel Ltd. through your local dealer or stockist.

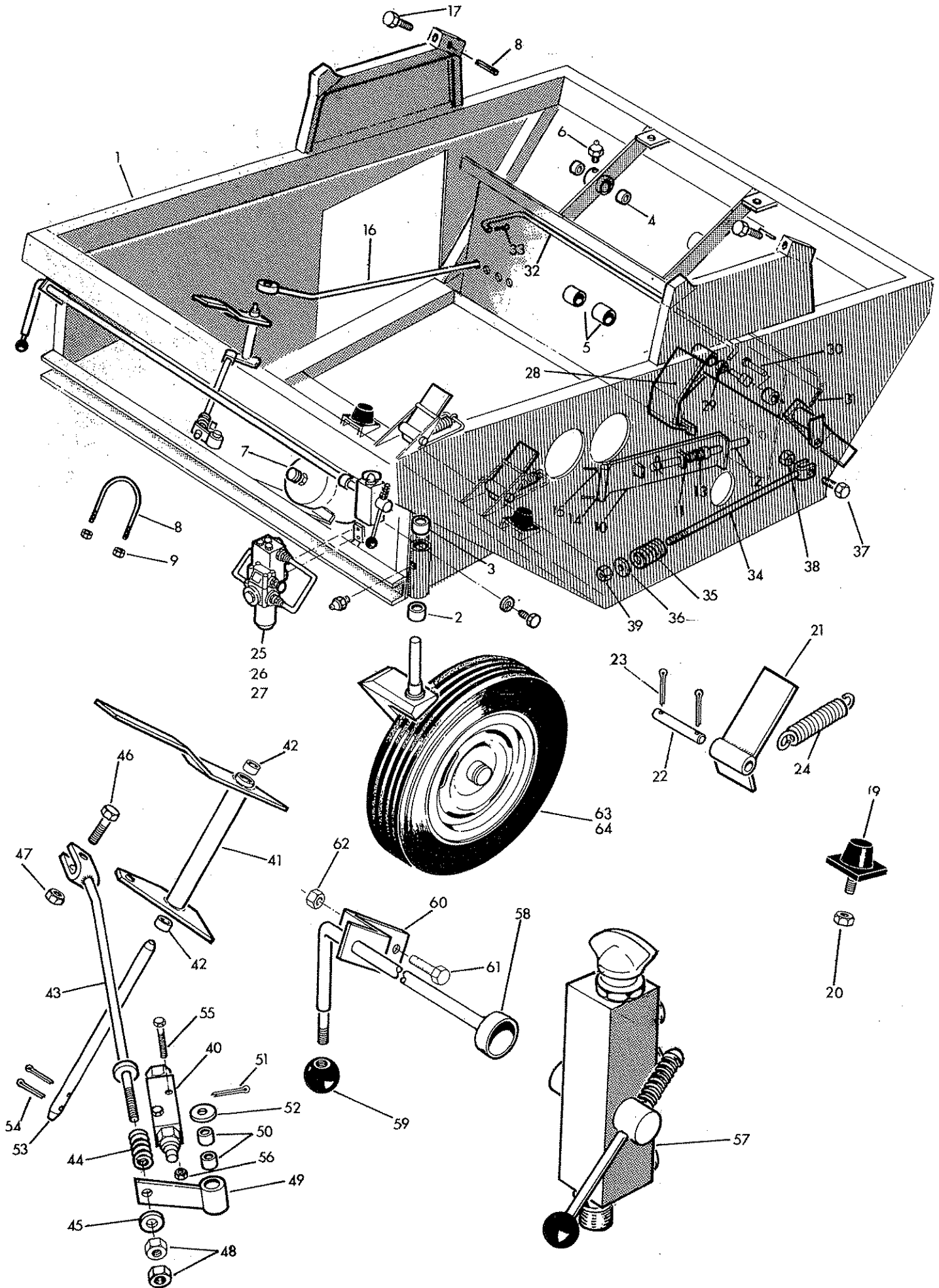
Always quote machine type and serial number as well as the part number.

Design improvement may have altered some of the parts listed in this manual - the latest part will always be supplied when it is interchangeable with an earlier one.

### THE DOT SYSTEM

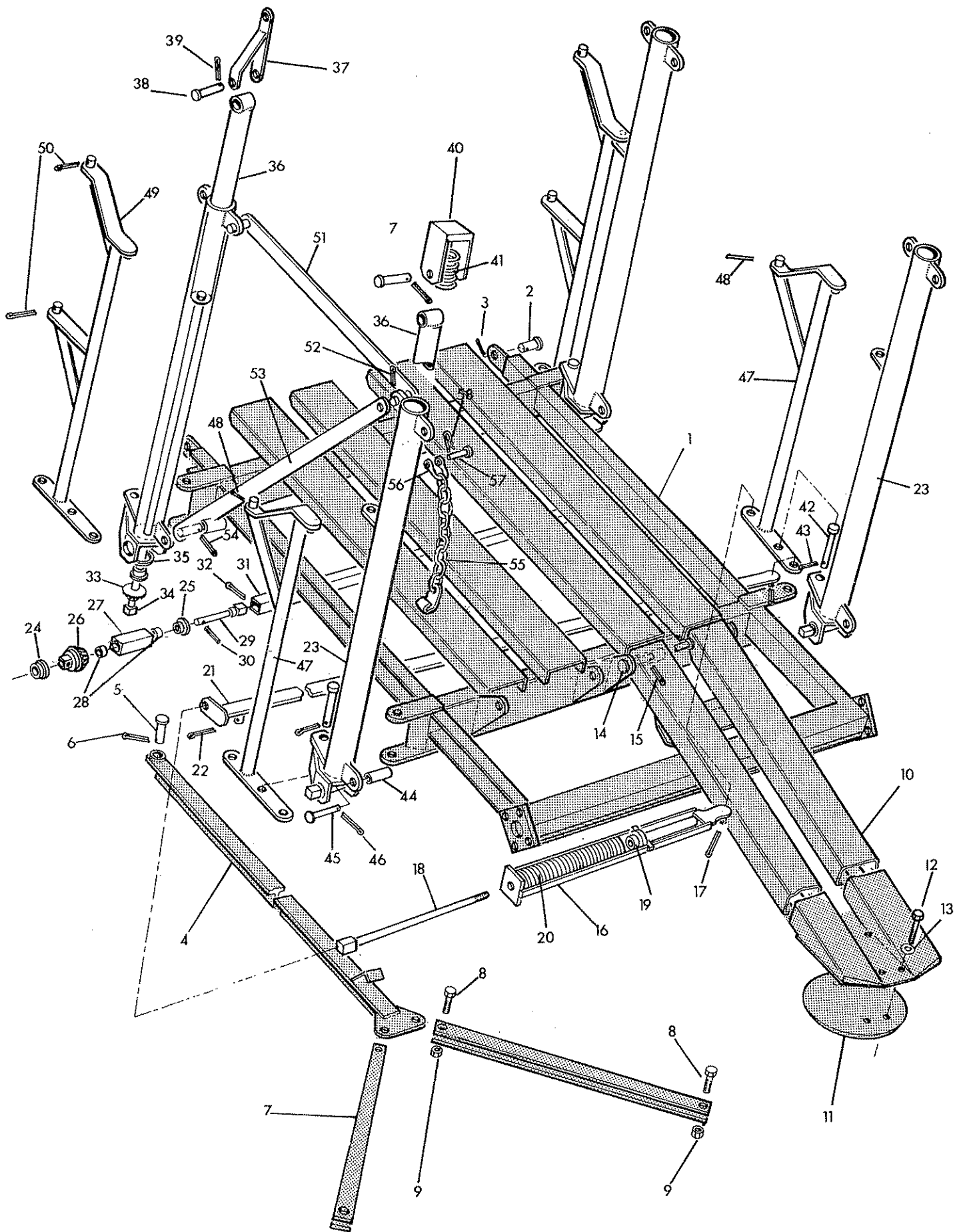
Many spares are supplied as Assemblies or as Sub-assemblies and, to help the customer determine the composition of an Assembly, the Dot System is used. The Main Assembly will not show a dot preceding its description and is printed in BLOCK CAPITALS. Subsequent listed parts are preceded by one or more dots until the next major assembly is reached. An increase in the number of preceding dots indicates that the item is an associated part of the preceding item. Whenever the number of dots are decreased by one this indicates the termination of an assembly.

# MAIN FRAME & ASSOCIATED ASSEMBLIES



Ref	Part No.	Qty	Description
			MAIN FRAME & ASSOCIATED ASSEMBLIES
	13 38 001	1	Main frame assembly comprising
1	13 38 003	1	.Main frame welded assy
2	13 37 042	2	..Bush 2" inside dia
3	71 05 011	2	..Bush 1½" inside dia
4	13 35 230	4	..Bush 1 1/8" inside dia
5	13 38 253	2	..Bush 5/8" I/D
6	09 01 121	4	..Greaser - straight
7	13 35 961	1	.Accumulator
8	13 35 158	1	.Accumulator strap c/w nut
9	01 41 003	2	.Aeronut 3/8" UNF
10	13 35 483	1	.Bale guide arm - LH
11	13 38 263	1	.Spring
12	13 37 213	1	.Locking pin c/w spring dowel
13	04 22 532	1	..Spring dowel 5/16" dia x 2" lg
14	13 37 212	1	.Pivot pin c/w split pin
15	05 03 125	2	..Split pin 3/16" dia x 1½" lg
16	13 35 298	1	.Bale guide bar RH
17	13 35 155	2	.Pusher adjuster bolt
18	04 41 632	2	.Spirol pin 3/16" dia x 2" lg
19	13 37 114	2	.Rubber buffer c/w aeronut
20	01 41 003	1	..Aeronut 3/8" UNF
21	13 35 263	2	.Anti-bounce flap c/w pin & spring
22	13 35 159	1	..Pivot pin c/w split pin
23	05 03 083	2	...Split pin 1/8" dia x 1" lg
24	60 10 032	1	..Spring
25	81 27 500	1	.Manifold valve assy c/w bolts
26	03 11 083	2	.Setscrew 3/8" UNF x 1" lg
27	01 00 203	2	..Spring washer 3/8" dia
28	13 38 010	1	.Bale trip assy c/w bushes
29	13 38 253	1	..Bush 5/8" dia x 5/8" lg
30	13 38 331	1	..Pivot pin c/w split pin
31	05 03 145	1	...Split pin 3/16" dia x 1½" lg
32	13 38 060	1	.Trip bar c/w split pin
33	05 03 095	1	..Split pin 3/16 dia x 1 1/8"-lg
34	13 35 205	1	.Bale trip - pull rod c/w spring etc
35	60 00 110	1	..Spring
36	01 00 103	1	..Plain washer 3/8" dia
37	02 11 123	1	..Bolt 3/8" UNF x 1½" lg
38	01 41 003	1	..Aeronut 3/8" UNF
39	01 11 003	2	..Plain nut 3/8" UNF
	13 35 382	1	.LIFT CONTROL VALVE GEAR c/w VALVE
40	81 27 352	1	..Lift control valve (see page 58)
41	13 35 381	1	..Control lever
42	13 38 253	2	...Bush 5/8" I/D
43	13 37 121	1	.Pull rod c/w spring etc
44	60 00 110	1	..Spring
45	01 00 103	1	..Plain washer 3/8" dia
46	02 11 123	1	..Bolt 3/8" UNF x 1½" lg
47	01 41 003	1	..Aeronut 3/8" UNF
48	01 11 003	2	..Plain nut 3/8" UNF
49	13 37 117	1	..Operating lever c/w busher
50	13 38 253	2	...Bush 5/8" I/D
51	05 03 095	1	..Split pin 3/16" x 1 1/8" lg
52	01 00 106	1	..Plain washer 5/8" dia
53	13 37 119	1	..Pivot pin c/w split pin
54	05 03 126	1	...Split pin ¼" dia x 1½" lg
55	02 11 181	2	..Bolt ¼" UNF x 2¼" lg
56	01 41 001	2	..Aeronut ¼" UNF
	13 38 040	1	.Isolation valve & mounting assy
57	81 27 403	1	..Tap & isolation valve assy (see page 58)
58	13 38 038	1	..Cross shaft
59	09 03 112	1	...Knob - red
60	13 38 308	1	..Support bracket
61	03 11 083	2	...Bolt 3/8" UNF x 1" lg
62	01 41 003	2	...Aeronut 3/8" UNF
63	13 35 396	1	.Front caster & wheel assy R H ( see page 71)
64	13 35 397	1	.Front caster & wheel assy LH (see page 71)

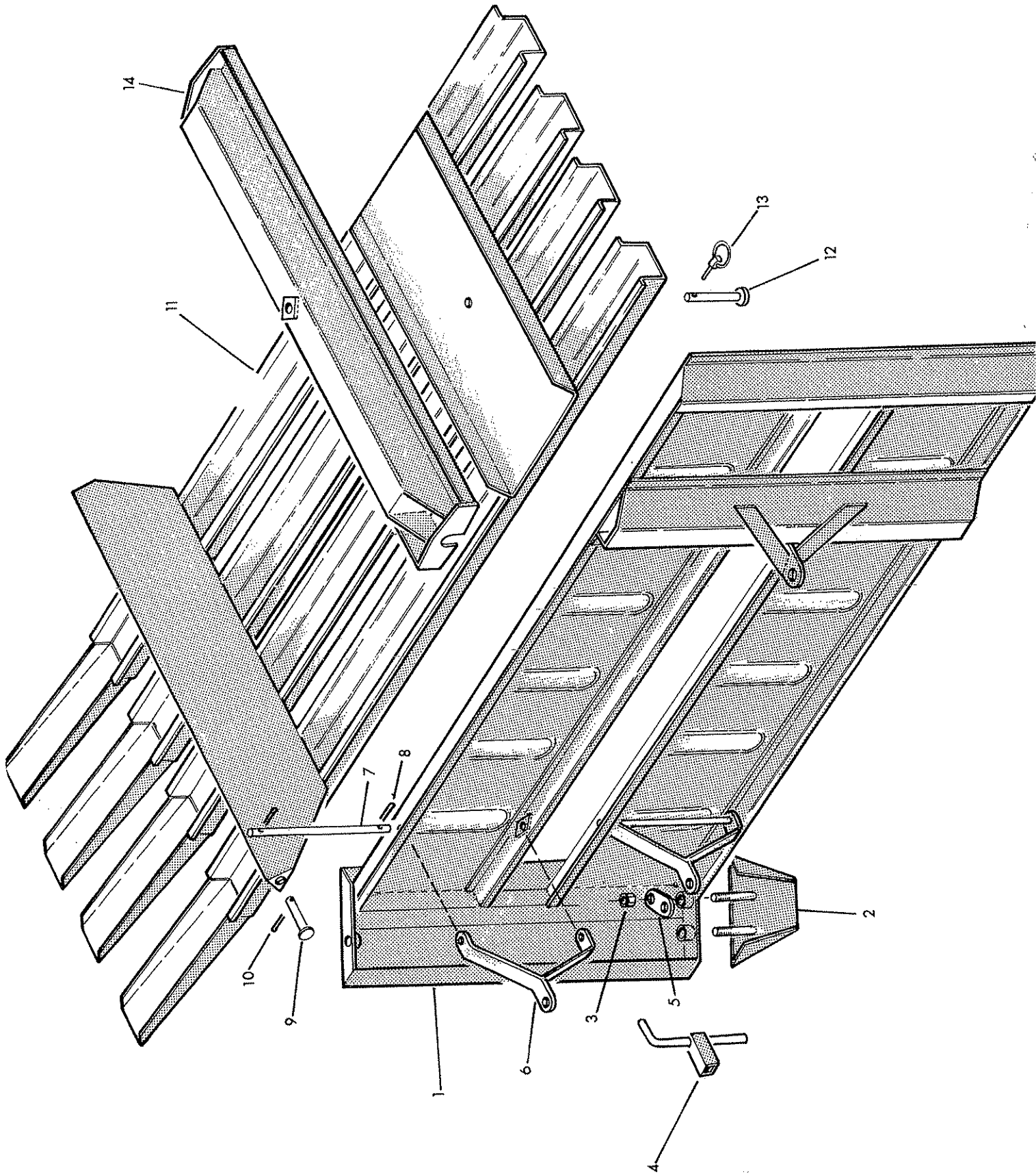
# REAR FRAME ASSEMBLY





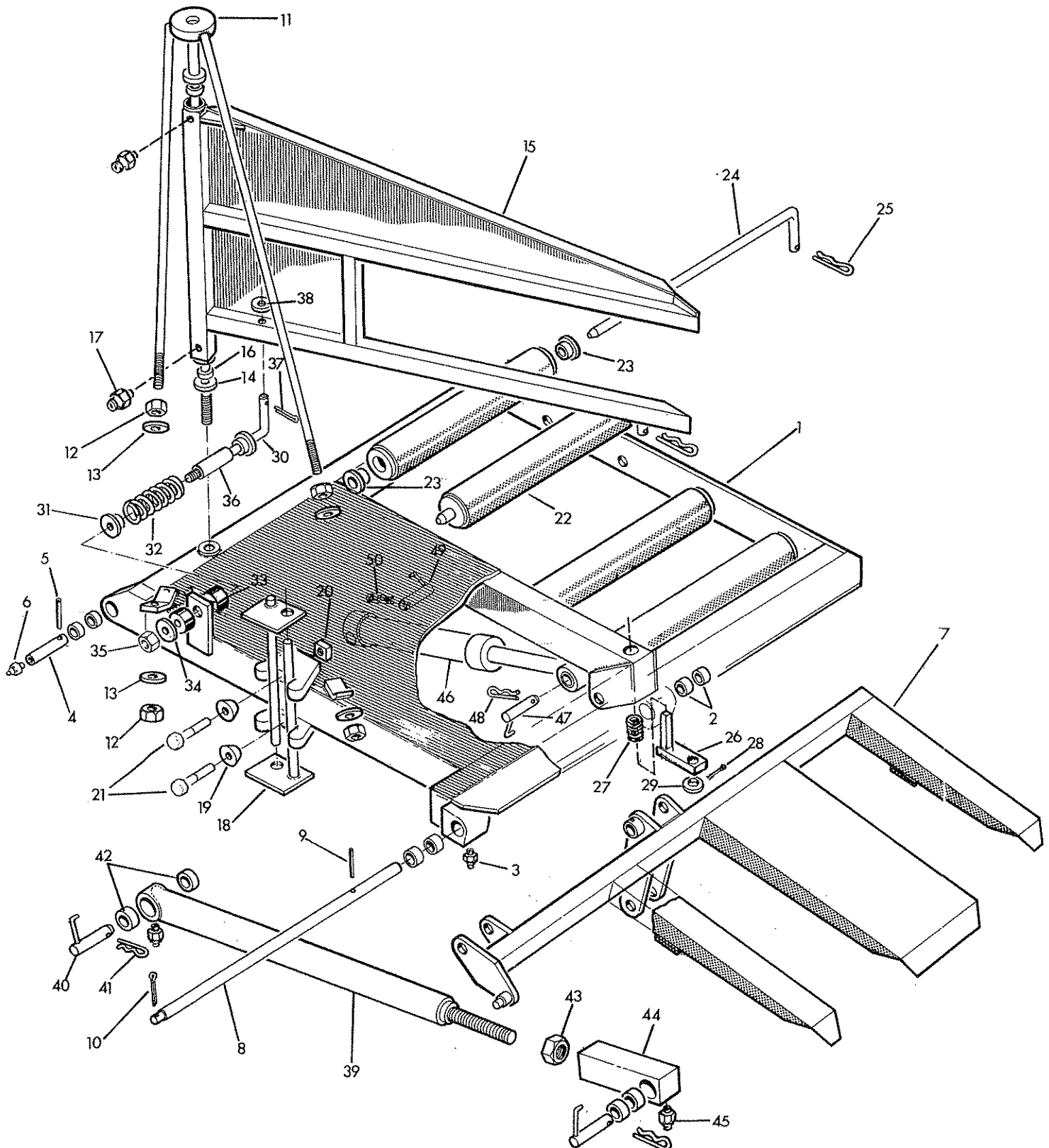
Ref	Part No.	Qty	Description
	13 38 100	1	ASSEMBLY OF REAR FRAME
1	13 38 014	1	.Rear frame welded assembly
2	13 35 010	2	..Pin c/w split pin
3	05 03 145	1	...Split pin 3/16" x 1 3/4" lg
4	13 38 045	1	.Rear tie bar assy c/w link & pin
5	13 35 011	1	..Pin c/w split pin
6	05 03 145	1	...Split pin 3/16" x 1 3/4" lg
7	13 38 311	4	..Link
8	02 11 166	4	..Bolt 5/8" UNF x 2" lg
9	01 41 006	4	..Aeronut 5/8" UNF
10	13 38 071	2	.Rear slide c/w dome
11	13 35 373	1	..Dome c/w screws
12	93 13 050	4	...Setscrew M10 x 25 mm
13	91 13 005	4	...Spring washer 3/8" dia
14	13 38 351	2	..Pin c/w split pin
15	05 03 165	1	...Split pin 3/16" dia x 2" lg
16	13 38 068	2	.Sidegate spring cage c/w split pin
17	05 03 126	1	..Split pin 1/4" dia x 1 1/2" lg
18	13 38 344	2	.Adjuster screw
19	13 38 343	2	.Adjuster nut
20	60 05 013	4	.Spring
21	13 38 069	2	.Cross link c/w split pins
22	05 03 126	2	..Split pin 1/4" dia x 1 1/2"
23	13 38 018	4	.Housing - gear box c/w bushes
24	13 38 292	1	..Headed bush x 1 3/4" I/D
25	13 35 233	2	..Headed bush x 1" I/D
26	13 38 293	4	.Pinion
27	13 38 296	4	.Spacer boss c/w bushes
28	70 14 028	2	..Bush 7/8" I/D
29	13 38 295	4	.Pinion shaft c/w cotter pin
30	04 22 520	1	..Spring cotter 5/16" dia x 1 1/4" lg
31	13 38 297	2	.Torque tube c/w split pins
32	05 03 165	2	.Split pin 3/16" dia x 2 1/2" lg
33	13 38 294	4	.Gear
34	13 38 020	4	.Jack screw
35	60 01 136	4	.Thrust washer
36	13 38 019	4	.Jack tube
37	13 38 066	2	.Front link
38	70 12 025	2	.Pin c/w split pin
39	05 03 125	1	..Split pin - 3/16" dia x 1 1/2"
40	13 38 065	2	.Rear link
41	60 05 013	2	.Spring
42	13 38 349	4	.Jack pin c/w split pin
43	05 03 125	1	..Split pin 3/16" dia x 1 1/2"
44	13 38 348	4	.Spacer tube
45	60 00 039	2	.Pin c/w split pin
46	05 03 095	1	..Split pin 3/16" dia x 1 1/8" lg
47	13 38 029	2	.Sidegate support - rear c/w split pin
48	05 03 125	1	..Split pin 3/16" dia x 1 1/2" lg
49	13 38 028	2	.Sidegate support - front c/w split pin
50	05 03 125	2	..Split pin 3/16" dia x 1 1/2" lg
51	13 38 346	2	.Top stay c/w split pin
52	05 03 095	2	..Split pin 3/16" dia x 1 1/8"
53	13 38 347	2	.Diagonal stay c/w split pin
54	05 03 095	1	..Split pin 3/16" dia x 1 1/8" lg
55	13 38 072	2	.Slide anchor chain c/w shackle assy
	60 00 087	1	..Shackle assy c/w pin
56	60 00 088	1	...Shackle
57	60 00 089	1	...Pin
58	04 31 105	1	...Spring cotter

**SIDE GATES & TOP PRESS**



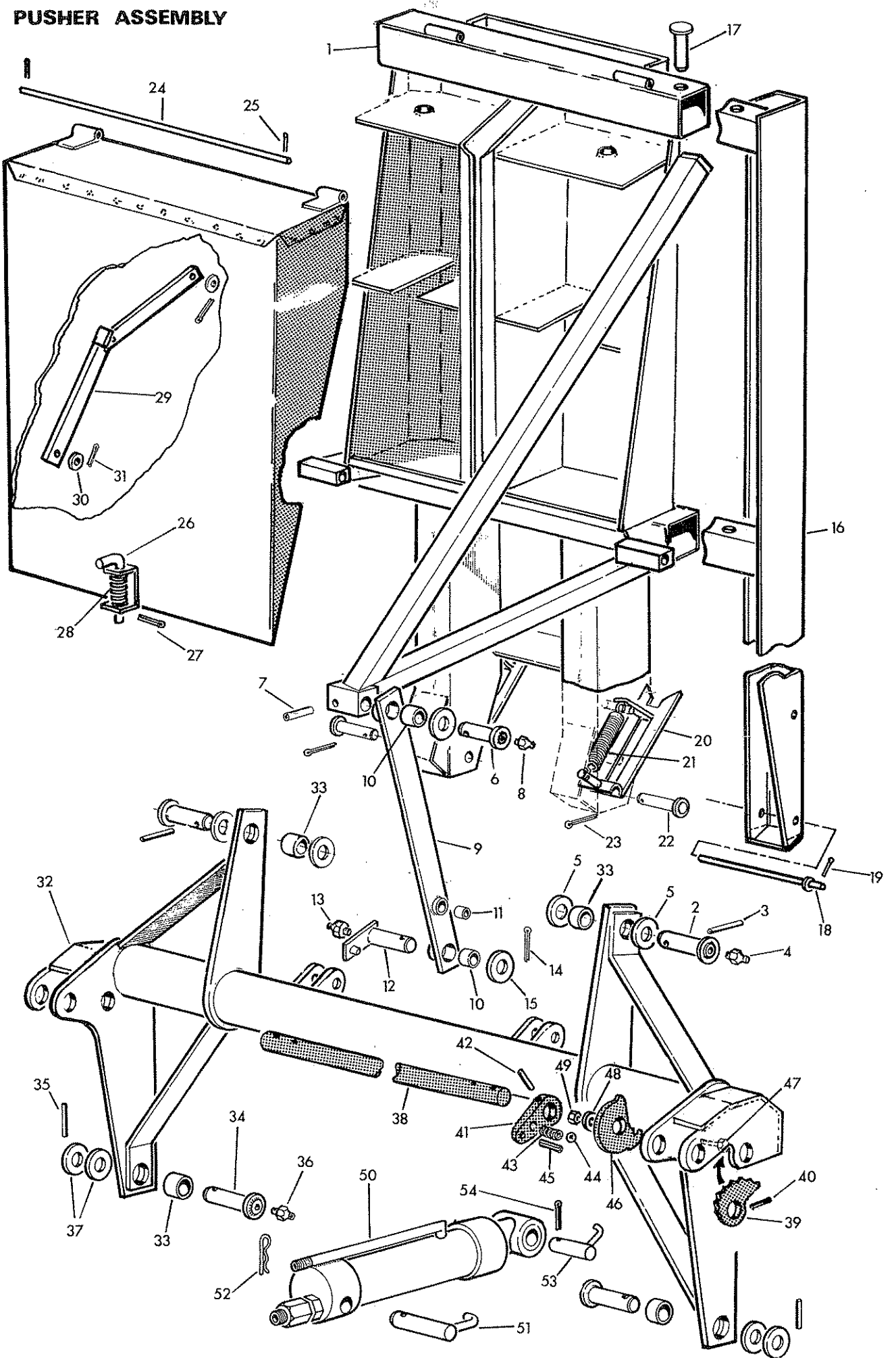
Ref	Part No	Qty	Description
1	13 38 017	2	.Sidegate welded assembly
2	13 38 027	2	.Sidegate extension c/w nuts
3	01 41 006	2	..Aeronut 5/8" UNF
4	13 38 345	1	.Handle
5	13 38 353	1	.Handle holder
6	13 38 031	4	.Sidegate yoke
7	13 38 306	4	.Yoke pin c/w split pin
8	05 03 105	2	..Split pin 3/16" x 1¼"
9	60 01 121	2	.Pin - front
10	05 03 105	1	..Split pin 3/16" x 1¼"
11	13 38 067	1	.Top clamp welded assembly
12	13 38 350	1	.Pin - rear
13	04 31 217	1	..Linch pin
14	13 38 062	1	.Rear beam welded assembly

# LIFT & ROLLER PLATFORM ASSEMBLY



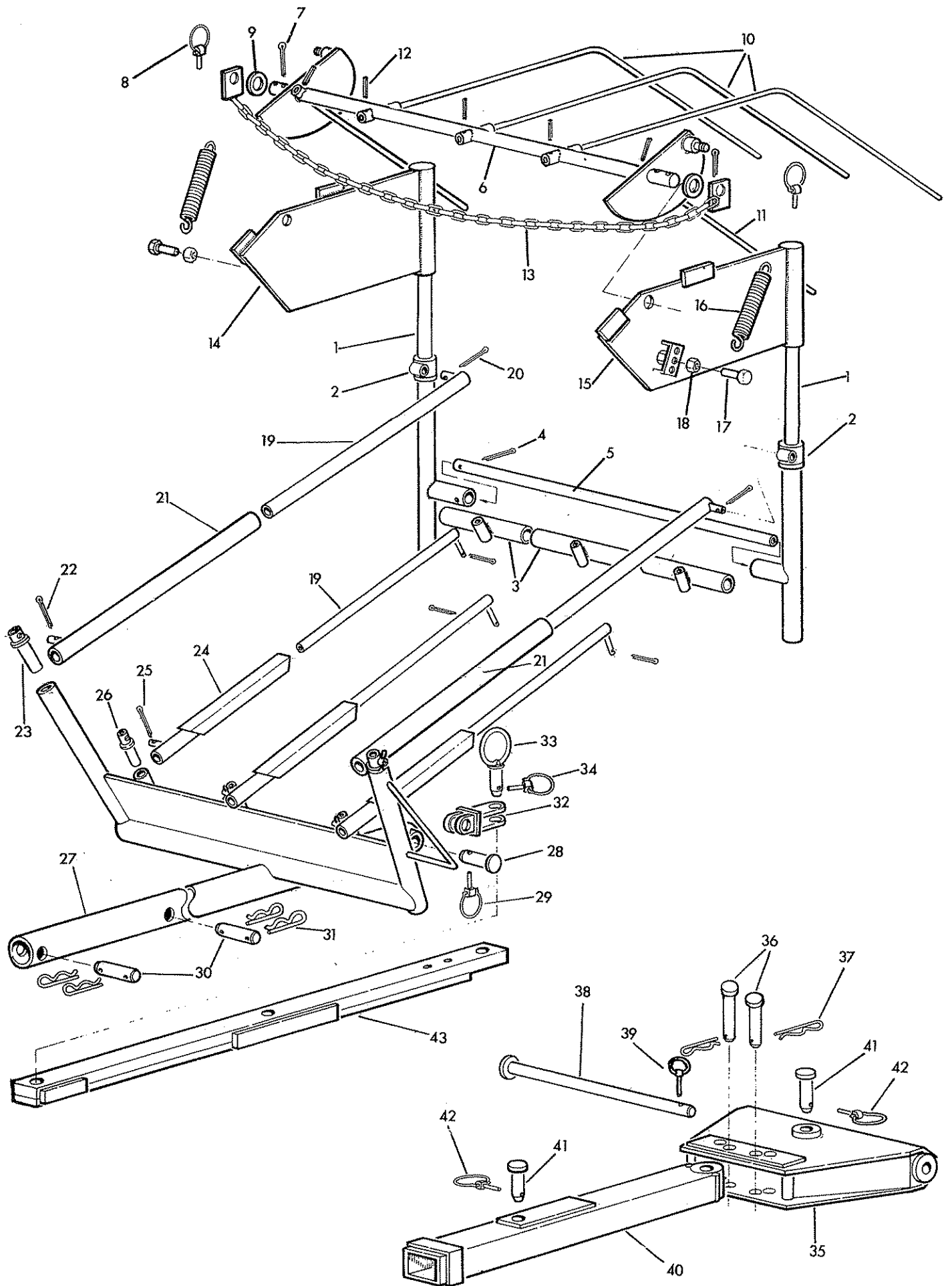
Ref	Part No	Qty	Description
	13 35 340	1	LIFT AND ROLLER PLATFORM ASSEMBLY
1	13 35 480	1	.Lift platform welded assembly
2	13 37 224	6	..Bush 1" i/d steel
3	09 01 121	2	..Greaser 1/8" BSP - straight
4	13 35 085	1	.Pin c/w spring dowel and greaser
5	04 22 624	1	..Spring dowel 3/8" dia. x 1.1/2"
6	09 01 124	1	..Greaser 1/8" BSP x 67 1/2°
7	13 35 280	1	.Fork platform
8	13 35 059	1	.Pin c/w spring dowel
9	04 22 624	1	..Spring dowel 3/8" x 1 1/2" long
10	05 03 104	1	..Split pin 5/32" dia. x 1 1/4" long
11	13 35 288	1	.Tripod c/w nuts
12	01 11 006	5	..Nut 5/8" UNF
13	01 00 206	5	..Spring washer 5/8" UNF
14	01 00 107	2	..Plain washer - 3/4" dia.
15	13 35 289	1	.Deflector plate
16	13 38 337	2	..Bush 3/4" i/d steel
17	09 01 121	2	.. Greaser 1/8" BSP - straight
	13 35 326	1	.Assembly actuator plates c/w clamp
18	13 35 167	2	..Striker plate
19	13 35 168	2	..Clamping washer
20	13 35 169	2	..Special locknut
21	02 11 203	2	..Bolt 3/8" UNF x 2 1/2" long
22	13 35 287	4	.Roller c/w bushes
23	13 35 231	2	..Headed bush
24	13 35 071	4	..Roller pin c/w spring cotter
25	04 31 105	1	..Spring cotter
26	13 37 205	1	.Interlock pin c/w spring
27	13 37 169	1	..Spring
28	05 03 126	1	..Split pin 1/4" x 1 1/2"
29	01 00 107	1	..Plain washer 3/4" dia.
	13 35 482	1	.Deflector plate return assembly
30	13 35 081	1	..Spring bar
31	13 35 082	1	..Spring holder
32	13 35 229	1	..Spring
33	13 37 207	2	..Rubber stop
34	13 35 083	1	..Washer
35	01 41 006	1	..Aeronut 5/8" UNF
36	13 37 208	1	..Spacer tube
37	05 03 105	1	..Split pin 3/16" dia. x 1 1/4" long
38	01 00 106	1	..Plain washer 5/8" dia.
39	13 35 060	1	.Parallel motion link c/w bushes
40	13 35 061	2	..Pivot pin c/w spring cotter
41	04 31 105	1	...Spring cotter
42	13 37 224	4	..Bush - steel
43	01 16 009	1	..Nut 1" UNC
44	13 37 014	1	..Tapped block
45	09 01 121	2	..Greaser
46	13 35 435	1	.Assembly lift ram - see separate page 76
47	13 35 061	1	.Pivot pin c/w spring cotter
48	04 31 105	1	..Spring cotter
49	13 35 041	1	.Pivot pin c/w spring cotter
50	04 31 105	1	..Spring cotter

# PUSHER ASSEMBLY



Ref	Part No	Qty	Description
	13 38 056	1	PUSHER ASSEMBLY comprising:-
1	13 35 469	1	.Pusher plate welded assembly
2	13 38 251	2	.Pin c/w spring dowel - main arm to pusher
3	04 22 624	1	..Spring dowel 3/8" x 1½"
4	09 01 121	1	.. Greaser straight 1/8" BSP
5	01 00 109	4	.Packing washer 1" diameter
6	13 38 333	1	.Pusher link pin
7	04 22 624	1	..Spring dowel 3/8" x 1½"
8	09 01 121	1	..Greaser - Straight - 1/8" BSP
9	13 35 301	1	.Link arm c/w bushes
10	13 37 224	2	..Steel bush 1" diameter
11	13 38 253	1	.. Bush 5/8" diameter
12	13 38 327	1	.Pin - link arm to mainframe
13	09 01 121	1	..Greaser 1/8" BSP
14	05 03 125	1	..Split pin 3/16" x 1½"
15	01 00 109	1	.. Washer 1" diameter
16	13 38 047	1	.Adjusting side rail left hand c/w pins
	13 38 048	1	.Adjusting side rail right hand c/w pins
17	60 00 039	2	..Headed pin
18	13 38 315	2	..Pin c/w split pin
19	05 03 084	1	...Split pin 3/16" x 1" long
20	13 35 479	2	.Pusher flap c/w pin and spring
21	60 01 064	1	..Spring
22	13 37 203	1	..Pin c/w split pin
23	05 03 123	1	...Split pin: 1/8" dia. x 1½" long
	13 38 051	1	.Twine box lid assembly
24	13 38 324	1	..Hinge pin c/w split pin
25	05 03 082	1	...Split pin 3/32" dia. x 1" long
26	13 38 322	1	..Bolt
27	05 03 083	1	.. Split pin 1/8" dia. x ¾" long
28	81 04 018	1	..Spring
29	13 38 081	1	..Stay assembly
30	01 00 103	2	..Plain washer 3/8"
31	05 03 104	2	..Split pin 5/32"
32	13 35 468	1	.Main arm assembly c/w bushes
33	13 37 224	4	..Steel bush 1" i/d
34	13 38 251	2	.Pin - main arm to mainframe c/w spring dowel
35	04 22 624	1	..Spring dowel 3/8" x 1½"
36	09 01 121	1	..Greaser 1/8" BSP
37	01 00 109	4	.Packing washer 1" diameter
38	13 38 312	1	.Cross shaft - main arm
39	13 38 313	2	.Cam stop c/w spring dowel
40	04 22 632	1	..Spring dowel 3/8" x 2" long
41	13 38 314	1	.Selector lever c/w ball and spring
42	04 22 628	1	..Spring dowel 3/8" x 1¾" long
43	13 38 355	1	..Spring
44	09 05 116	1	..Ball ½" diameter
45	04 22 616	1	..Spring dowel 3/8" x 1" long
46	13 38 046	1	.Pusher adjuster cam
47	03 12 105	1	.Bolt ½" x 1¼" long
48	01 00 105	1	.Plain washer ½"
49	01 41 005	1	.Aeronut ½" UNF
50	13 38 093	2	.Pusher ram (see page 76 )
51	13 35 041	2	.Pin - ram base c/w spring cotter
52	04 31 105	2	..Spring cotter
53	13 35 061	1	.Pin - ram rod c/w spring cotter
54	04 31 105	1	..Spring cotter

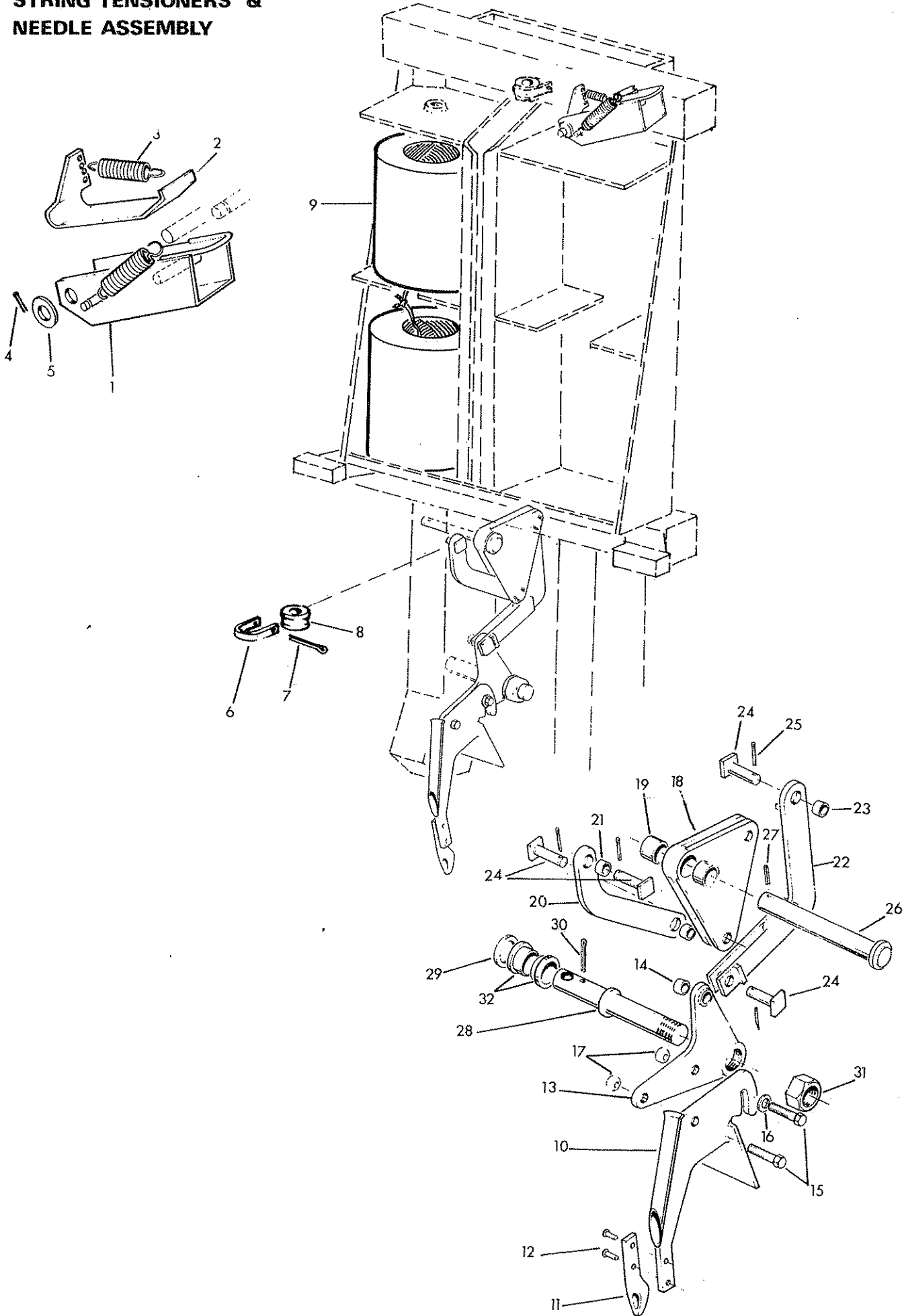
# CHUTE; CANOPY AND TOWBAR ASSEMBLY





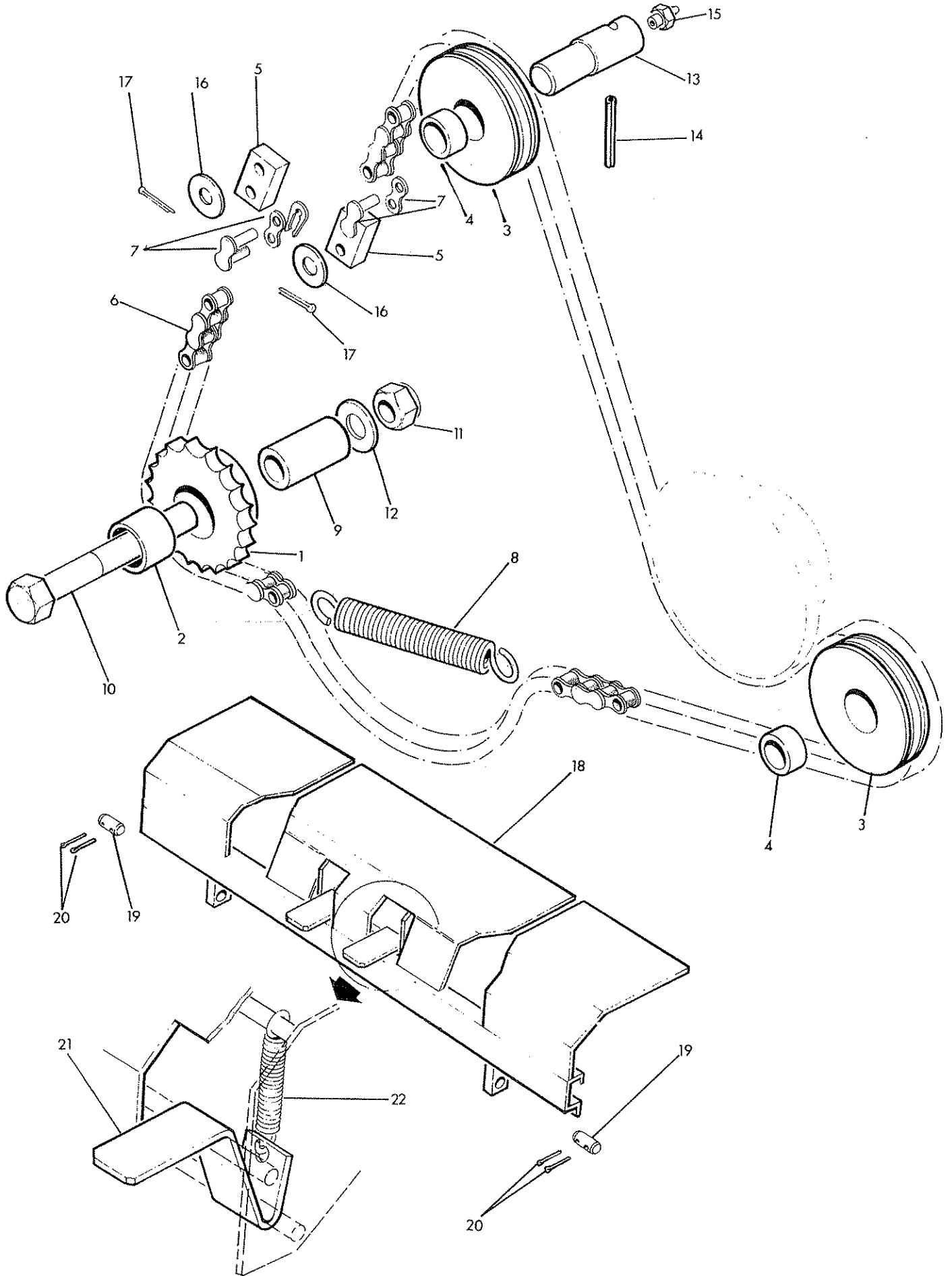
Ref	Part No.	Qty	Description
	13 36 286	1	BALE CHUTE & CANOPY INSTALLATION
	13 36 254	1	.Canopy carrier assembly
1	13 36 282	2	..Vertical post
2	13 36 009	2	..Side rail pivot
3	13 36 011	3	..Runner pivot
4	05 03 205	2	..Split pin 3/16" x 2½" long
5	13 36 010	1	..Cross tube
6	13 36 283	1	.Canopy welded assembly
7	05 03 126	2	..Split pin ¼" x 1½" long
8	04 31 217	2	..Linch pin
9	01 00 109	2	..Plain washer 1" dia
10	13 36 055	3	..Spring bar - inner
11	13 36 056	2	..Spring bar - outer
12	04 21 612	5	..Spring dowel 3/16" x 3/4"
13	13 36 263	1	.Chute chain
14	13 36 284	1	.Canopy mounting bracket RH c/w spring
15	13 36 285	1	.Canopy mounting bracket LH c/w spring
16	60 10 032	1	..Spring
17	02 11 123	1	..Bolt 3/8" UNF x 1½" long
18	01 11 003	2	..Nut 3/8" UNF
19	13 36 256	5	.Inner rail
20	05 03 095	1	..Split pin 3/16" x 1 1/8" long
21	13 36 258	2	.Side rail housing
22	05 03 095	1	..Split pin 3/16" x 1 1/8" long
23	13 36 012	2	.Carrier post
24	13 36 253	3	.Chute runner housing
25	05 03 095	1	..Split pin 3/16" x 1 1/8" long
26	13 36 008	3	.Universal post
27	13 36 252	1	.Baler tow bar w/assy c/w pins
28	13 35 144	1	..Pin c/w linch pin
29	04 31 217	1	...Linch pin
30	13 36 005	2	..Tow bar pin c/w sp. cotter
31	04 31 105	2	..Spring cotter
32	13 36 007	1	.Knuckle c/w ringed towbar pin
33	13 36 006	1	..Ringed towbar pin c/w linch pin
34	04 31 217	1	...Linch pin
	13 35 349	1	Drawbar assy
35	13 35 334	1	.Hitch housing c/w pins
36	13 35 210	2	..Offset pin c/w spring cotter
37	04 31 105	2	..Spring cotter
38	13 35 206	1	..Pivot pin c/w split pin
39	04 31 217	1	...Linch pin
40	13 35 332	1	.Drawbar housing
41	13 35 144	2	..Drawbar pin c/w linch pin
42	04 31 217	2	...Linch pin
43	13 35 333	1	.Packer drawbar

**STRING TENSIONERS &  
NEEDLE ASSEMBLY**



Ref	Part No.	Qty	Description
	13 38 042	1	ASSY OF NEEDLES & STRING <u>TENSIONERS</u>
1	13 38 043	2	.Tensioner body
2	13 38 044	2	.Tongue piece
3	60 01 064	4	.Spring
4	05 03 095	2	.Split pin 3/16" dia x 1¼" long
5	01 00 106	2	.Plain washers 5/8" dia
6	13 38 260	2	.String guide clamp
7	05 03 166	1	..Split pin ¼" x 2" long
8	13 38 261	2	.Porcelain string guide
9	13 35 316	1	.Twine pack - 2 balls
10	13 38 007	2	.Needle assy
11	13 35 243	1	..Needle eye
12	13 35 134	2	..C/sk rivet
13	13 38 008	2	.Needle carrier c/w bushes
14	13 38 253	1	..Bush 5/8" I/D x 5/8" long
15	03 11 105	2	..Setscrew ½" x 1¼" long
16	01 31 005	2	..Plain nut - thin ½" UNF.
17	01 00 105	1	.Plain washer ½"
18	13 38 009	2	.Bellcrank c/w bush
19	71 01 083	2	..Bush 1" I/D x 1" long
20	13 38 256	2	.Needle link - plain c/w bushes
21	13 38 253	2	..Bush 5/8" I/D x 5/8" long
22	13 38 041	2	.Forked needle link c/w bush
23	13 38 253	1	..Bush 5/8" I/D x 5/8" long
24	13 38 254	8	.Sq. headed pin c/w split pin
25	05 03 095	1	..Split pin 3/16" x 1 1/8" long
26	13 38 255	2	.Headed pin - bellcrank
27	04 22 624	1	..Spring cotter 3/8" x 1½" long
28	13 38 262	2	.Needle pivot pin c/w
29	01 00 109	1	..1" dia plain washer
30	05 03 125	1	..Split pin 3/16" x 1½"
31	01 31 009	2	..1" UNF plain nut thin
32	71 02 173	4	.1" dia headed bush

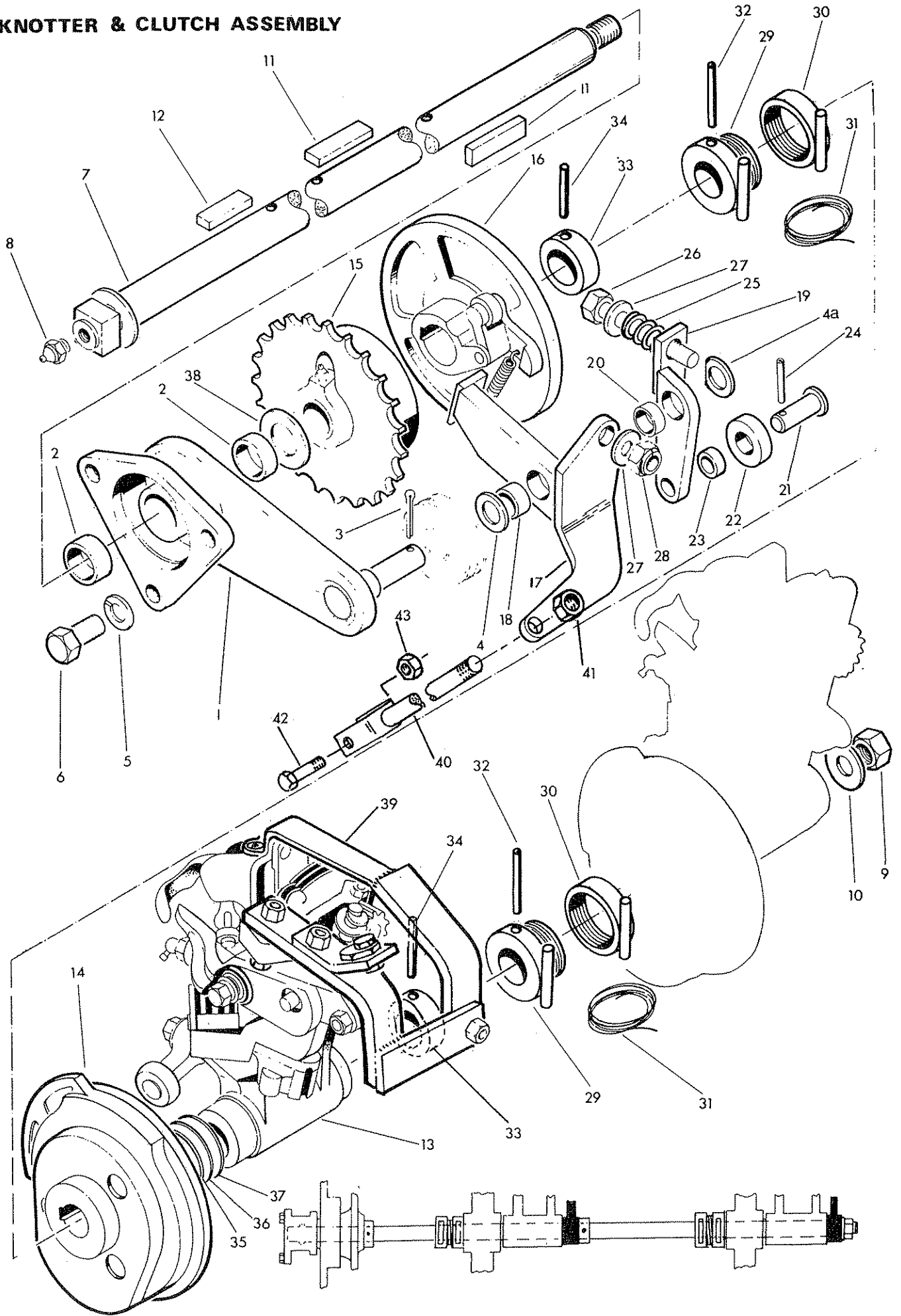
# CHAIN INSTALLATION



Ref	Part No	Qty	Description
	13 35 339		CHAIN INSTALLATION comprising:-
1	13 35 018	1	.Guide sprocket c/w bush
2	71 01 083	1	..Bush 1" dia. x 1" long
3	13 35 084	2	.Guide pulley c/w bush
4	71 01 083	1	..Bush 1" dia. c/w bush
5	13 35 157	2	. Chain block
6	13 37 040	1	. Chain 5/8" x 233 pitches c/w connectors
7	13 35 062	2	..Connecting link
8	60 10 032	1	. Spring
9	13 35 047	1	. Sprocket sleeve
10	02 11 486	1	. Bolt 5/8" UNF x 6" long
11	01 41 006	1	. Aeronut 5/8" UNF
12	01 00 106	1	. Washer 5/8" dia.
13	13 35 031	1	. Pivot pin c/w spring dowel and greaser
14	04 22 632	1	.. Spring dowel
15	09 01 121	1	.. Greaser 1/8" BSP
16	01 00 105	2	. Washer 1/2"
17	05 03 083	2	. Split pin 1/8" x 1"

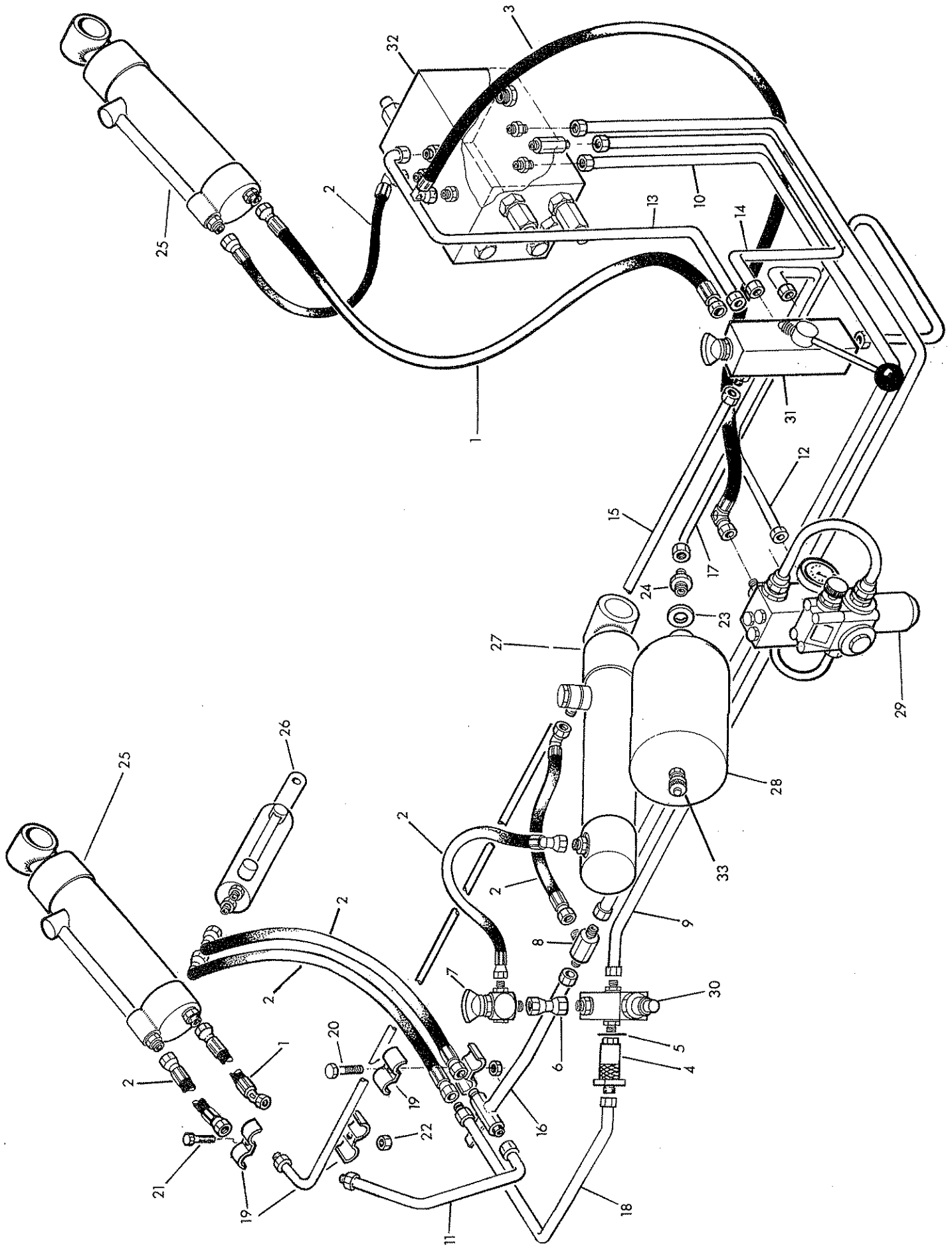
	13 35 351		KNOTTER COVER ASSEMBLY comprising:-
18	13 35 306	1	. Knotter cover c/w pivot pins
19	13 35 122	2	.. Pivot pin c/w split pin
20	05 03 083	4	... Split pin 1/8 x 1" long
21	13 35 307	2	. Flap
22	60 04 017	1	.. Spring

# KNOTTER & CLUTCH ASSEMBLY



Ref	Part No.	Qty	Description
	13 38 096	1	KNOTTER & CLUTCH ASSEMBLY
1	13 35 325	1	.Fixed clutch housing c/w bushes
2	13 35 230	2	..Bush 1 1/8" I/D x 3/8" long
3	05 03 105	1	..Split pin 3/16" dia x 1 1/4" long
4	13 38 405	1	..Special washer
4a	13 38 404	1	..'D' washer
5	01 00 206	3	..Spring washer 5/8" dia
6	03 11 086	3	..Setscrew 5/8" UNFx 1" long
7	13 35 324	1	.Knotter shaft c/w greaser & keys
8	09 01 121	1	..Greaser 1/8" BSP
9	01 41 006	1	..Aeronut 5/8" UNF
10	13 38 387	1	..Collar
11	15 76 214	2	..Key 3/8" x 5/16" x 2 1/4" long
12	13 35 151	1	..Key 3/8" x 5/16" x 1 3/4" long
13	13 38 388	2	.Knotter assy
14	13 38 036	2	.Cam gear
15	13 35 972	1	.Driving sprocket
16	13 35 969	1	.Rotating clutch housing
17	13 35 327	1	.Trip lever c/w bush
18	70 14 028	1	..Bush 3/4" I/D x 3/4" long
19	13 35 195	1	.Roller lever c/w bush
20	70 14 028	1	..Bush 3/4" I/D x 3/4" long
21	13 35 196	1	.Headed pin
22	13 35 197	1	..Roller c/w bush
23	13 38 253	1	...Bush 5/8" I/D
24	04 21 616	1	..Spring dowel 3/16" dia. x 1" long
25	73 14 075	1	.Spring
26	02 11 405	1	.Bolt 1/2" UNF x 5" long
27	01 00 105	2	.Washer 1/2" dia
28	01 41 005	1	.Aeronut 1/2" UNF
	13 37 029	2	.Knotter adjuster
29	13 37 026	1	.Male adjuster
30	13 37 027	1	..Female adjuster
31	13 37 028	1	..Locking wire - 16 standard wire gauge
32	04 41 632	1	..Scroll pin 3/16" x 2" long
33	13 37 136	2	.Spacer
34	04 41 632	1	..Scroll pin 3/16" x 2" long
35	13 37 020	As req'd	.Shim .010 thick
36	13 37 021	"	.Shim 21 standard wire gauge
37	13 37 022	"	.Shim 16 standard wire gauge
38	13 37 021	1	.Shim 21 standard wire gauge
39	13 38 098	2	.Stripper arm support assy
40	13 35 204	1	.Pull rod c/w nut & bolt
41	01 11 003	2	..Plain nut 3/8" UNF
42	02 11 123	1	..Bolt 3/8" UNF x 1 1/2" long
43	01 41 003	1	..Aeronut 3/8" UNF

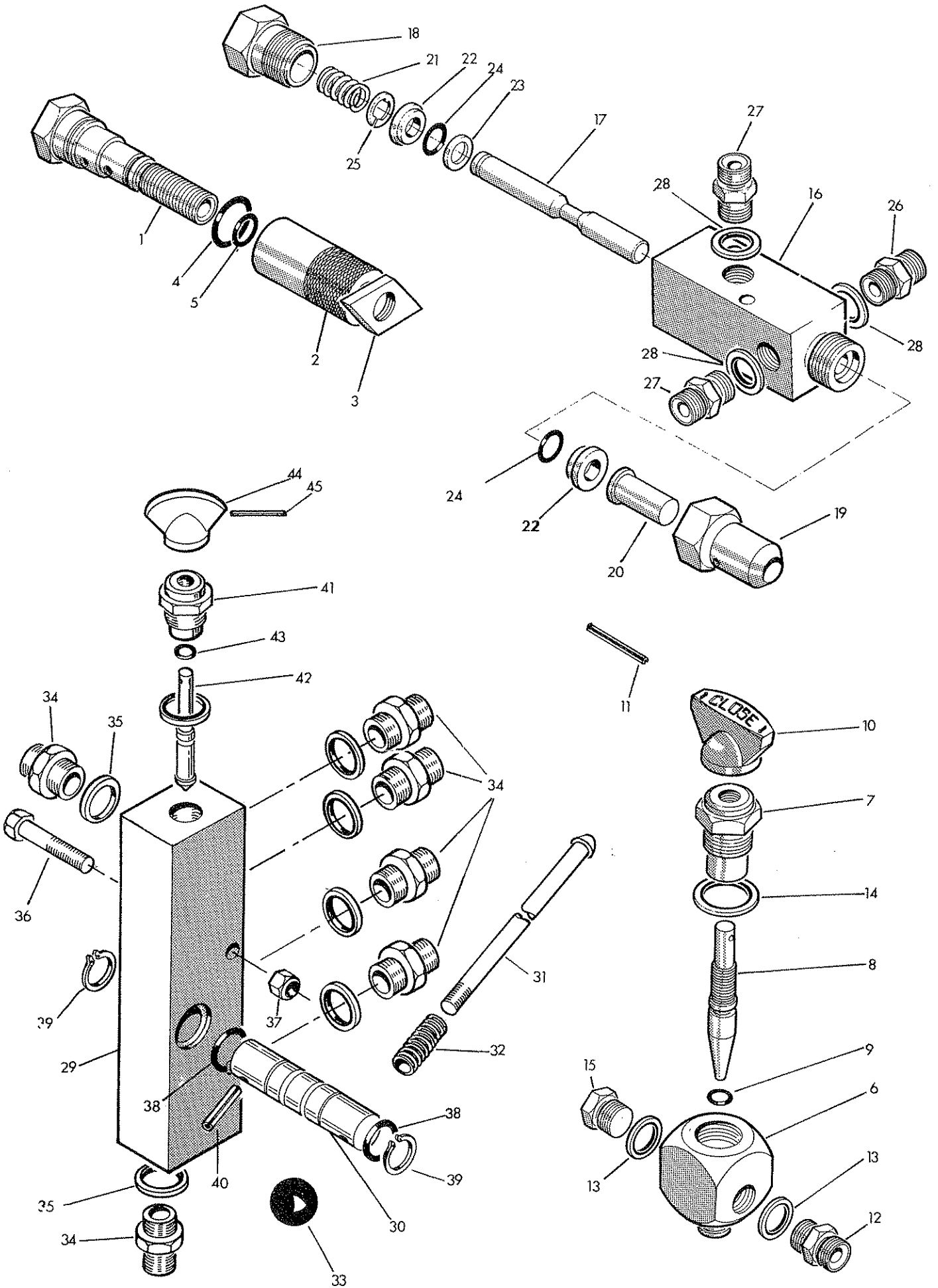
# HYDRAULIC INSTALLATION





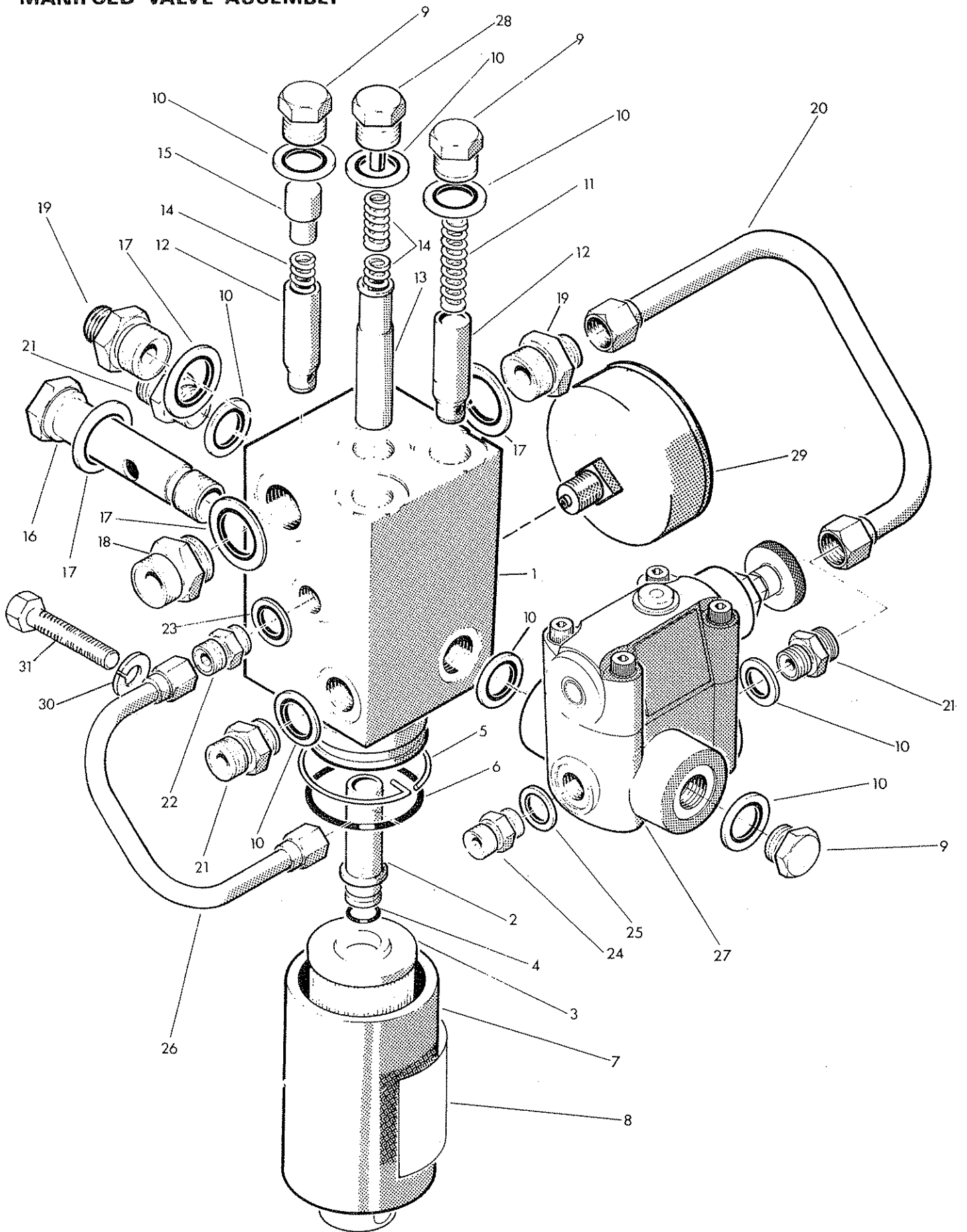
Ref	Part No	Qty	Description
	80 16 252		HYDRAULIC INSTALLATION
1	85 43 024	2	.Hose ½" BSP x 21" long
2	85 41 213	7	.Hose 3/8" BSP x 19½" long
3	85 01 080	1	.Hose ½" BSP x 22" long
4	81 21 450	1	.Lock restrictor assembly (see page58)
5	86 50 103	1	.Bonded seal 3/8" BSP
6	85 81 139	1	.Double swivel 3/8" BSP
7	13 37 134	1	.Hydraulic tap assembly (see page58)
8	85 81 121	1	.Tee ½" x ½" x 3/8" BSP
9	13 35 392	1	.Steel pipe assembly (lift control valve to sequence valve)
10	13 35 394	1	.Steel pipe assembly (tee to sequence valve)
11	13 38 085	1	.Steel pipe assembly (pusher ram to tee pipe)
12	13 38 086	1	.Steel pipe assembly (isolator valve to manifold valve)
13	13 38 087	1	.Steel pipe assembly (sequence valve top to isolator valve)
14	13 38 088	1	.Steel pipe assembly (sequence valve bottom to isolator valve)
15	13 38 089	1	.Steel pipe assembly (isolator valve to pusher ram (OS))
16	13 38 090	1	.Steel pipe assembly (tee pipe assembly to Gland Tee)
17	13 38 091	1	.Steel pipe assembly (accumulator to isolation valve)
18	13 38 092	1	.Steel pipe assembly (adjustable restrictor to swing arm ram base end)
19	60 12 026	4	.Pipe clamp
20	02 11 123	1	.Bolt 3/8" UNF x 1½" long
21	02 11 143	1	.Bolt 3/8" UNF x 1¾" long
22	01 41 003	2	.Aeronut 3/8" UNF
23	86 50 109	1	.Bonded seal 1¼" BSP
24	80 02 165	1	.Adaptor
25	13 38 093		Pusher ram (see page76)
26	13 35 430		Swing ram (see page77)
27	13 35 435		Lift ram (see page76)
28	13 35 961		Accumulator
29	81 27 500		Manifold valve (see page60)
30	81 27 354		Lift control valve (see page58)
31	81 27 403		Isolator valve assembly (see page58)
32	81 27 250		Sequence valve (see page62)
33	81 26 015		Charge valve assembly complete with 'O' ring
	81 26 016		.Charge valve core
	86 00 103		.'O' ring

# AUXILIARY HYDRAULIC ASSEMBLIES



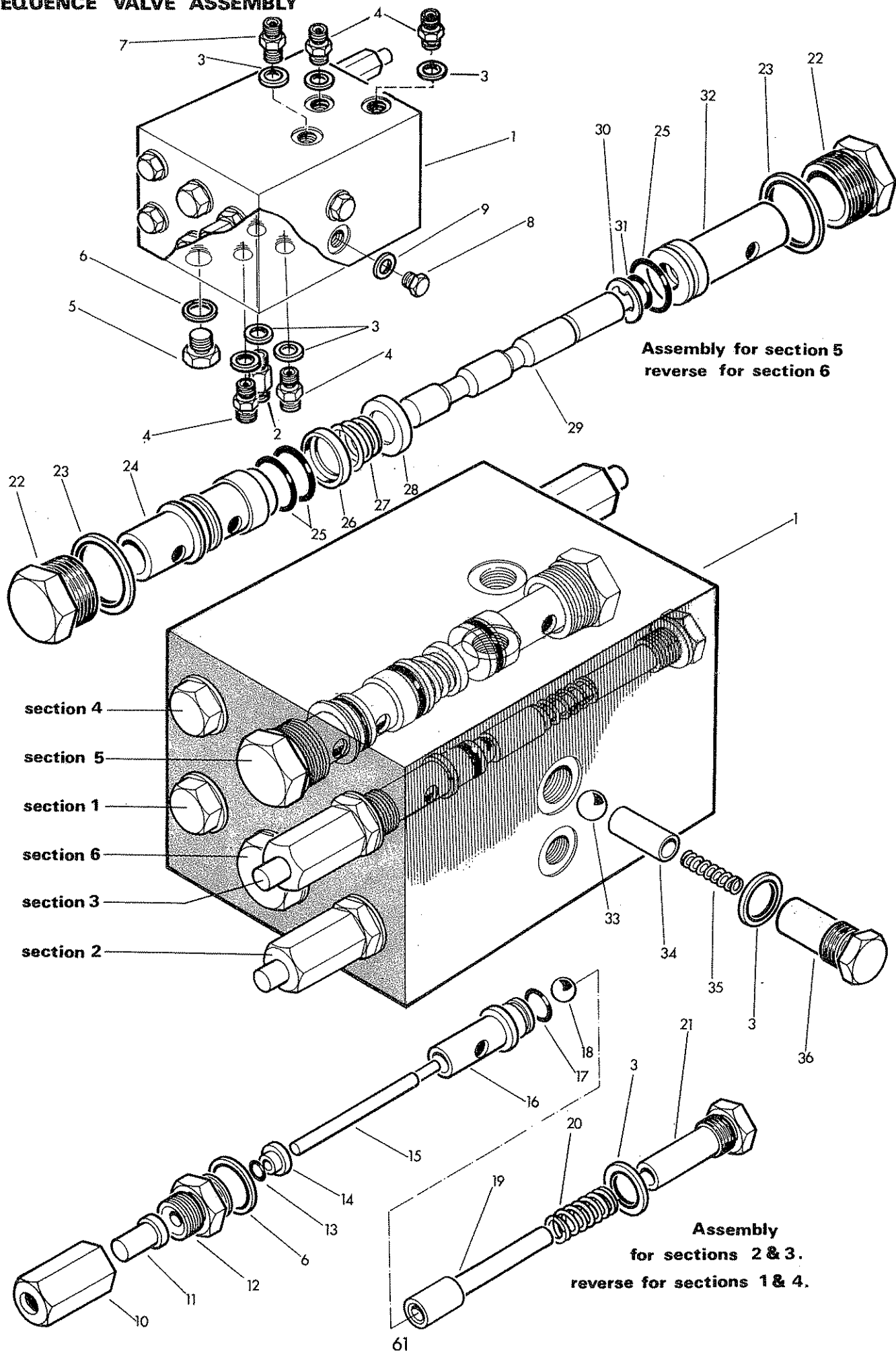
Ref	Part No	Qty	Description
	81 27 450	1	LOCK/RESTRICTOR ASSEMBLY
1	81 27 451	1	.Main body
2	81 27 116	1	.Sleeve
3	81 27 117	1	.Lock nut
4	87 00 646	1	.'O' ring
5	87 00 640	1	.'O' ring
	13 37 134	2	HYDRAULIC TAP ASSEMBLY
6	13 37 133	1	.Tap body
7	81 06 043	1	.Gland nut
8	81 06 044	1	.Spindle c/w 'O' ring
9	81 06 045	1	..'O' ring
10	81 08 006	1	.Knob
11	04 20 820	1	.Spring dowel 1/8" diameter
12	60 00 113	1	.Union 3/8" BSP
13	86 50 103	2	.Bonded seal 3/8" BSP
14	86 50 104	1	.Bonded seal 1/2" BSP
15	80 03 001	1	.Plug
	81 27 354	1	LIFT CONTROL VALVE ASSEMBLY c/w unions
	81 27 352	1	.Lift control valve
16	81 27 353	1	..Main body
17	81 27 110	1	..Spindle
18	81 27 111	1	..Spring cap
19	81 27 112	1	..Push rod cap
20	81 27 113	1	..Tappet
21	81 08 008	1	..Spring
22	81 27 114	2	..Seal plate
23	81 27 115	1	..Spacer
24	86 00 110	2	..'O' ring
25	81 14 058	1	..Circlip
26	60 00 112	1	.Union 1/2" - 3/8" BSP
27	60 00 113	2	.Union 3/8" BSP
28	86 50 103	3	.Bonded seal 3/8" BSP
	81 27 403	1	ISOLATION VALVE ASSEMBLY c/w unions
29	81 27 404	1	.main body
30	81 27 088	1	.Rotary spindle
31	81 27 089	1	.Operating lever
32	81 04 018	1	.Spring
33	09 03 112	1	.Lever knob
34	85 81 110	6	.Union 1/2" BSP
35	86 50 104	7	.Bonded seal 1/2" BSP
36	02 11 182	2	.Bolt 5/16" UNF x 2 1/4" long
37	01 41 002	2	.Aeronut 5/16" UNF
38	86 00 113	2	.'O' ring
39	04 01 114	2	.Circlip
40	04 22 524	1	.Spring dowel 5/16" dia. x 1 1/2" long
41	81 06 043	1	.Gland nut
42	81 27 119	1	.Spindle c/w 'O' ring
43	81 06 045	1	..'O' ring
44	81 08 006	1	.Tap knob
45	04 20 820	1	.Spring dowel 1/8" dia. x 1 1/4" long

# MANIFOLD VALVE ASSEMBLY



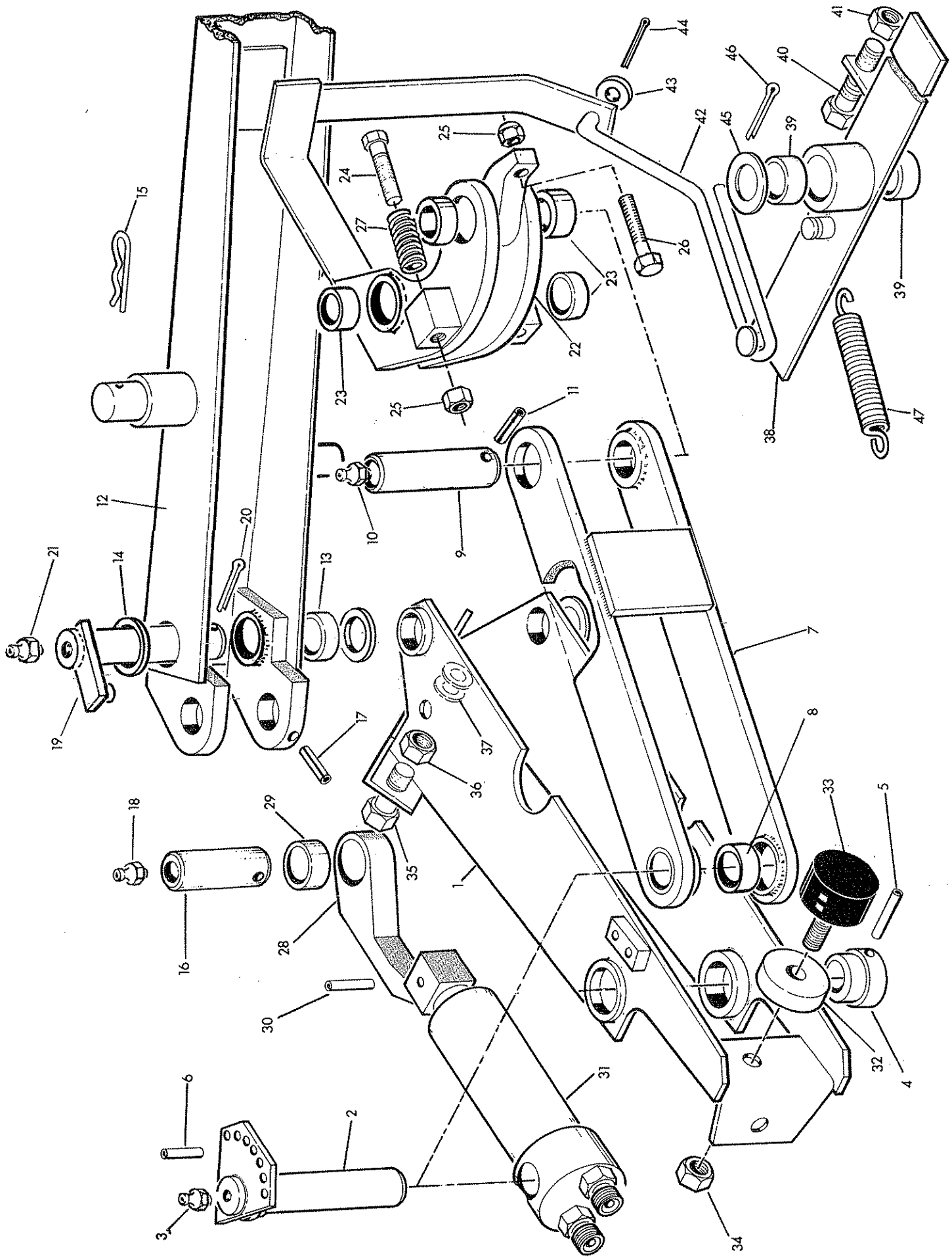
Ref	Part No	Qty	Description
	81 27 500		MANIFOLD VALVE ASSEMBLY
1	81 27 501	1	.Main body
2	81 27 076	1	.Filter adaptor
3	84 01 006	1	.Filter element c/w 'O' ring
4	87 00 641	1	..'O' ring
5	81 27 083	1	.Locking wire
6	86 00 306	1	.'O' ring
7	81 27 075	1	.Filter case
8	84 01 007	1	.Instruction label
9	81 03 001	3	.Plug 1/2" BSP
10	86 50 104	8	.Bonded seal 1/2" BSP
11	81 04 018	1	.Spring
12	81 27 078	2	.Piston
13	81 27 077	1	.Safety piston
14	81 11 009	3	.Spring
15	81 27 079	1	.Spring spacer
16	81 27 080	1	.Banjo bolt
17	86 50 106	4	.Bonded seal 3/4" BSP
18	85 81 136	1	.Union 3/4" BSP - 3/4" BSP
19	85 81 130	2	.Union 3/4" BSP - 1/2" BSP
20	81 27 081	1	.Pipe assembly 1/2" BSP
21	85 81 110	3	.Union 1/2" BSP - 1/2" BSP
22	60 00 113	1	.Union 3/8" BSP - 3/8" BSP
23	86 50 103	1	.Bonded seal 3/8" BSP
24	85 81 115	1	.Union 3/8" BSP - 1/4" BSP
25	86 50 102	1	.Bonded seal 1/4" BSP
26	81 27 082	1	.Pipe assembly 3/8" BSP
27	81 11 260	1	.Unloader valve assembly
28	81 27 086	1	.End plug
29	81 27 090	1	.Pressure gauge
30	01 00 203	2	.Spring washer 3/8" dia. - fixing
31	03 11 073	2	.Setscrew 3/8" UNF x 7/8" - fixing

# SEQUENCE VALVE ASSEMBLY



Ref	Part No.	Qty	Description
	81 27 250	1	SEQUENCE VALVE ASSEMBLY
1	81 27 252	1	.Main body
2	81 27 121	1	.Extended union 1/2" - 3/8" BSP
3	86 50 103	11	.Bonded seal 3/8" BSP
4	60 00 112	4	.Union 1/2" - 3/8" BSP
5	81 03 001	1	.Plug 1/2" BSP
6	86 50 104	5	.Bonded seal 1/2" BSP
7	60 00 113	1	.Union 3/8" BSP
8	85 81 133	1	.Plug - 1/4" BSP
9	86 50 102	1	.Bonded seal - 1/4" BSP
10	81 27 006	4	.Plunger guide
11	81 27 010	4	.Plunger pilot plug
12	81 27 004	4	.Push rod guide
13	86 00 103	4	.'O' ring
14	81 27 013	4	.Push rod guide ring
15	81 27 009	4	.Push rod
16	81 27 007	4	.Ball seat
17	86 00 109	4	.'O' ring
18	09 05 112	4	.Ball 3/8" dia
19	81 27 008	4	.Spring seat
20	81 11 009	4	.Spring
21	81 27 005	4	.Retaining plug
22	81 27 067	4	.End plug
23	86 50 218	4	.Bonded seal 1 1/8" UNF
24	81 27 068	2	.Valve sleeve
25	86 00 401	6	.'O' ring
26	81 27 070	2	.Seal plate
27	81 14 003	2	.Spring
28	81 27 071	2	.Spring plate
29	81 27 066	2	.Valve spool
30	81 14 058	2	.Circlip
31	86 00 110	2	.'O' ring
32	81 27 069	2	.Seal spacer
33	09 05 116	1	.Ball 1/2" dia
34	81 27 084	1	.Spring guide
35	81 27 019	1	.Spring
36	81 27 072	1	.Spring retainer
	86 99 151		SEAL KIT

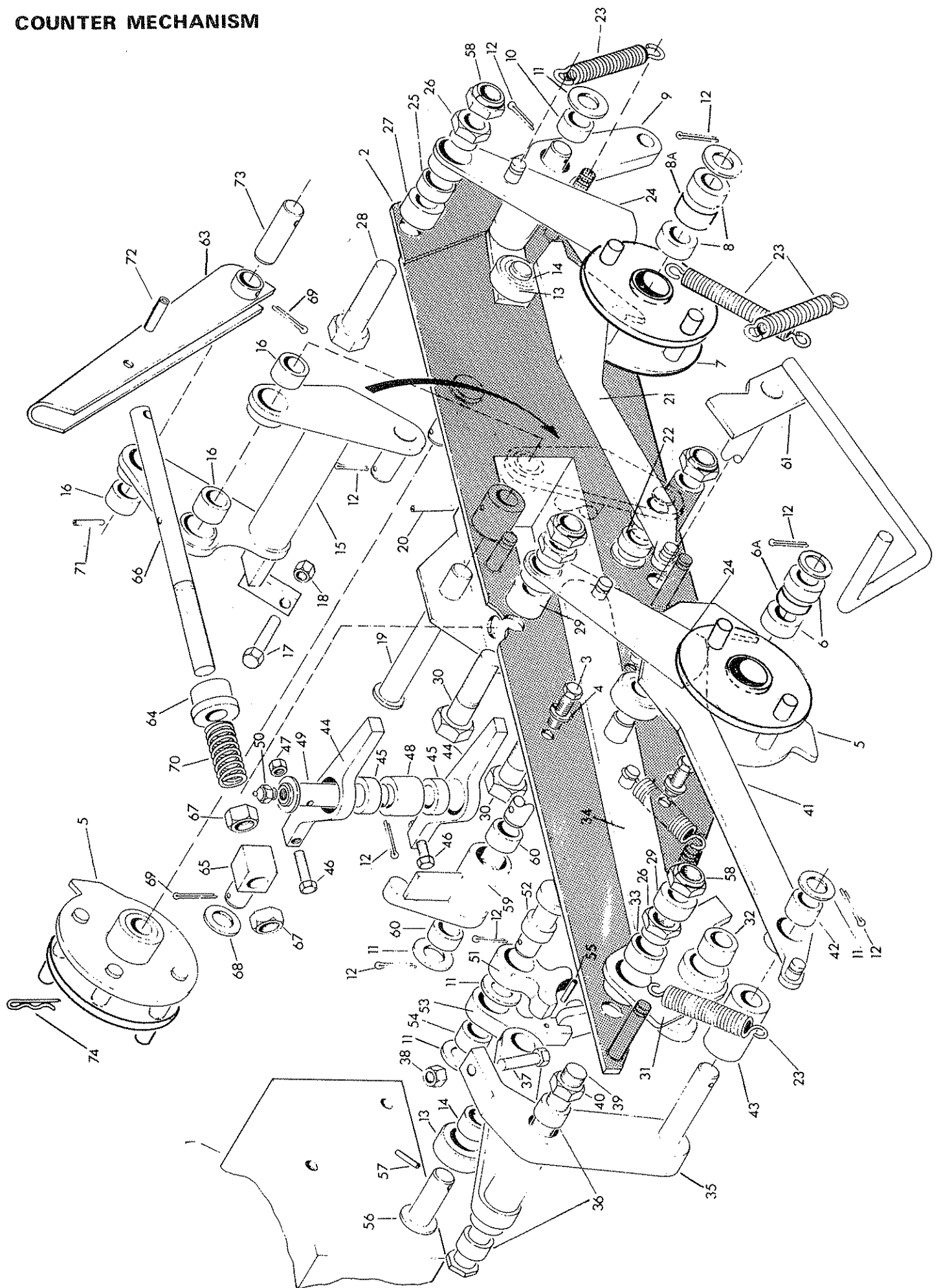
# SWING ARM ASSEMBLY





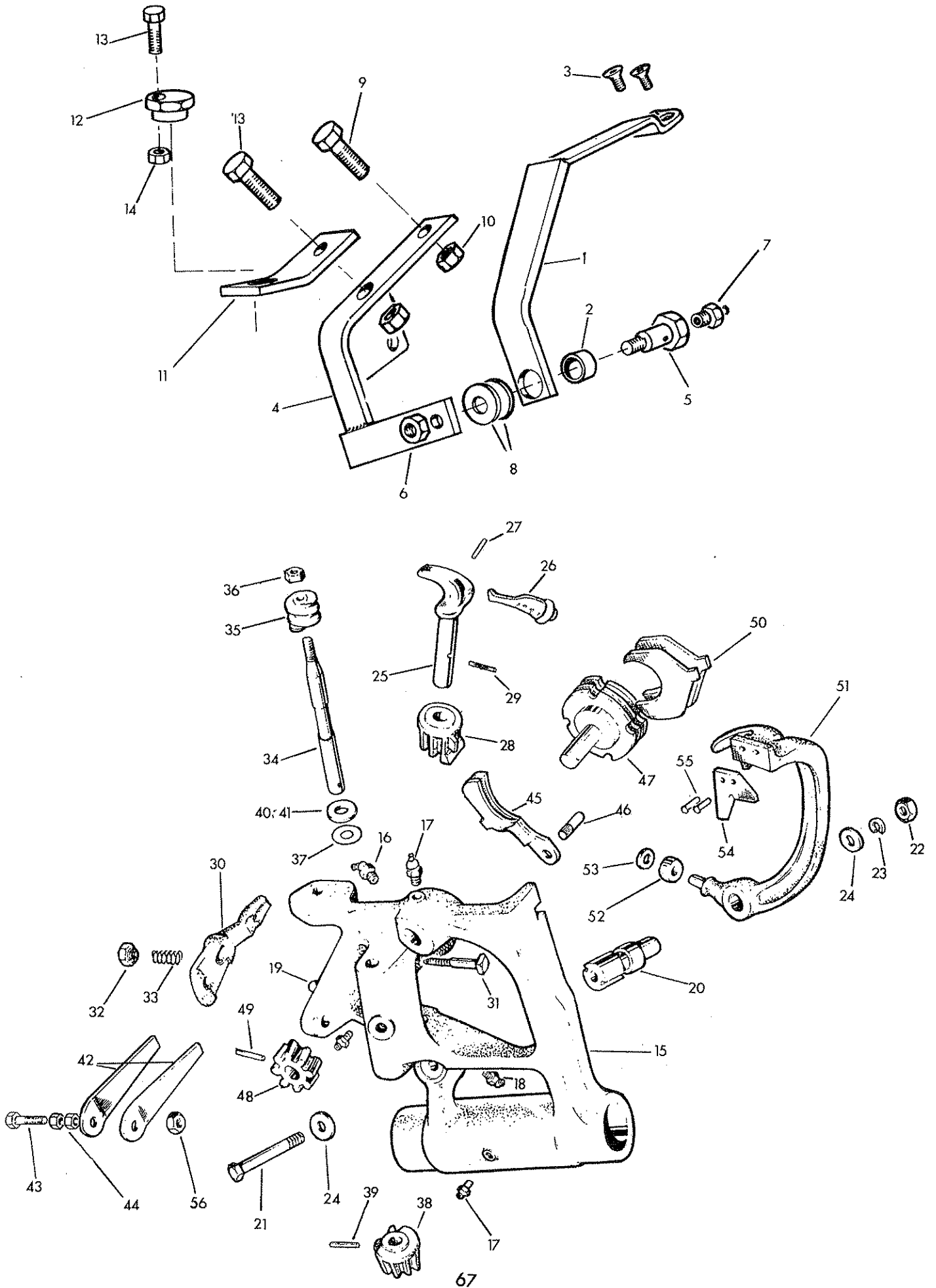
Ref	Part No.	Qty	Description
	13 38 058	1	SWING ARM c/w RAM
1	13 35 317	1	. Swing arm housing
	13 35 087	1	. Ram base end pin c/w collars
2	13 35 088	1	.. Pin c/w greaser
3	09 01 125	1	... Greaser 1/8" BSP x 35°
4	13 35 089	1	.. Eccentric collar c/w dowel
5	04 22 632	1	... Spring dowel 3/8" dia. x 2"
6	04 22 620	1	.. Spring dowel 3/8" x 1 1/4" long
7	13 38 050	1	. Main link assembly c/w bushes and pin
8	70 12 037	2	.. Bush - steel 1/2" long
9	13 38 318	1	.. Locking pin c/w greaser
10	09 01 121	1	... Greaser 1/8" BSP straight
11	04 21 624	1	... Spring dowel 3/16" dia. x 1 1/2" long
12	13 35 321	1	. Swing arm c/w bushes and pins
13	13 37 224	2	.. Bush - steel 1" long
14	72 12 006	2	.. Plain washer 1 1/4" dia.
15	04 31 105	1	.. Spring cotter
16	13 38 319	1	.. Trigger link pin c/w greaser
17	04 22 628	1	... Spring dowel 3/8" dia. x 1 3/4" long
18	09 01 121	1	... Greaser 1/8" BSP straight
19	13 38 320	1	.. Pivot pin c/w greaser
20	05 03 125	1	... Split pin 3/16" dia. x 1 1/2" long
21	09 01 121	1	... Greaser 1/8" BSP straight
22	13 38 049	1	. Trigger link assembly c/w bushes etc.
23	70 12 037	4	.. Bush steel - 1/2" long
24	02 11 223	2	.. Bolt 3/8" UNF x 2 3/4" long
25	01 41 003	3	.. Aeronut 3/8" UNF
26	03 11 103	1	.. Setscrew 3/8" UNF x 1 1/4" long
27	60 01 207	2	.. Spring
28	13 35 319	1	. Rod end c/w bush and spiroi pin
29	13 37 224	1	.. Bush - steel 1" long
30	04 42 824	1	.. Spiroi pin - 1/2" dia. x 1 1/2" long
31	13 35 430	1	. Swing ram assembly (see page 77)
32	13 35 095	1	. Stop boss
33	71 03 046	1	. Rubber buffer c/w aeronut
34	91 43 005	1	.. Aeronut M10
35	02 11 166	2	. Bolt 5/8" UNF x 2" long
36	01 41 006	2	. Aeronut 5/8" UNF
37	01 00 106	as req'd	. Packing washer 5/8" dia.
	13 35 342	1	INTERLOCK ASSEMBLY comprising:-
38	13 35 305	1	. Interlock lever c/w bushes
39	71 01 083	2	.. Bush - Oilite - 1" i/d
40	03 11 166	1	.. Setscrew 5/8" UNF x 2" long
41	01 41 006	1	.. Aeronut 5/8" UNF thin
42	13 35 294	1	. Pull rod
43	01 00 105	1	.. Plain washer 1/2" dia.
44	05 03 095	1	. Split pin 3/16" x 1.1/8" long
45	01 00 109	1	. Plain washer 1" dia.
46	05 03 125	1	. Split pin 3/16" dia x 1 1/2" long
47	60 10 032	1	. Spring

# COUNTER MECHANISM



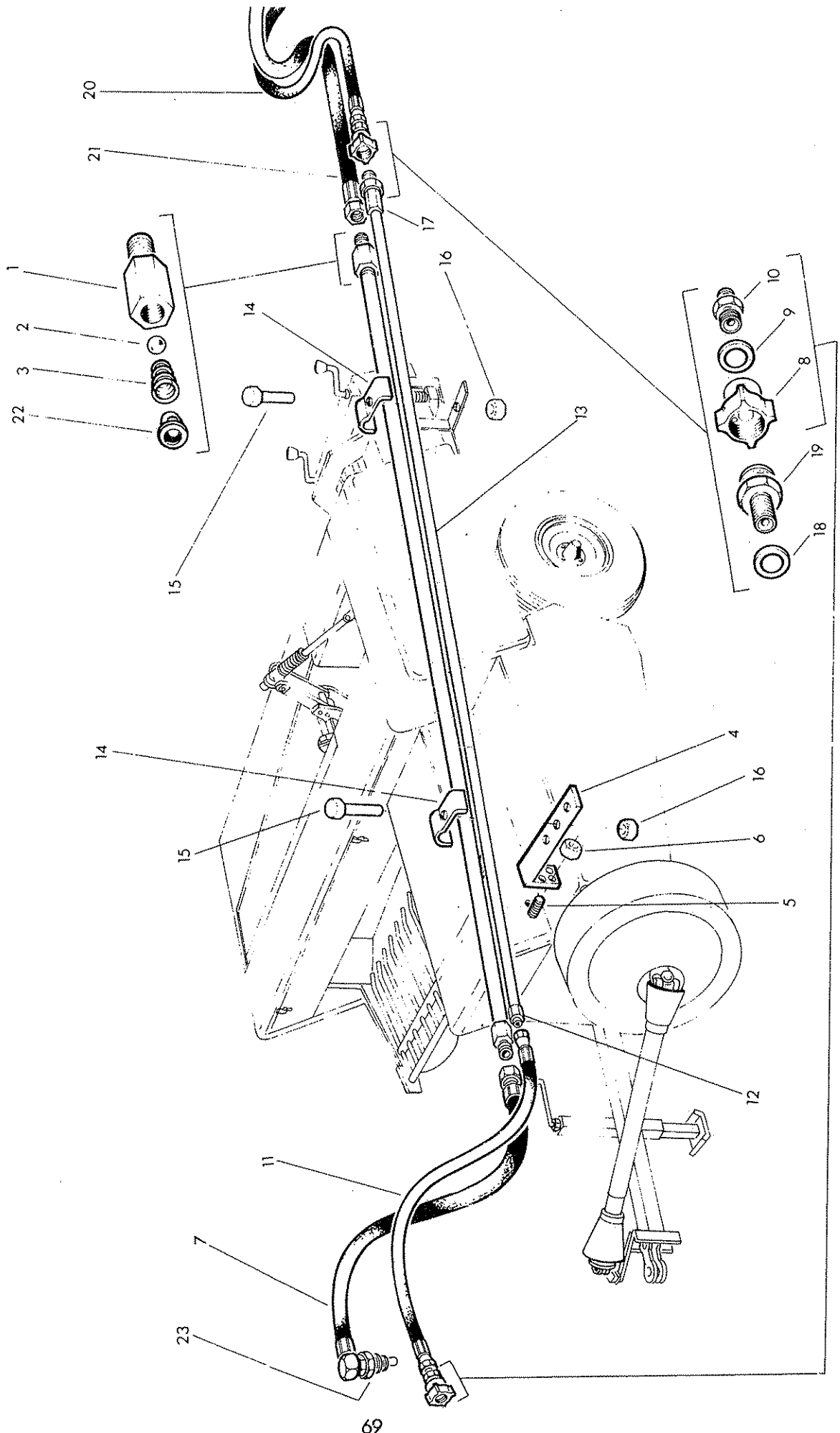
Ref	Part No	Qty	Description
	13 35 500	1	COUNTER MECHANISM c/w SEQUENCE VALVE
1	81 27 250	1	..Sequence valve
	13 35 499	1	..Counter mechanism
2	13 35 501	1	..Counter mounting plate
3	03 12 063	3	..Setscrew 3/8" UNC x 3/4" long
4	01 00 203	3	..Spring washer 3/8" dia.
5	13 35 484	2	..Counter cam - 4 pin c/w bush
6	13 38 253	2	...Bush 5/8" inside diameter
6a	13 37 209	1	...Spacer
7	13 35 485	1	..Counter cam - 5 pin c/w bush
8	13 38 253	2	...Bush - 5/8" inside diameter
8a	13 37 209	1	...Spacer
9	13 35 175	1	..Cam follower c/w bush
10	13 38 253	1	...Bush 5/8" inside diameter
11	01 00 606	8	..Thin washer 5/8" diameter
12	05 03 103	8	..Split pin 1/8" diameter x 1.1/4" long
13	13 35 176	3	..Cam roller 1.1/4" dia. c/w bush
14	13 38 253	3	...Bush 5/8" inside diameter
15	13 35 407	1	..Trip arm c/w bush
16	13 38 253	3	...Bush 5/8" inside diameter
17	03 11 103	1	...Setscrew 3/8" UNF x 1.1/4" long
18	01 00 003	1	...Nut 3/8" UNF
19	13 35 177	1	..Trip arm pivot pin c/w spring dowel
20	04 21 516	1	...Spring dowel 5/32" diameter x 1" long
21	13 35 408	1	..Push counter hook c/w bush
22	13 38 253	1	...Bush 5/8" inside diameter
23	60 01 064	5	..Tension spring
24	13 35 178	2	..Counter pawl c/w bush
25	70 14 028	1	...Bush 7/8" inside diameter
26	13 35 179	3	..Spacer nut
27	13 35 180	1	..Spacer - short
28	02 11 246	1	..Bolt 5/8" UNF x 3" long
29	13 35 181	2	..Spacer - long
30	02 11 246	2	..Bolt 5/8" UNF x 3" long
31	13 35 182	1	..Trip plate c/w bushes
32	70 14 028	1	...Bush 7/8" inside diameter
33	13 38 253	1	...Bush 5/8" inside diameter
34	13 35 409	1	..Push rod
35	13 35 410	1	..Striker arm
36	13 38 253	2	...Bush 5/8" inside diameter
37	03 11 103	1	...Screw 3/8" UNF x 1.1/4" long
38	01 11 003	1	...Nut 3/8" UNF
39	13 35 183	1	..Platform trip pivot
40	01 11 006	1	..Nut 5/8" UNF
41	13 35 411	1	..Lift counter hook c/w bush
42	13 38 253	1	...Bush 5/8" inside diameter
43	13 35 184	1	..Trip roller
44	13 35 185	2	..Valve rocker c/w bush and screw
45	13 38 253	1	...Bush 5/8" inside diameter
46	03 11 103	1	...Screw 3/8" UNF x 1.1/4" long
47	01 11 003	1	...Nut 3/8" UNF
48	13 35 186	1	..Rocker spacer
49	13 35 187	1	..Rocker pivot pin c/w greaser
50	09 01 121	1	..Greaser 1/8" BSP
51	13 35 188	1	..Bell crank c/w bush
52	13 38 253	1	...Bush 5/8" inside diameter
53	13 35 412	1	..Trip lever c/w bush, and spring dowel
54	13 38 253	1	...Bush 5/8" inside diameter
55	04 20 820	1	...Spring dowel 1/8" dia. x 1.1/4" long
56	13 35 189	1	..Roller pivot c/w spring dowel
57	04 20 820	1	...Spring dowel 1/8" diameter x 1.1/4" long
58	01 51 006	4	..Thin aeronut 5/8" UNF
59	13 35 207	1	..Slave rocker c/w bush
60	13 38 253	2	...Bush 5/8" inside diameter
61	13 38 061	1	..Hand trip lever
	13 35 335	1	..Folding link
63	13 35 219	1	...Folded link
64	13 35 220	1	...Collar
65	13 35 221	1	...Swivel block
66	13 35 222	1	...Screwed rod
67	01 11 006	2	...Nut 5/8" UNF
68	01 00 106	1	...Washer 5/8" diameter
69	05 03 104	2	...Split pin 5/32" diameter x 1.1/4" long
70	12 57 027	1	...Spring
71	04 20 816	1	...Spring dowel 1/8" diameter x 1" long
72	04 42 520	1	...Spring dowel 5/16" diameter x 1.1/4" long
73	13 35 223	1	..Pin
74	04 31 105	1	..Spring cotter

# KNOTTER ASSEMBLY



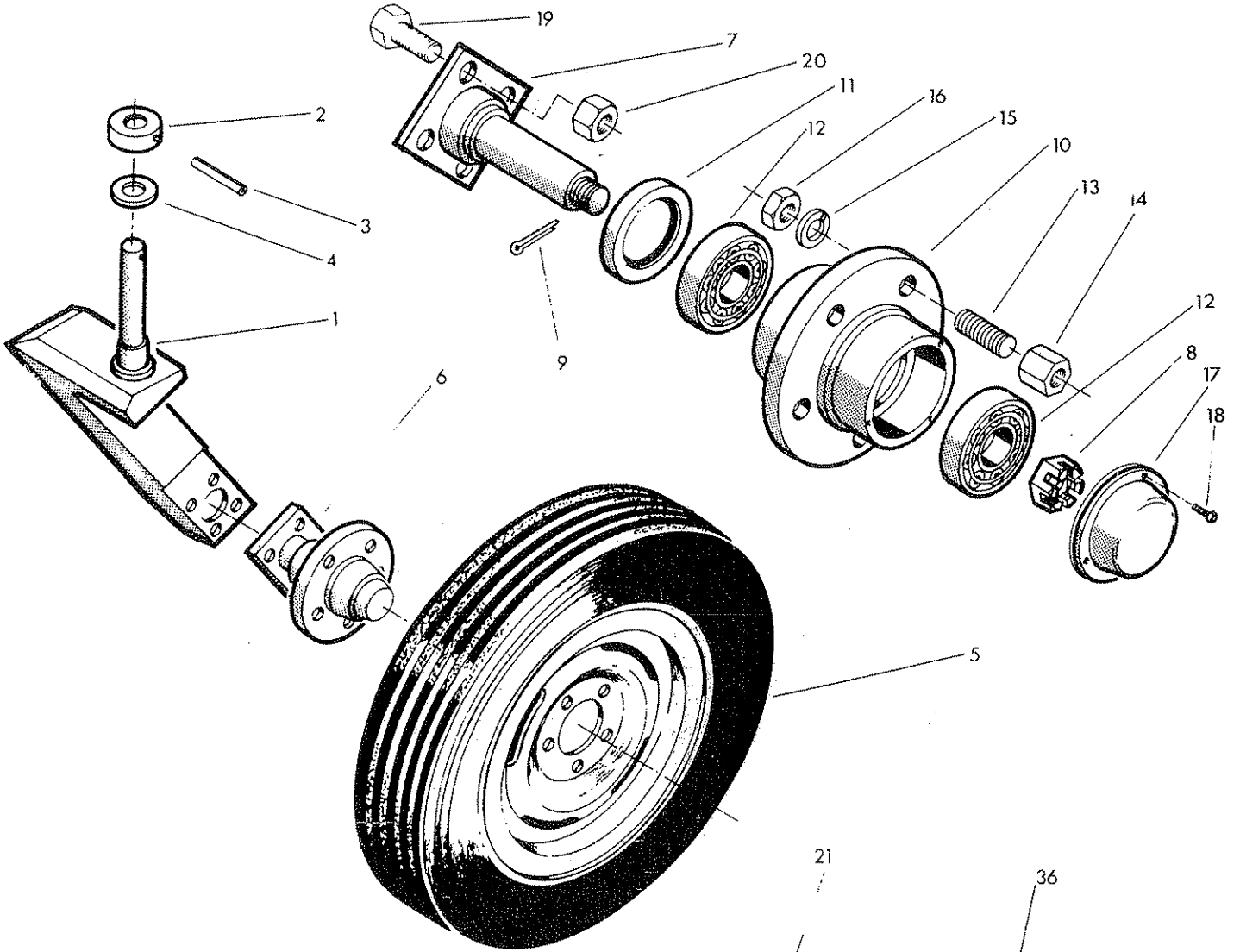
Ref	McConnel Part No.	Bamford Part No.	Qty	Description
	13 38 098	-	1	STRIPPER ARM SUPPORT ASSEMBLY
1	13 38 095	-	1	.Stripper Support Arm c/w Bush
2	71 01 033	-	1	..Steel bush 5/8" I/D
3	03 51 041	-	2	..1/4" UNF c/sk Skt Setscrew
4	13 38 094	-	1	.Pivot arm
5	13 38 385	-	1	.Pivot bolt c/w greaser & nut
6	01 41 003	-	1	..Aeronut 3/8" UNF
7	09 01 124	-	1	..Greaser 1/8" BSP
8	01 00 606	-	As req'd	..Thin washer 5/8" Dia
9	02 11 124	-	1	.Bolt 7/16" UNF x 1 1/2" lg
10	01 41 004	-	1	.Aeronut 7/16" UNF
11	13 38 386	-	1	.Knotter stay
12	14 68 062	-	1	..Eccentric collar
13	03 12 103	-	2	..Setscrew 3/8" UNF x 1 1/4" lg
14	01 41 003	-	2	..Aeronut 3/8" UNF
	13 38 388	-		KNOTTER ASSY - COMPRISING
15	13 35 953	46528BS	1	.Knotter frame with locating pins
16	09 01 114	-	1	..Angular greaser 1/4" BSF
17	09 01 111	-	3	..Straight greaser 1/4" BSF
18	09 01 113	-	1	..Greaser 90° 1/4" BSF
19	13 35 954	BL 1090	1	..Pin in knotter frame for cam
20	13 35 978	BL 1039	1	.Pivot shaft for stripper arm
21	02 12 243	-	1	.Bolt 3/8" UNC x 3" long
22	01 12 003	-	1	.Nut 3/8" UNC
23	01 00 203	-	1	.Spring washer 3/8" I/D
24	01 00 103	-	2	.Plain washer 3/8" I/D
25	13 35 979	BL1040H	1	.Bill hook assy
26	13 35 980	BL1041H	1	.Tongue & roller
27	13 35 981	BL1042	1	.Pin -Tongue fixing
28	13 35 945	49731B1	1	.Bevel pinion - bill hook
29	04 21 614	-	1	.Spring cotter 7/8" x 3/16" dia
30	13 35 984	B665	1	.Bill hook cam
31	13 35 985	44599B1	1	.Cam Adjuster bolt
32	01 12 002	-	1	.Nut 5/16" UNC
33	13 35 986	BL1071	1	.Cam spring
34	13 35 987	BL1081	1	.Worm shaft
35	13 35 988	BL1069	1	.Worm
36	01 11 003	-	1	.Nut 3/8" UNF
37	13 35 958	93456	As req'd	Shim .015 thick
38	13 35 946	49732B1	1	.Bevel pinion - worm
39	04 21 614	-	1	.Spring dowel 3/16" x 7/8" lg
40	13 35 991	93454	As req'd	Shim 1/16" thick
41	13 35 992	93455	As req'd	Shim 1/32" thick
42	13 35 993	BL1073	2	.Leaf spring
43	03 12 163	-	1	.Setscrew 3/8" UNC x 2" lg
44	01 12 003	-	2	.Nut 3/8" UNC
45	13 35 994	48276B2	1	.Twine retainer assy
46	13 35 995	BL2303	1	.Locating pin
47	13 35 996	35147B2	1	.Twine disc complete
48	13 35 997	36076B1	1	.Pinion for twine disc
49	04 21 614	-	1	.Spring dowel 3/16" x 7/8" lg
50	13 35 999	BL1034	2	.Cleaner for twine disc
51	13 35 957	B401	1	.Stripper arm c/w twine knife
52	13 35 959	BL1078	1	..Roller
53	13 35 960	93420	1	..Plain washer
54	13 35 976	BL1030	1	..Knife
55	13 38 389	-	2	..Round head rivet 3/16" x 1/2" lg
56	01 42 003	-	1	.Aeronut 3/8" UNC

# BALER HYDRAULIC FITTINGS KIT



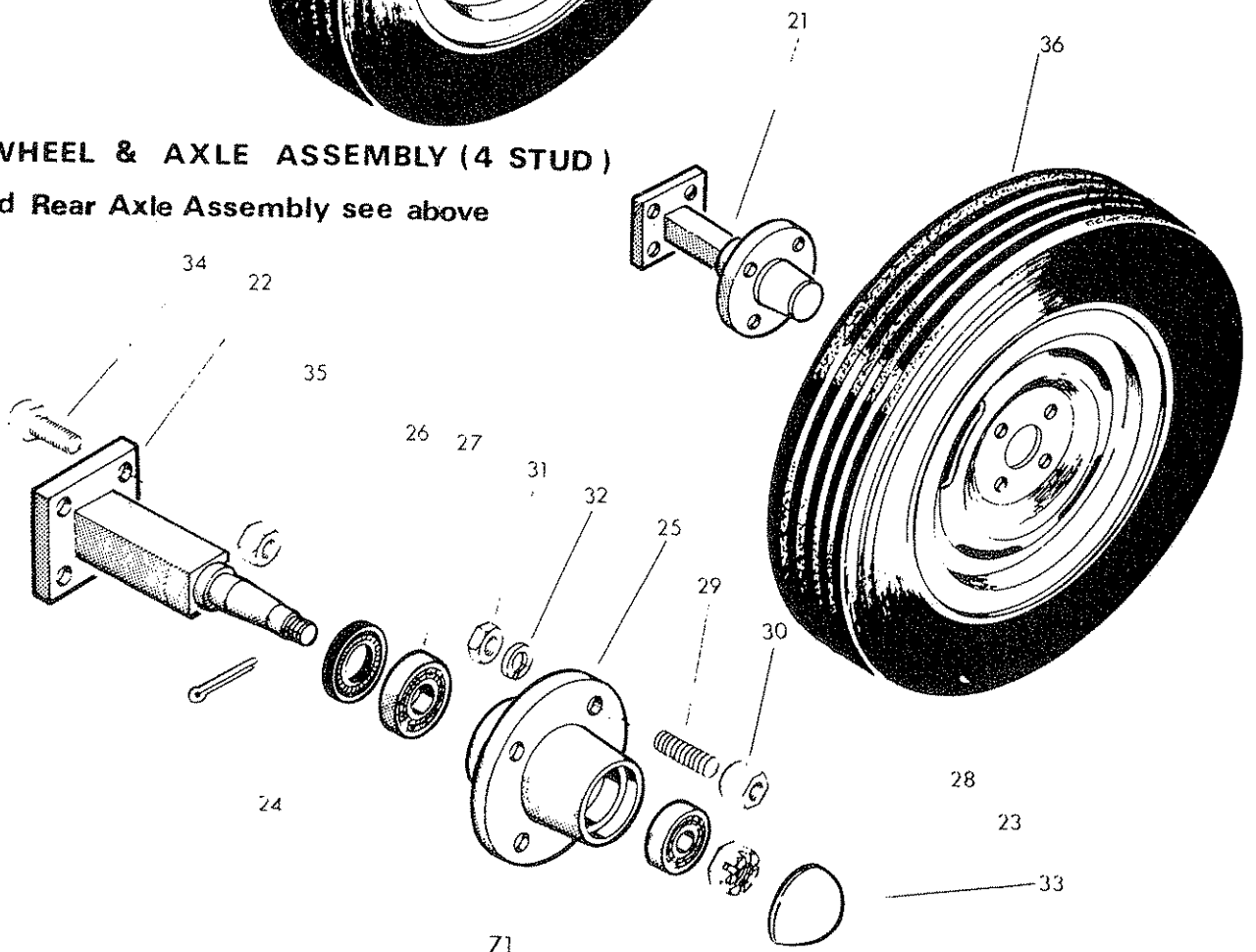
Ref	Part No	Qty	Description
	80 16 251		BALER PIPING INSTALLATION
1	85 81 140	1	.Non return valve housing
2	09 05 124	1	.Steel ball $\frac{3}{4}$ " diameter
3	80 16 001	1	.Conical spring
4	13 36 022	1	.Pipe stay c/w bolts and nuts
5	03 11 105	2	.. Setscrew $\frac{1}{2}$ " UNF x $1\frac{1}{4}$ " long
6	01 41 005	2	.. Aeronut $\frac{1}{2}$ " UNF
7	85 01 069	1	.Hose $\frac{3}{4}$ " BSP x 120" long
8	85 90 023	2	.Female self-sealing coupling
9	86 50 103	2	.Bonded seal $\frac{3}{8}$ " BSP
10	60 00 112	2	.Union $\frac{3}{8}$ " BSP x $\frac{1}{2}$ " BSP
11	85 13 024	1	.Hose $\frac{1}{2}$ " BSP x 120" long
12	85 81 142	1	.Adaptor $\frac{1}{2}$ " BSP x $\frac{3}{8}$ " BSP
13	13 36 265	1	.Return & pressure pipe welded assembly
14	13 36 013	2	.Pipe clip c/w nut and bolt
15	02 11 165	1	.. Bolt $\frac{1}{2}$ " UNF x 2" long
16	01 41 005	1	.. Aeronut $\frac{1}{2}$ " UNF
17	80 02 056	1	.Adaptor
18	86 50 104	1	.Bonded seal $\frac{1}{2}$ " BSP
19	85 90 013	1	.Male self-sealing coupling
20	85 13 014	1	.Hose $\frac{1}{2}$ " BSP x 84" long
21	85 01 070	1	.Hose $\frac{3}{4}$ " BSP x 84" long
22	80 16 002	1	.Ball stop
23		1	.Tractor return connector - to suit tractor

**FRONT WHEEL & CASTOR ASSEMBLY**



**REAR WHEEL & AXLE ASSEMBLY (4 STUD)**

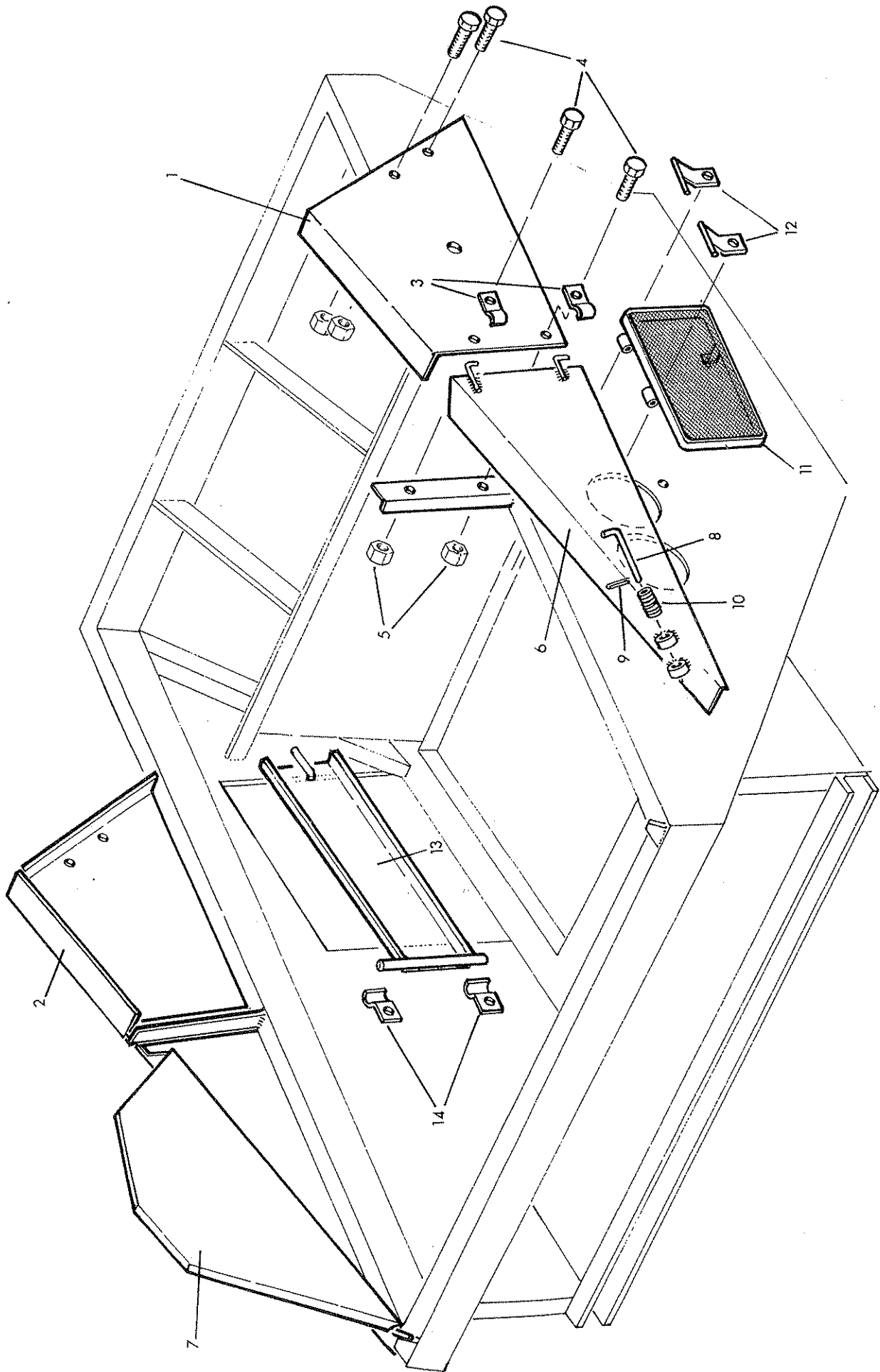
For 5 stud Rear Axle Assembly see above





Ref	Part No	Qty	Description	
	13 35 428	1	WHEEL & CASTOR ASSEMBLY right hand	Not illustrated
	13 35 364	1	..Castor RH c/w collar & washer	
	71 06 025	1	..Collar c/w spring dowel	
	04 22 740	1	...Spring dowel 7/16" diameter x 2½" long	
	13 37 043	1	..Thrust washer	
	13 35 429	1	WHEEL & CASTOR ASSEMBLY left hand	
1	13 35 363	1	..Castor LH c/w collar and washer	
2	71 06 025	1	..Collar c/w spring dowel	
3	04 22 740	1	...Spring dowel 7/16" dia. x 2½" long	
4	13 37 043	1	..Thrust washer	
	The following items 5 - 20(inclusive) are common to both wheel and castor assemblies:-			
5	13 35 365	1	..Wheel & tyre assembly comprising:-	
	13 35 359	1	..Wheel	
	13 35 360	1	..Tyre 5-50 x 16 x 6 ply	
	13 35 361	1	..Inner tube	
6	13 35 358	2	..5 stud stub axle assembly comprising:-	
7	13 37 137	1	..Stub axle shaft	
8	13 37 138	1	..Axle nut 1.3/8" BSF slotted	
9	05 03 166	1	..Cotter pin	
10	13 37 140	1	..Hub shell	
11	13 37 141	1	..Oil seal	
12	13 37 142	2	..Taper roller bearings	
13	13 37 143	5	..Wheel stud	
14	13 37 144	5	..Wheel nut	
15	01 00 206	5	..Spring washer	
16	01 33 006	5	..Locknut	
17	13 37 147	1	..Hub cap and gasket	
18	13 37 148	1	..Hub cap screws 2BA x 3/8" long	
19	02 11 166	4	..Bolt 5/8" UNF x 2" long	
20	01 41 006	4	..Aeronut 5/8" UNF	
	13 35 384	2	WHEEL AND STUB AXLE ASSEMBLY - 4 Stud	
21	13 35 965	1	..4 Stud stub axle	
22	13 37 150	1	..Stub axle shaft	
23	01 73 007	1	..Axle nut 3/4" BSF slotted	
24	05 03 105	1	..Split pin 3/16" dia. x 1¼" long	
25	13 37 151	1	..Hub shell	
26	13 37 152	1	..Oil seal	
27	13 37 153	1	..Inner bearing	
28	13 37 154	1	..Outer bearing	
29	13 35 237	4	..Wheel stud	
30	13 35 239	4	..Wheel nut	
31	01 31 005	4	..Locknut 1/2" UNF	
32	01 00 205	4	..Spring washer	
33	13 37 155	1	..Hub cap	
34	02 11 166	4	..Bolt 5/8" UNF x 2" long	
35	01 41 006	4	..Aeronut 5/8" UNF	
36	13 35 389	2	..Wheel & tyre assembly comprising:-	
	13 35 963	1	..Wheel - 4 stud	
	13 35 964	1	..Tyre 6.40 x 15	
	13 35 975	1	..Inner tube	

# MACHINE GUARDS



Ref	Part No	Qty	Description
1	13 38 074	1	.Guard - fixed - left hand
2	13 38 075	1	.Guard - fixed - right hand
3	13 38 362	2	..Hinge
4	03 11 083	4	..Setscrew 3/8" UNF x 1" long
5	01 41 003	4	..Aeronut 3/8" UNF
6	13 38 079	1	.Guard - hinged - left hand
7	13 38 078	1	.Guard and deflector - hinged - right hand
8	13 38 361	1	..Bolt c/w spring and pin
9	04 20 820	1	...Spring dowel 1/8" dia. x 1 1/4" long
10	81 04 018	1	...Spring
11	13 38 082	1	.Counter guard c/w hinges
12	13 38 372	2	..Hinge bracket
13	13 38 099	1	.Guard
14	13 38 393	2	..Hinge clamp

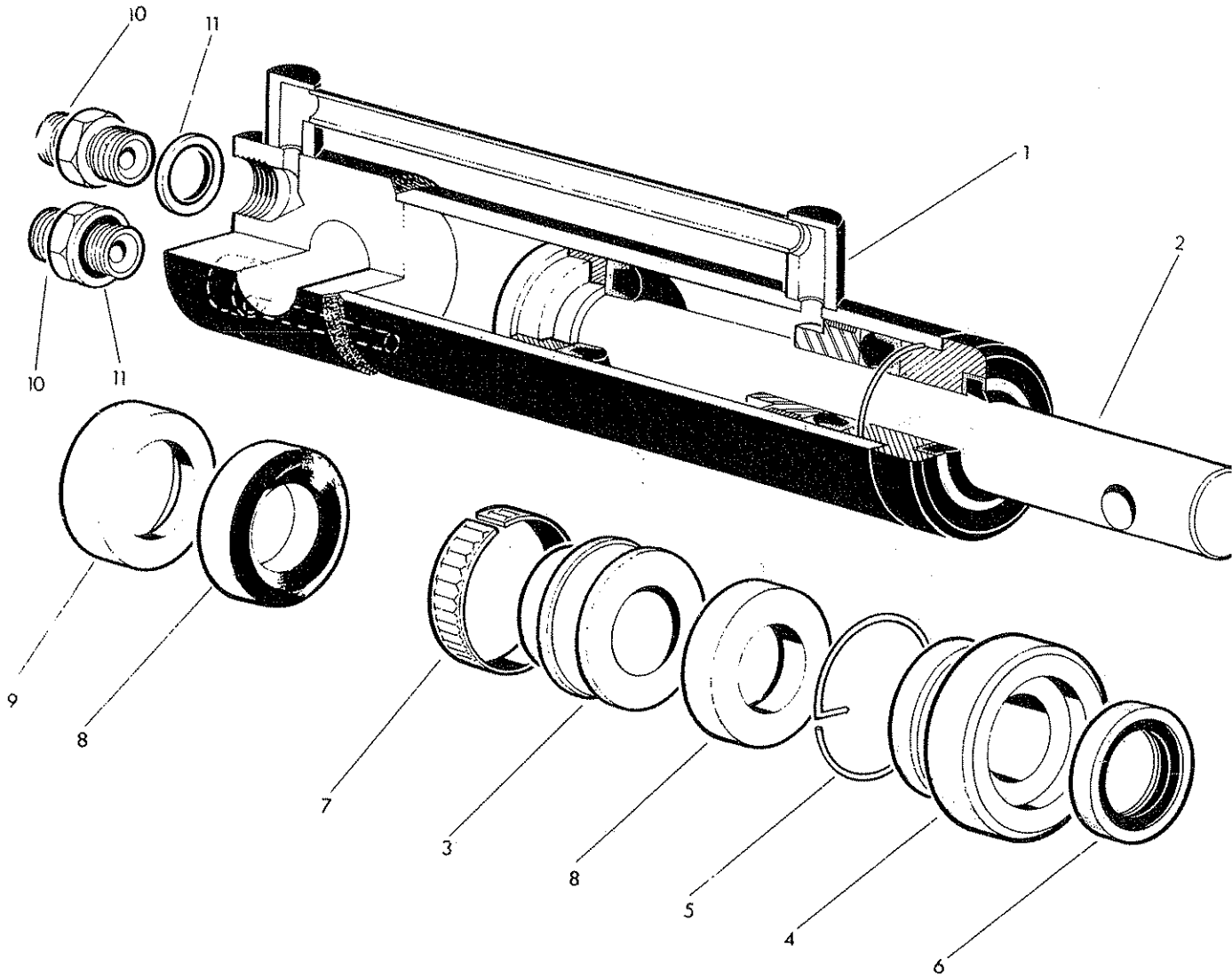
} each c/w :-

} each c/w:-



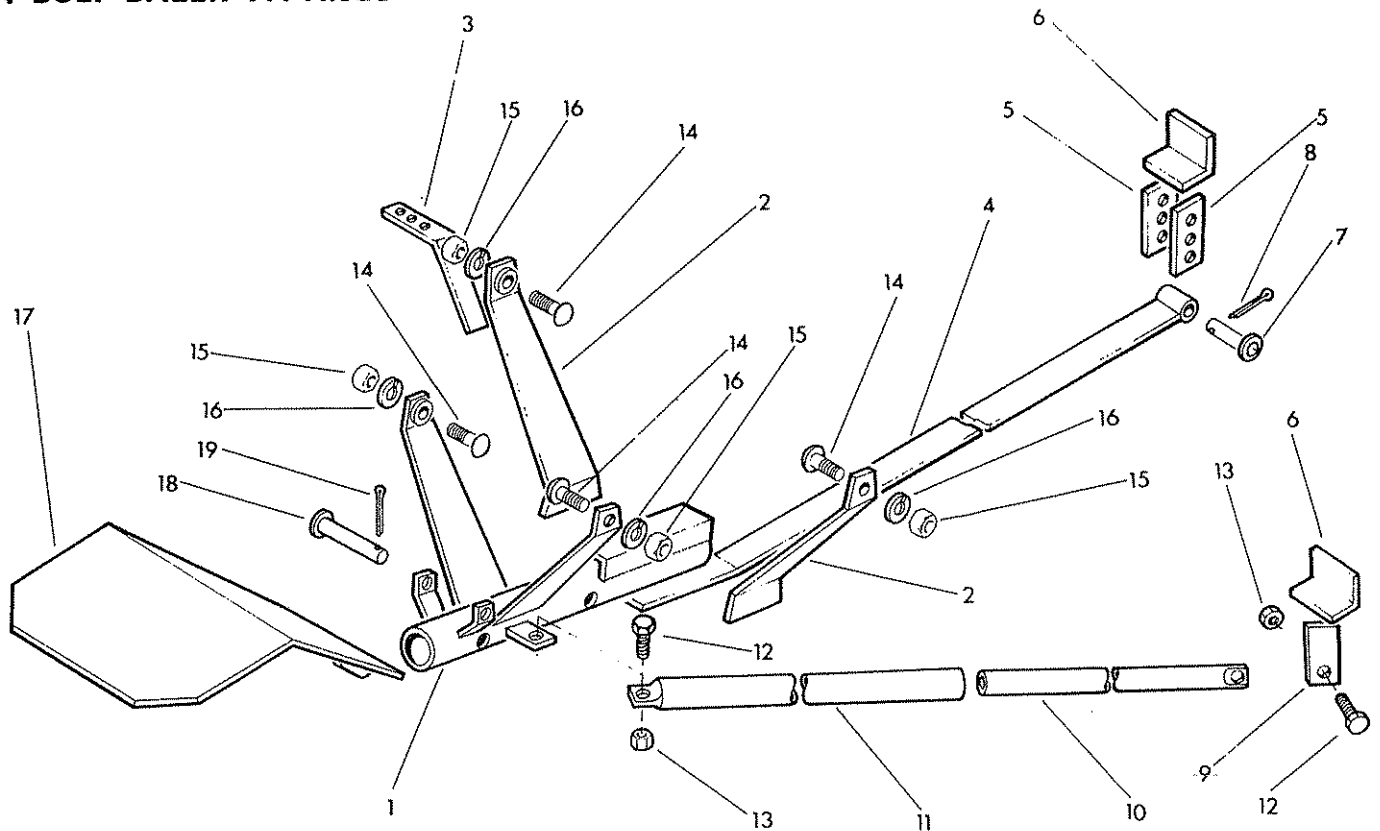
Ref	Part No	Qty	Description
	13 35 435	1	PLATFORM LIFT RAM ASSEMBLY c/w BUSHES etc
	13 35 952	1	Ram - 2¼" bore x 12" stroke comprising
1	13 35 379	1	..Ram cylinder
2	72 12 004	1	..Piston rod 'O' ring and nut
3	71 06 196	1	..Ram spacer
4	86 00 119	1	... 'O' ring for piston rod
5	71 01 096	1	..Piston nut
6	71 01 152	1	..Locking ring
7	71 01 097	1	..Piston inner assembly c/w seal
8	86 35 131	1	...Seal
9	71 01 098	1	..Piston - outer
10	71 01 099	1	..Gland housing assembly
11	86 22 127	1	...Gland seal
12	86 00 304	1	... 'O' ring
13	86 09 304	1	...Anti-extrusion ring
14	71 01 100	1	..Gland nut assembly
15	86 40 328	1	...Wiper seal
16	71 05 050	1	.Bush - rod end
17	71 01 158	2	.Sleeve
18	09 01 121	2	.Greaser
19	60 00 113	1	.Union 3/8" BSP
20	85 81 138	1	.Banjo bolt
21	85 81 137	1	.Banjo
22	86 50 104	1	.Bonded seal ½" BSP
23	86 50 103	2	.Bonded seal 3/8" BSP
	86 99 102		SEAL KIT
	13 35 478		PUSHER RAM ASSEMBLY c/w BUSHES etc
	13 35 434	1	.Ram - 2¼" bore x 13 7/8" stroke comprising
24	72 12 272	1	..Ram cylinder
25	13 37 010	1	..Piston rod
26	86 00 119	1	... 'O' ring for piston rod
27	71 01 096	1	..Piston nut
28	71 01 152	1	..Locking ring
29	71 01 097	1	..Piston inner assembly c/w seal
30	86 35 131	1	...Seal
31	71 01 098	1	..Piston - outer
32	13 37 009	1	..Gland housing assembly
33	86 29 129	1	...Seal
34	86 00 304	1	... 'O' ring
35	86 09 304	1	...Anti-extrusion ring
36	13 37 011	1	..Gland nut assembly
37	86 29 117	1	...Wiper
38	60 12 022	1	.Bush - rod end
39	09 01 121	1	.Greaser
40	60 00 113	1	.Union 3/8" BSP
41	86 50 103	2	.Bonded seal 3/8" BSP
42	60 00 112	1	.Union 3/8" - ½" BSP
43	71 01 158	2	.Sleeve
	86 99 153		SEAL KIT

# SWING RAM ASSEMBLY



Ref	Part No	Qty	Description
	13 35 430	1	SWING RAM ASSEMBLY c/w UNIONS
	13 35 431	1	.Basic ram
1	13 35 432	1	..Ram barrel welded assembly
2	13 37 004	1	..Piston rod
3	13 37 005	1	..Retaining ring
4	13 37 006	1	..Gland bush
5	13 37 007	1	..Locking wire
6	86 40 319	1	..Wiper seal
7	86 55 127	1	..Tolerance ring
8	86 14 119	2	..Single acting seal
9	13 37 008	1	..Wear ring
10	60 00 113	2	.Union 3/8" BSP
11	86 50 103	2	.Bonded seal 3/8" BSP
	86 99 155		Seal kit

#### 4 BOLT BALER FITTINGS



Ref	Part No	Qty	Description
	13 36 273	1	4 BOLT BALER FITTING ASSEMBLY
1	13 36 269	1	.Baler tow bar housing
2	13 36 032	2	.Mounting bracket
3	13 36 033	1	.Pipe support stay
4	13 36 037	1	.Axle pull bar
5	13 36 035	2	.Axle lug
6	13 36 026	2	.Axle mounting angle
7	13 36 036	1	.Headed pin
8	05 03 105	1	..Split pin 3/16" dia. x 1¼"
9	13 36 029	1	.Strut lug
10	13 36 027	1	.Inner strut
11	13 36 028	1	.Outer strut
12	03 11 146	2	.5/8" UNF setscrew x 1¾" long
13	01 41 006	2	.5/8" UNF aeronut
14	93 00 102	4	.M10 domed setscrew x 32 mm long
15	91 13 005	4	.M10 plain nut
16	01 00 203	4	.3/8" spring washer
17	13 36 262	1	.Bale platform
18	13 36 018	1	..Pin c/w split pin
19	05 03 105	1	...3/16" split pin x 1¼" long











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