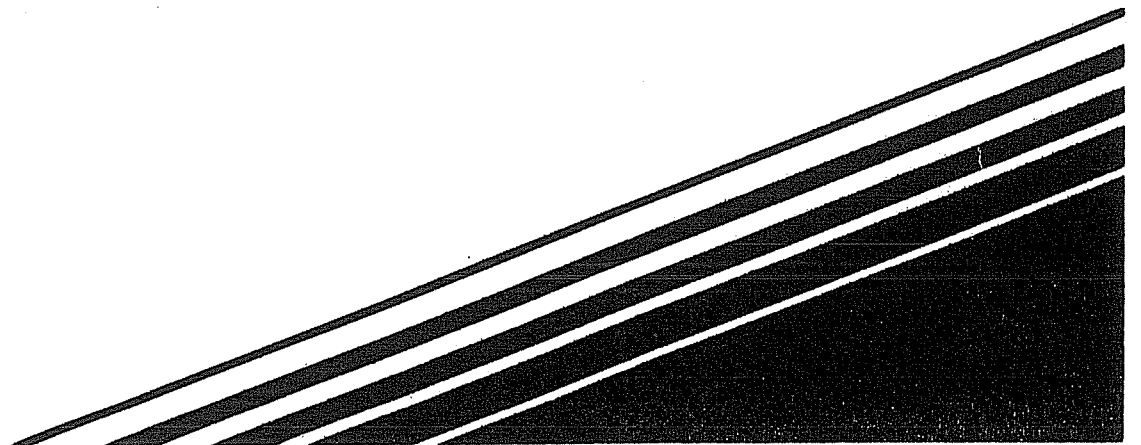


Publication No.5220

# HYDRAMOWER

# LR 14 & LR 16

**OPERATOR'S and PARTS Manual**



# IMPORTANT

NOTE HERE THE SERIAL NUMBER OF YOUR MACHINE AND ALWAYS QUOTE IT IN ANY COMMUNICATION WITH US OR YOUR DEALER. THIS IS PARTICULARLY IMPORTANT WHEN ORDERING SPARES. REMEMBER TO INCLUDE ALL NUMBERS AND LETTERS. SEE SERIAL NUMBER PLATE ON TOP OF THE CUTTING HEAD. WHENEVER INFORMATION CONCERNING THE MACHINE IS REQUESTED REMEMBER TO ALSO STATE THE TYPE OF TRACTOR TO WHICH IT IS FITTED.

MACHINE SERIAL NUMBER: .....

TRACTOR TYPE: .....

MODEL DETAILS .....INSTALLATION DATE .....

DEALERS NAME .....TEL. NO.....

THE TERMS LEFT-HAND AND RIGHT-HAND WHERE USED IN THE TEXT APPLY TO THE MACHINE WHEN VIEWED FROM THE REAR. BRACKETED REFERENCES IN THE INSTRUCTIONS REFER TO COMPONENTS IN THE ILLUSTRATIONS, E.G. (3B) MEANS FIG. 3 COMPONENT B. (4C) MEANS FIG. 4, COMPONENT C, AND SO ON.

THE INFORMATION GIVEN THROUGHOUT THIS MANUAL IS CORRECT AT THE TIME OF PUBLICATION. HOWEVER, IN THE COURSE OF CONSTANT DEVELOPMENT OF TURNER MACHINES CHANGES IN SPECIFICATION ARE INEVITABLE.

SHOULD YOU FIND THE INFORMATION GIVEN IN THIS BOOK TO BE AT VARIANCE WITH THE MACHINE IN YOUR POSSESSION, YOU ARE ADVISED TO CONTACT THE SERVICE DEPARTMENT WHERE UP TO DATE INFORMATION WILL BE PROVIDED.

THIS MACHINE HAS BEEN TESTED AND IS CONSIDERED SAFE IF CAREFULLY USED. ENSURE YOUR OPERATOR IS PROPERLY TRAINED IN ITS USE AND MAINTENANCE.

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# GENERAL INFORMATION AND SAFETY

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## GENERAL

This manual has been prepared to assist customers to fit, operate, and maintain their LR 14/16 machines.

The machine is available in left and right hand versions. Illustrations contained within this manual are of left hand models. Where a component on a right hand machine differs, this is indicated in the description thus :- 'Right Hand.'

Illustrations are lettered and individual components are referred to by key numbers. In the text (A/14) refers to key number 14 on illustration 'A'. It is important, when ordering spares, to indicate the type of machine, the type of tractor to which the machine is fitted and the machine serial number.

## SAFETY

Throughout this manual this symbol (see under) is used to indicate areas of possible personal danger and/or machine damage. All safety precautions contained within the tractor manufacturers manual should also be observed.



Your attention is also drawn to the pamphlets as issued by the Health and Safety Executive, Eagle House, Cannon Street, London EC4N 6HT. If you are in any doubt, refer to your nearest Turner dealer or contact our service department.

Remember - The best kind of safety is a careful operator.

## GENERAL INFORMATION AND SAFETY

### OPERATING PRECAUTIONS

Incorrect operation of the power equipment creates hazards that can lead to personal injury and property damage. To prevent accidents, become thoroughly familiar with your machine before operating - read the instructions, know how to make emergency stops, practice drive it before putting it to work and, above all, always use good common sense. Keep the following general operating precautions in mind.

Never allow inexperienced persons or children to operate power equipment.

Don't wear loose clothing such as scarves that could become entangled and choke or pull you into moving parts.

Make sure all guards and shields are in place and secure before starting.

Keep people safely away from the operating area and be especially watchful for children.

Always ensure that all moving parts are stationary before attempting any form of adjustment or repair.

Never attempt to free jammed cutters or any moving parts while the unit is operating - disconnect P.T.O. and stop engine.

Never let a machine idle unattended even for a brief moment - stop the engine whenever you leave the machine.

Watch out for and avoid items such as wires, stones and metal objects that could be picked up and thrown by cutters. Clear the area of debris before operating.

## GENERAL INFORMATION AND SAFETY

### WARRANTY PROCEDURE

The following guarantee is given subject to the Company's Contiondion of Sale, Section 25, and no statement of representation however made shall be construed as enlarging or varying this guarantee unless as provided by section 4 of the Company's Conditions of Sale.

TURNER GUARANTEE subject to the conditions mentioned below, that should any defects in workmanship or materials occur in the goods of TURNER manufacture within TWELVE MONTHS from date of original purchase, we will repair or at our option replace the defective goods without making any charge for labour or materials within the U.K.

Claims under this guarantee must be made through the authorised dealers and must be notified to TURNER within 30 days of the discovery of the defect.

TURNER liability does NOT extend to the following:

- a. Damage resulting from negligence, misuse. accident or lack of routine maintenance.
- b. Normal wear and tear on moving parts.
- c. Damage caused by the use of non-genuine TURNER parts.
- d. Defects resulting from repair or alteration performed by other than an authorised TURNER dealer.

Any part supplied by us not of our manufacture will be covered by the original manufacturer's guarantee and TURNER will use it's best endeavours to pass on to the Customer the benefit (if any) of that warranty.

TURNER shall not be liable for any consequential loss or damage of any description whether caused by negligence of our servants or agents or otherwise.

The terms of guarantee will be operated by the following condtions:

## GENERAL INFORMATION AND SAFETY

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1. Warranty Registration Cards provided with TURNER equipment must be completed by the selling dealer at the time of sale. The selling dealer shall promptly forward the TURNER copy directly to our office for warranty registration. Any warranty claims received covering equipment not registered will be retained until official registration has been received.
2. Limit of Dealers Authority to proceed with warranty work. No warranty work should be proceeded with where it is estimated that the total cost of parts, labour and mileage will exceed £100.00. Prior agreement must first be made with the Company's Service Department giving if possible an estimate for cost of work.

Dependent on these costs and conditions at the time of application, we reserve the right to undertake the work to be carried out by a Turner Service Engineer.

### 3. Prompt claims

Warranty claims will only be accepted if received by the Company within 30 days of the date of work carried out, if this time is exceeded claims cannot be accepted.

### 4. Warranty Rates

The allowance for labour and mileage is reviewed from time to time and the current rates are obtainable from the Service Manager.

### 5. Value of Claim

The Company reserve the right to modify any claim where the labour or mileage exceeds, in our opinion a reasonable limit for completing the work.

### 6. Return of parts

Parts must be retained for a minimum of six weeks from the date the claim is posted to us for inspection by the company. In the event of our wishing to inspect faulty parts you will be notified and they must be labelled with full name and address of senders. Collection will be arranged by Turner.

## GENERAL INFORMATION AND SAFETY

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### 7. Definition of Warranty Period

The warranty expiration date is determined by calendar months from date of delivery to first owner user and is not affected or prolonged because the machine is idle for any part of the warranty period.

### 8. Liability

Our liability is limited to the reimbursement, replacement or repair free of charge of defective parts of our manufacture and we shall in no event be liable for consequential damage or contingent liabilities arising out of the failure of any parts manufactured or supplied by us.

### 9. Replacment Parts

Where replacemnt parts are supplied by us to customers before defective parts have been returned to us, these replacements will be invoiced at list price and credit, if any will be given after manufacturer's examination and report.



## FITTING INSTRUCTIONS

- 1 The LR14/16 is despatched ex-works in sub assemblies consisting of a) Tank and Arms and b) Cutting Head.
  
- 2 The machine is normally mounted on medium and larger tractors via three point linkage. However, on smaller and some medium sized tractors a stabilizing sub-frame may be required. Details for the removal of any other implement, which may be fitted, are not contained within this section and the appropriate manufacturer's manual should be consulted for this information. The basic preparation of the tractor to accept the LR14/16 should include :-
  - (a) Removal of any other implement which may be fitted to the rear of the tractor.
  - (b) Clearance of rear P.T.O. to accept LR14/16 drive shaft. Where possible, prior to despatch, all attachment pins are installed in their correct positions with their appropriate locking devices.

### 3. MOUNTING THE TANK ON TO THE TRACTOR

The tank (C/1) is attached by means of three linkage points, the lower two by the lift arms using hitch pins (C/11) and the upper one by the top link and pin (C/10). All sideways movement of the lower link arms must be prevented by using check chains or stabilizer bars etc.



## Operating Instructions

### 4. FITTING THE P.T.O.

Fit the P.T.O. drive shaft (C/13) to the gearbox input shaft. The yoke is fitted with a quick release button which should be depressed before engaging the splines. The button will return to its 'out' position when the splines are fully engaged and locked. Before connecting the P.T.O. drive shaft, raise machine to its highest position on the lift arms, and by offering up P.T.O. shaft to machine and tractor, check that there is sufficient travel without shaft 'Bottoming'. A further check should be made with machine in operating position to ensure sufficient drive remains i.e. approximately 2 inches (50 mm). The P.T.O. drive shaft from the gearbox is connected to the tractor P.T.O. (Also see Operating Instructions).

### 5. MOUNTING THE CABLE CONTROLS

The fitting of the cable controls necessitates access through the rear of the tractor cab. An adjustable bracket (U/7) is fitted to the machine side of the tractor inside the cab, positioning of which is best determined by the operator. The positioning requires the drilling of two holes to mount the fixed portion of the adjustable bracket (U/5) to the tractor cab. The control head of the cable control is now removed from the arms and fed through the rear window of the cab and bolted into position using the quick release bolts (U/12).

## 6. ROTOR SHAFT ROTATION

Connect the motor hoses (V/1) to the swivel couplings (P/13). Allow the hoses to drape over the head. This is necessary to prevent them from crimping during angling of the cutting head. Ensure that the hoses are connected correctly. The motor inlet hose is connected to the port of the motor control valve (Q/1) nearest to the cable control. Having connected these hoses, ensure that the rotor shaft rotates opposite to the rotation of the tractor wheels (i.e. cutting anti-clockwise on a left hand machine as viewed from the driver's seat.) To test this, start the tractor P.T.O. and, AT VERY LOW REVOLUTIONS, let in the motor control lever (U/10). If the rotation is incorrect reverse the hoses at the motor.



## 7. CHECKS SUBSEQUENT TO FITTING NEW MACHINE

If necessary, replenish hydraulic tank with good grade mineral hydraulic oil (See 'Recommended Lubricants'). Check that all guards are in position and secure. Start tractor engine, check cutting head for correct raising and lowering. Switch off engine.



### DO NOT ENGAGE P.T.O. DRIVE

Check rotor shaft is free to rotate by hand. Engage P.T.O. drive and check rotor shaft operation. Using shortened lever, engage rotor shaft drive and check for vibration and correct rotation (see paragraph 6).

## Operating Instructions

### FITTING INSTRUCTIONS FOR USE WITH STABILIZER FRAME

As the tractor fittings supplied by us vary from make to make and model to model, only a general guide can be given.

1. Ensure that both machine and tractor are on level ground.
2. Fit the left hand axle fork to the left hand side of the rear axle (as viewed from the tractor driving seat) using the existing bolts on the tractor.
3. Repeat the operation to fit the right hand axle fork.
4. The tractor fittings for the LR14/16 machine are very simple and should present no difficulty in fitting.
5. Attach frame (X/1) to tank (C/1) using pins (X/11) and top link (X/9). The frame is fitted to the standard category II holes available on the tank.
6. Position pins (X/2) centrally in each leg of the frame. The front two adjustable legs should be removed from the tank and then fitted to the stabilizer frame as indicated in figure "P". Using the adjustable legs, (an auxilliary jack may be required when fitting for the first time), adjust the height of pins (X/2) to coincide with the receiving slots in the axle forks.
7. Reverse the tractor to the machine and locate the main frame lugs into the axle mounting forks.
8. Fasten the machine to the axle forks using 4 off eye bolts spring and plain washers and plain nuts (X3-X6).

## OPERATIONAL INSTRUCTIONS

### 1. CONTROL LEVERS

Each of the rams is controlled by levers on the control head (Fig U). These levers give 'instinctive' control i.e. pulling the lever rearwards will raise the component and pushing it forward will lower it. The hosing arrangement is such that the lever nearest the operator controls the first ram, the second lever controls the first to second arm ram, the third lever controls the second arm to hood ram and the fourth (shortened) lever controls the drive to the rotor shaft. The levers should be 'inched' until the cutting head is in the required position. Under no circumstances should the cutting head be allowed to 'hammer' on the ground when lowering. It should be eased into position.



### 2. SLIDING KINGPOST

The kingpost (E/4) of the LR14/16 can be positioned laterally on the tank to suit the operator.

For maximum out and down reaches, the kingpost should be positioned at the end of the tank nearest cutting. For narrow lane work the kingpost is best positioned at the end of the tank farthest from the cutting head. To slide the kingpost, position the cutting head naturally on the ground adjacent to the tank. Slacken off, do not remove, the clamping bolts (E/7). Using the second arm ram, slide the kingpost along the tank to the required position. Tighten the clamping bolts.

#### Notes

- a. Sliding the kingpost is more easily achieved on solid ground where the cutting head may gain purchase.
- b. Keep as much of the machine weight on the head as possible. This can be transferred by depressing the kingpost 1st arm ram (G/7).

## Operating Instructions

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### 3. RACK AND PINION

An adjustable pressure plate (K/17) is provided to take up any wear on the rack and pinion (K/6 and K/7). Four setscrews and spacers (K/18, K/21-23) hold the pressure plate in position. These bolts may be tightened to accommodate wear in the rack and pinion. Do not overtighten as this will restrict the movement of the rack and pinion.

### 4. CUTTING HEAD


The cutting head houses the rotor shaft which is dynamically balanced during manufacture. Do not operate the rotor shaft with missing or broken cutters, such a condition will result in excessive vibration and probable machine damage. If, during cutting operations, vibration occurs, the machine should be immediately stopped, the fourth lever disengaged, the P.T.O. disengaged, the tractor engine switched off and the cutters examined. Replacement items must be genuine TURNER spares to ensure maintenance of rotor shaft balance. Failure to observe this will invalidate the Warranty.

The P.T.O. speed governs the flow of oil to the hydraulic rams and the R.P.M. of the rotor shaft. For the most efficient operation a P.T.O. speed of 540 r.p.m. is recommended, this produces a rotor speed of approximately 2500 r.p.m. If the tractor Rev. counter is not calibrated for P.T.O. r.p.m. then the manufacturer's handbook should be consulted to establish the Engine/P.T.O. r.p.m. ratio.


The cutting head is brought to the required position (to suit the ground level being cut) by operating the control levers independently. First operate the third lever from the driver until the head assumes the required position just above ground level; lower the

head to the ground by operating the lever nearest the driver. Using this method relieves the static loading to the breakout bracket, permitting the cutting head to follow the contour of the ground more freely during cutting.


Incorporated in the head is provision for adjusting height of cut and also drive belt tension (See 'Adjustments'). When continual belt slip occurs, and the tensions conform to the requirements, the forward speed of the tractor in relationship to growth density should be considered.

 Do not tighten the belt beyond the specified limits to compensate for belt slip, this will impose undue side loading on the motor drive shaft, reducing the life of its associated seal and bearings.

### 5. BREAKOUT MECHANISM

 The breakout mechanism allows the cutting head to 'swing' rearwards should an obstruction be encountered in the path of cut. The mechanism does not enable the cutting head to override the obstructions. If, during cutting operations, the head swings back, the tractor must be immediately stopped and the cause investigated. Once the obstruction has been removed the breakout bracket will return the head to its original position.

### 6. CHECKS

 Note: This paragraph details only a sequence of operations. Before attempting to work the machine the operator should familiarise himself with the information contained in the preceding paragraphs, the tractor manufacturers manual, and all safety instructions.

## Operating Instructions

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- a) Check oil level is not below the top of the oil level pipe (C/2). Replenish as required with good quality mineral hydraulic oil (See Recommended Lubricants).
- b) Check rotor shaft for damaged or missing cutters.
- c) Check roller is at correct height to suit cutting requirements.
- d) Operate tractor selector to engage P.T.O. drive.
- e) Position cutting head to suit height and angle of surface to be cut.
- f) Set forward speed of tractor to suit density of growth to be cut.
- g) Engage rotor shaft drive using the shortened lever (U/10).
- h) Commence cutting.

Note: The forward speed of the tractor is also dependent upon tractor HP. As a guide a 45 HP tractor cutting medium density growth should operate at a speed of approximately 3MPH (5 KPH).

### On completion of cutting

- i) Disengage the shortened lever (U/10).

## 7. GATE VALVE



Always ensure that the gate valve (Q/7) is fully open (anti-clockwise) before starting the P.T.O. drive.



### 8. P.T.O. Guards



Should it become necessary to re-fit or replace the P.T.O. guard (D3 & D4) the following procedures should be adopted.

Carefully check guard tube lengths to ensure they are correct for the shaft to which they are to be fitted. With the two halves of the P.T.O. drive shaft (D1 & D2), arranged side by side, place the two halves of the guard assembly alongside with the guard bearing positions in line. For rectangular bar shafts the inner half guard must be fitted to the tubular half shaft and the outer half guard to the bar half shaft.

If necessary, shorten the guard tubes so that they are slightly shorter than the P.T.O. shafts. It is important that the leading edges of the tubes are smoothed and chamfered before assembly.

It is essential that the two halves do not 'bottom' when the shaft is fully compressed and that they do not come apart when the shaft is in the fully extended working position.

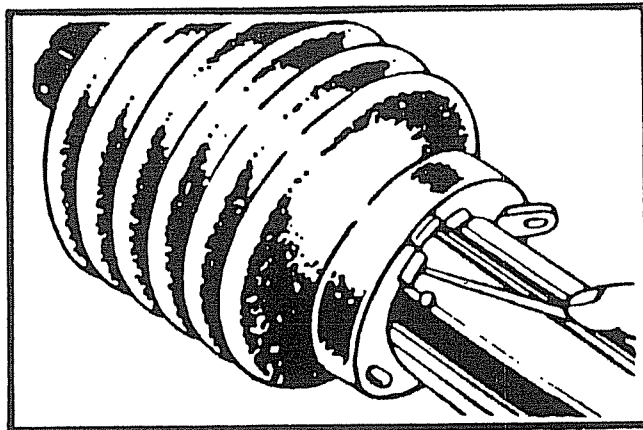
Ensure bearings are in the free position. This is when the two locking tags of the bearing assembly ring protrude through the bearing housing and the housing locking tabs are positioned on the outer surface of the bearing tags.

Position the half guard assembly on to the appropriate half shaft and locate bearings into the ball groove of the shaft inboard yoke. (A little manipulation may be required, but excessive force should not be used).

When the guard is positioned the bearings must be locked. Using a screw driver or similar tool, press the bearing tags into the bearing housing. (see fig. below) until the bearing housing locking tabs locate behind the tag slots.

## Operating Instructions

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To remove a safety guard use a screwdriver, insert blade between bearing housing locking tabs and bearing assembly tags. Raise screw driver by pivoting on blade as shown. This action will allow the bearing ring to be withdrawn so releasing the bearing into free space area.

This procedure must be repeated to release the opposite side of the bearing, taking care not to re-lock the one already completed.

Axial manipulation of the guard is required to release the ball bearings from the ball groove on the yokes, the guard assembly will then become free for removal from the shaft.

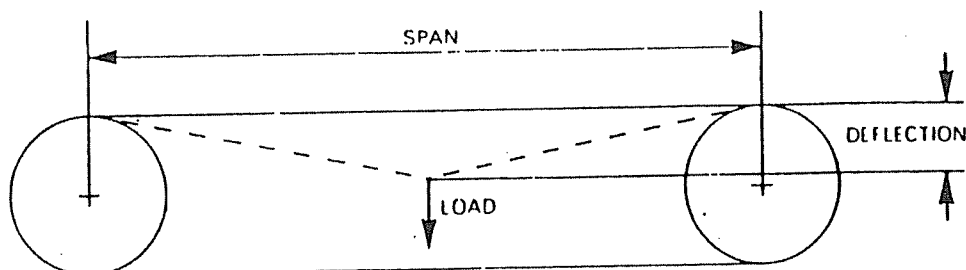
## ADJUSTMENTS

Adjustments are provided for the belt tension, height of cut, front guard and cable control assembly.

 **MAKE IT A RULE** always to stop machinery before making an adjustment, undertaking maintenance or lubricating.

### 1. BELT TENSION

- a) Remove belt guard(P/37) from cutting head.
- b) The tension of the vee belt(P/18) should be adjusted until the load required to produce a deflection of 6.5mm at the centre of the belt span is 3KGF. If the deflection is incorrect, carry out the operations(c) to (f).
- c) Slacken nuts(P/21) securing motor mounting plate to hood.
- d) Slacken nut(P/25) and adjust setscrew(P/24).
- e) Retighten nuts.
- f) Carry out the test of paragraph(b) and repeat from paragraph(c) onwards if necessary.
- g) Refit belt guard.



## Operating Instructions

If continual belt slip occurs and the tension conforms to the requirements, the tractor forward speed, in relationship with the density of growth being cut, should be considered. Do not tighten the belt beyond the specified limits as this will impose undue side loading on the motor drive shaft, reducing the life of its associated seal and bearings.

### 2. HEIGHT OF CUT

**Roller:-** The roller is adjustable in  $\frac{1}{2}$ " increments (see fig N) through a pivot bolt(N26) and is fixed at the desired height using bolt(N22) which locates through the cutting head into either four tapped holes in the roller bracket(N24,N25).

- a) Remove bolts and washer(N27,N29) securing roller mounting bracket. Loosen bolts and nuts(N26,N28).
- b) Set roller (N/21) to required height using available holes.
- c) Refit bolts, washers and nuts.

When cutting hedges the roller should be fully raised.

### 3. FRONT GUARD

The front guard (M/2) can be raised to aid the entry of thick growth. The guard should always be in its lowest position when cutting grass.

## Operating Instructions

- a) Loosen, but do not remove upper bolts(M3).
- b) Slacken lower bolts(M3) on each side and set guard to required position.
- c) Tighten bolts.

### 4. CABLE CONTROL ASSEMBLY

- a) Slacken bolt (V/2) securing control head mounting arm (V/7) to cab mounting pad (V/5).
- b) Position control heads (V/10 & V/11) to suit individual requirements.
- c) Re-tighten bolt.

### 5. BREAKOUT

The breakout assembly is set at the factory and does not need to be adjusted. There is no need to lubricate the spring washers. Extra washers must NOT be added in order to stiffen the breakout - reduce forward speed or increase height of cut.

### 6. CUTTING HEAD ANGLING

The rack and pinion assembly is factory set but may require adjustment to compensate for wear. Remove shims (K/22 & K/23) as required and refit clamp plate (K/17). Ensure rack and pinion is still able to move freely.

# Operating Instructions

## SERVICING

1. After 8 Hours (New machines only or when relevant component has been disturbed).
  - a) Check that grubscrew in the motor pulley is tight.
  - b) Check all safety guards are in position and secure.
  - c) Check all nuts and bolts for tightness.

## 2. Before Use

P.T.O. drive shafts: The P.T.O. drive shaft should be checked to ensure correct working each time before use. Particular attention should be paid to the condition of the universal joints and driving members. See paragraph 8.

## 3. Daily - after every 8 hours

- a) Check rotor shaft for damaged or missing cutters.
- b) Check oil level in hydraulic tank is not below top of oil level pipe.
- c) Grease the nipples on the rotor drive brace, the roller and the motor swivel joints. (G/23, G/10 & F/7).
- d) Clean and lubricate the sliding drive members and the universal joints on the P.T.O.

### 4. WEEKLY - after every 50 hours

- a) Check rotor shaft drive belt for correct tension.
- b) Grease all pivot points on arms, rack and pinion and rams.
- c) Lubricate the spring loaded plunger of the quick release yoke and clutches.

### 5. AFTER 250 HOURS - new machines only

- a) Replace filter elements

Note:

**Suction Filter:** The suction filter (B/6) is positioned inside the oil tank and access to it can be gained via the cover plate (B/2).

**Return Line Filter:** The return line filter (Q/16) has a replaceable cannister (Q/11). Some syphoning back through the system will be experienced during any changing of cannisters. A clean recepticle should be made available to catch any spilt oil during the replacement process.

### 6. MONTHLY - after every 250 hours

- a) The P.T.O. driveshaft should be thoroughly cleaned, serviced and lubricated at the end of a season's work and stored in a dry place.

### 7. YEARLY

- a) Drain and refill hydraulic tank.
- b) Replace filter elements - see 5.

## Operating Instructions

### 8. P.T.O. GUARDS

- a) It is essential for personal safety to ensure that the safety guards (H/12c & H/12d) are in good condition, correctly located and locked in the guard bearing grooves.
- b) Weekly Maintenance: Lubricate guard bearings.
- c) Seasonal Maintenance: The guard should be removed completely from the P.T.O. drive shaft at the end of a season's work, thoroughly cleaned, serviced and lubricated. It can then be re-assembled to the P.T.O. drive shaft and stored with the shaft.



## RECOMMENDED LUBRICANTS

### HYDRAULIC OIL TANK

Capacity: 30 imp. gallons (136 litres)

Castrol Hydraulic  
Dalton Silkolene 773  
Duckhams Zircon 4  
Gulf Harmony 44  
Mobil D.T.E.24  
S.P. HL65 or SHF100  
Texaco/Caltex Rando Oil HDA  
Shell Tellus Oil37

### Grease Points

Duckhams Admax L2 or equivalent

### P.T.O.

Recol Molytone 320 or equivalent

# Parts Section

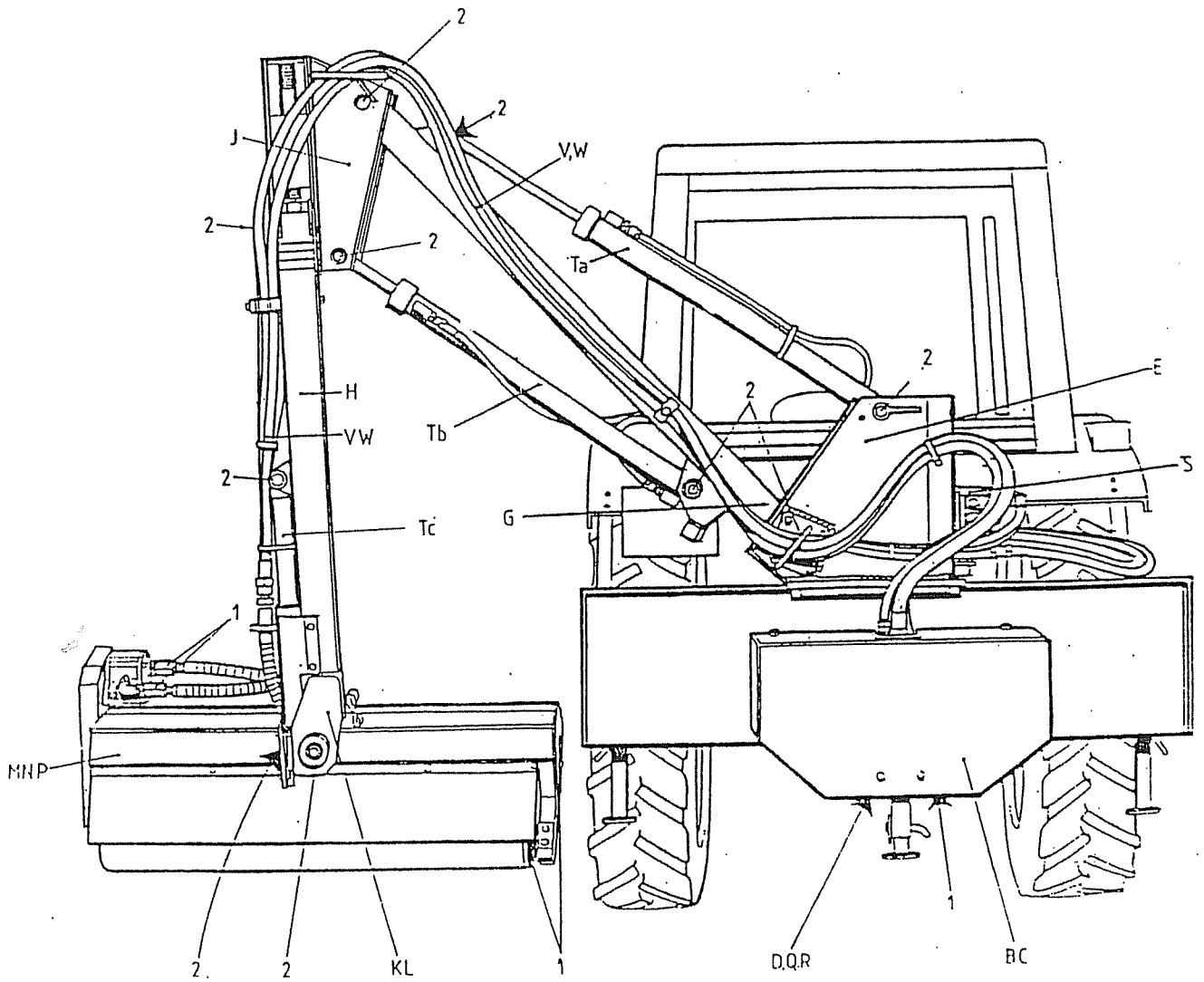
Only use genuine Turner replacement parts

B	Hydraulic Tank
C	Hydraulic Tank Assembly
D	P.T.O. Shaft
E	King Post
F	Accumulator Assembly
G	First Arm
H	Second Arm
J	Breakout Assembly
K	Cutting Head Angling 1
L	Cutting Head Angling 2
M	Cutting Head
N	Cutting Head View 1
P	Cutting Head View 2
Q	Gearbox And Pump LR16
R	Gearbox And Pump LR14
S	Control Valve
T	Hydraulic Rams
U	Control Levers And Cables
V	Hydraulic Assembly LR16
W	Hydraulic Assembly LR14
X	Stabilizer Frame
Y	Linkage Bracing

#### LUBRICATION

			<u>INTERVAL</u>
1.	P.T.O., Bearing and Motor Swivel Joints.	EVERY	6 HOURS
2.	Pivot Pins.	EVERY	50 HOURS

# GENERAL ARRANGEMENT



KEY No.	PART No.	DESCRIPTION
1	13771	TANK
2	12732	COVER PLATE
3	6896	BOLT M8 x 16
4	7121	SPRING WASHER
5	21066	GASKET
6	21061	SUCTION FILTER
7	5354	PLUG 1" BSP
8	6964	BOLT M16 x 70
9	7068	NYLOC NUT M16
10	13772	GUARD MOUNTING FRAME
11	12741	PUMP GUARD
12	6898	BOLT M8 x 25
13	12971	EDGING STRIP
14	13028	PARKING LEG
15	14134	FOOT
16	2220	PIN
17	5400	'R' CLIP

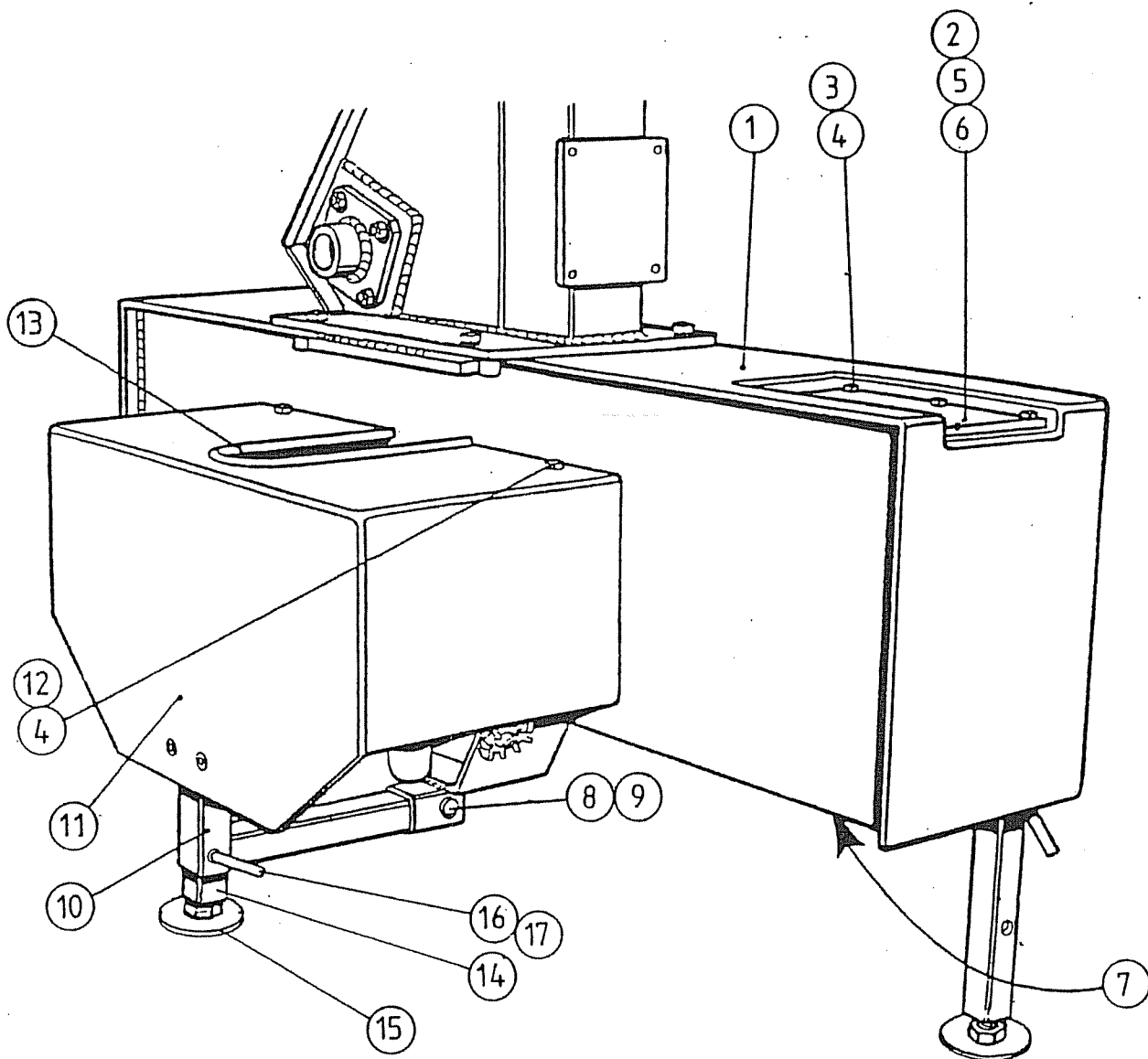


FIG.B

KEY. No.	PART No.	DESCRIPTION
1	13771	TANK
2	12731	SIGHT GAUGE
3	6675	JUBILEE CLIP
4	21297	BREATHER FILLER
5	21555	TAPITE SCREW .10-32 UNF x 1/2"
6	13028	PARKING LEG
7	14134	FOOT
8	2220	PIN
9	5400	'R' CLIP
10	12804	TOP LINK PIN CAT. 1
10	12805	TOP LINK PIN CAT. 2
11	13774	LOWER LINK PIN
12	7696	LINCH PIN
13	21135	P.T.O. ASSEMBLY (SEE DIAGRAM FIG D)
14	13195	TRANSPORT SUPPORT BRACKET
15	1319	MOUNTING BAR

# HYDRAULIC TANK ASSEMBLY

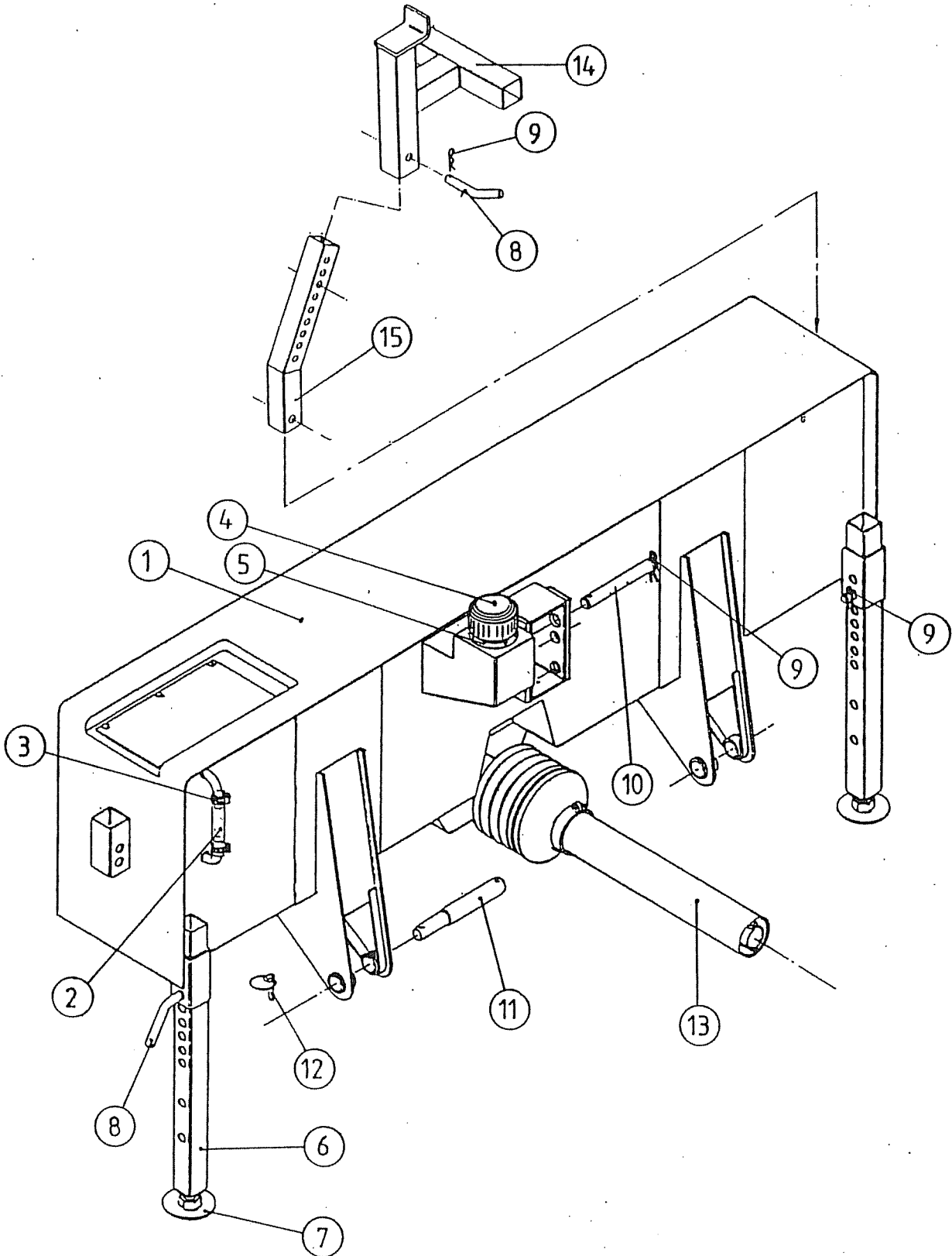


FIG.C



---

KEY. No.	PART No.	DESCRIPTION
1	21131	P.T.O. SHAFT - MALE
2	21132	P.T.O. SHAFT - FEMALE
3	21133	P.T.O. GUARD - MALE
4	21134	P.T.O. GUARD - FEMALE
5	20776	UNIT PACK
6	20778	QUICK RELEASE PIN KIT
7	20858	SPLINED QUICK RELEASE YOKE
-	21135	P.T.O. ASSEMBLY

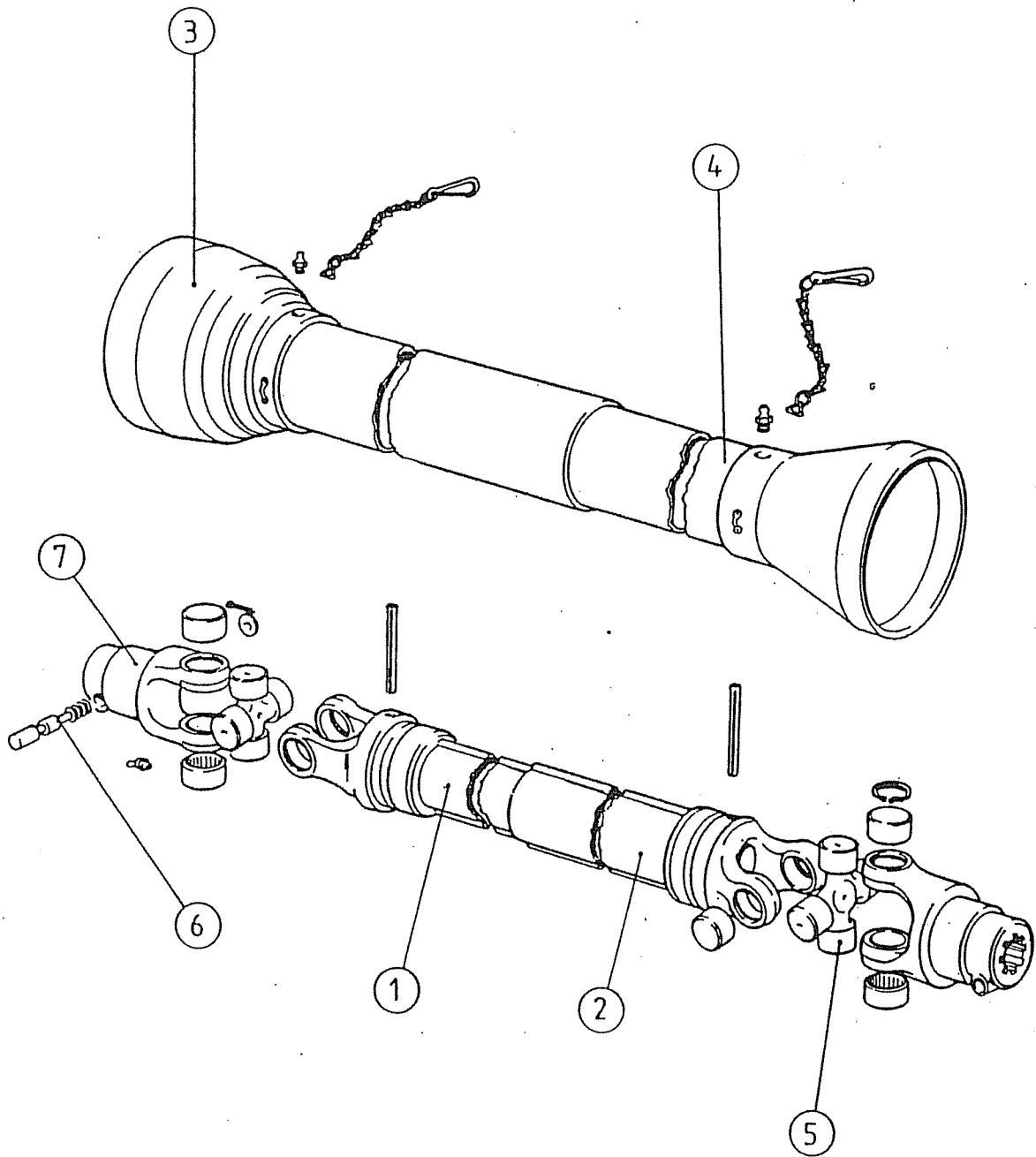


FIG.D

KEY No:	PART No:	DESCRIPTION
1	12749	PIN
2	21064	ROLL PIN
3	12790	EDGING STRIP
4	12742	KINGPOST
5	5866	HOSE STRAP
6	12743	CLAMP, KINGPOST
7	6959	BOLT
8	7108	WASHER, PLAIN
9	20876	HOSE STRAP
10	12758	PIN
11	12748	BUFFER
12	6901	BOLT
13	7065	NUT, NYLOC
14	20966	HOSE CLAMP
15	20968	COVER PLATE
16	12745	PIN Ø 40mm
17	7067	NYLOC NUT M12
18	6938	BOLT M12 x 35
19	12414	BEARING HOUSING
20	20768	BEARING
21	12746	HOSE GUIDE
22	21062	ROLL PIN
23	5409	GREASE NIPPLE
24	6964	BOLT
25	7067	NYLOC NUT

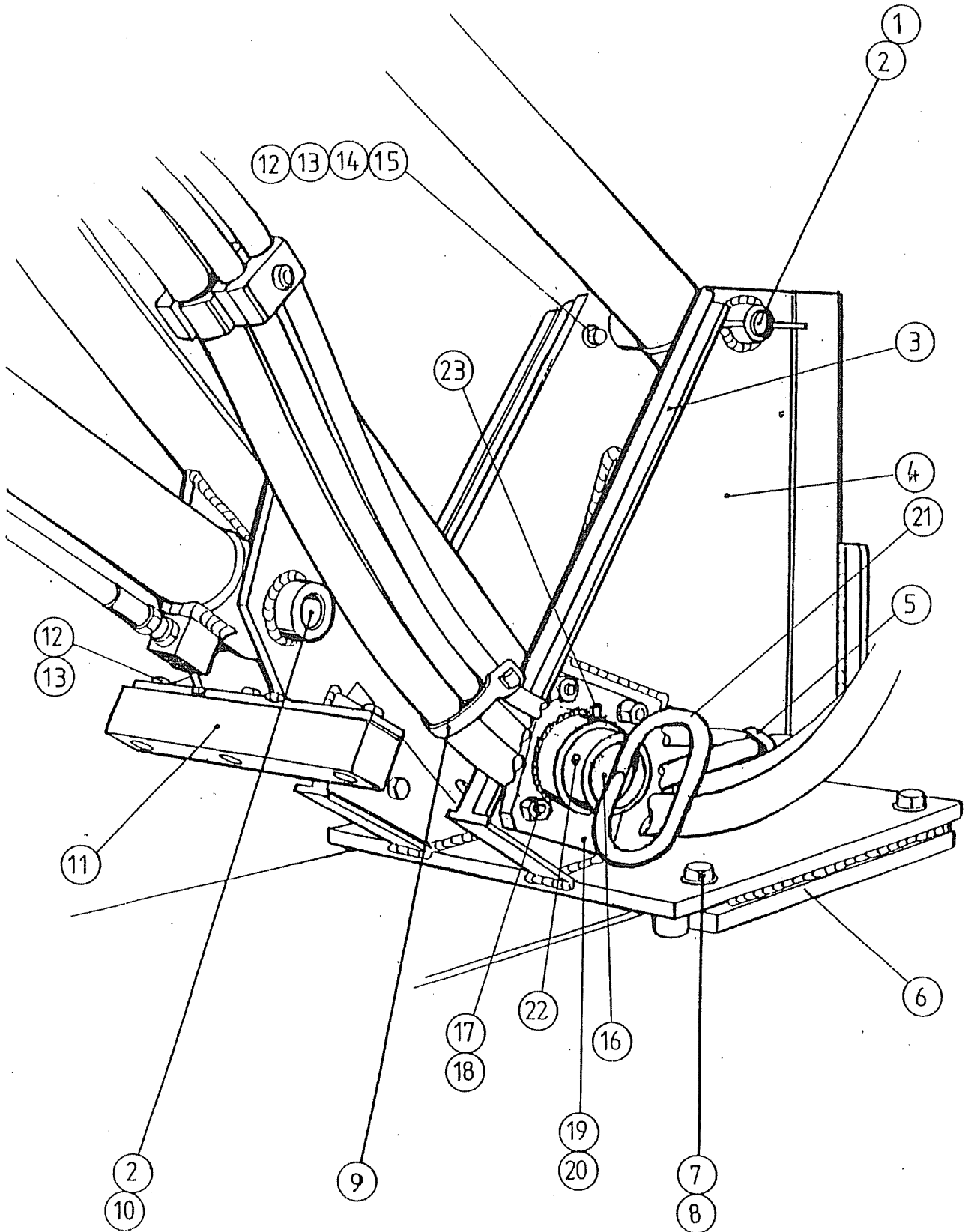


FIG. E

KEY No.	PART No.	DESCRIPTION
1	21136	ACCUMULATOR
2	12459	ACCUMULATOR STRAP
3	6917	BOLT M10 x 25
4	7066	NYLOC NUT M10
5	5272	BONDED WASHER
6	5284	ADAPTOR 1/2" BSP - 3/8" BSP
7	5271	BONDED WASHER
8	20458	ISOLATOR TAP
9	5271	BONDED WASHER
10	5261	TEE
11	5281	ADAPTOR 3/8" BSP - 3/8" BSP
12	5280	ADAPTOR 3/8" BSP - 1/4" BSP
13	21137	HOSE 1/4" x 380m STR/90°
14	6529	HOSE 1/4" x 54" STR/90°

ACCUMULATOR ASSEMBLY

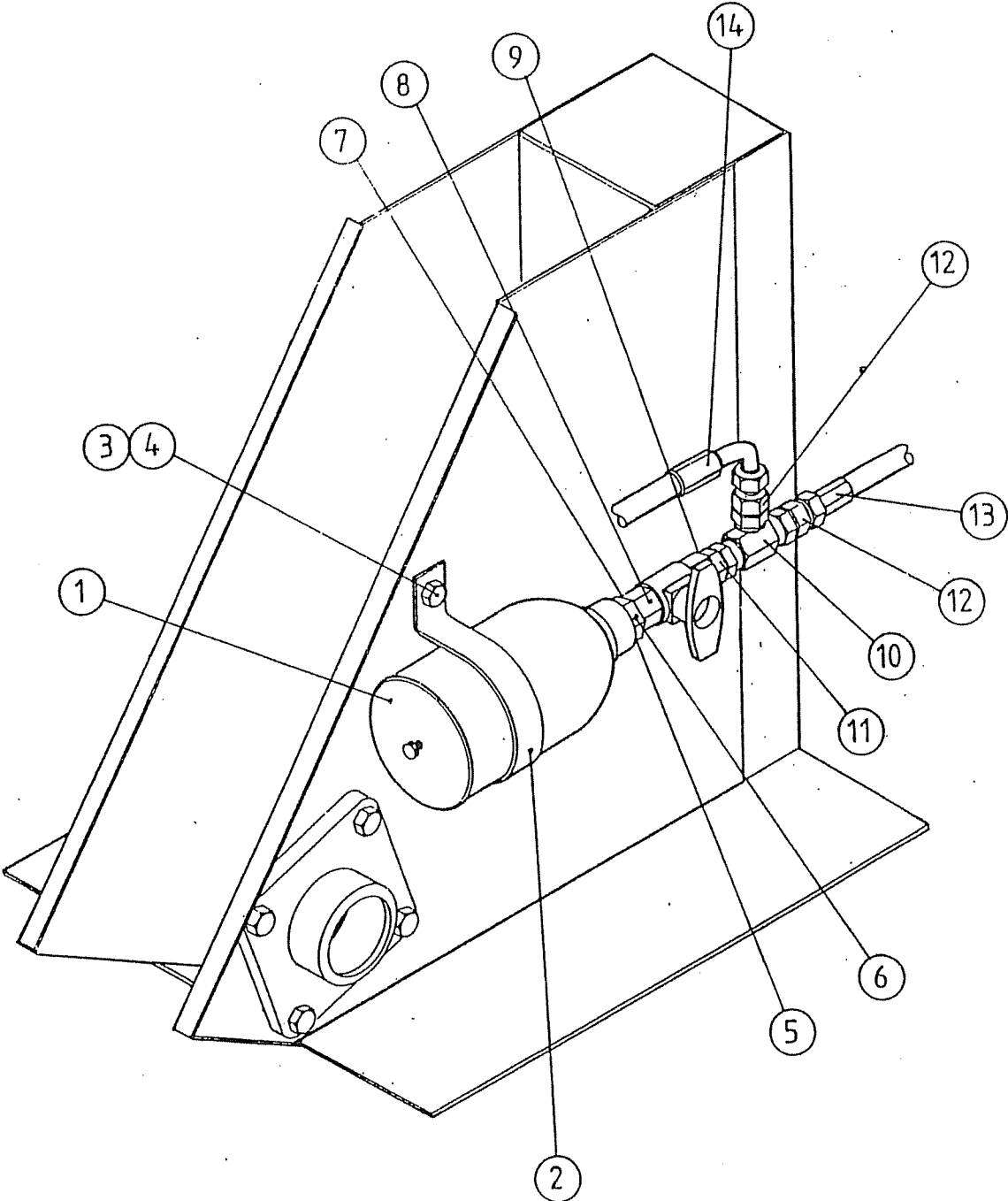


FIG.F

KEY No.	PART No.	DESCRIPTION
1	20876	HOSE STRAP
2	12750	PIN
3	21064	ROLL PIN
4	5409	GREASE NIPPLE
5	5279	ADAPTOR
6	5270	WASHER BONDED
7	4973/W	RAM KINGPOST/FIRST ARM
8	5410	GREASE NIPPLE
9	21065	HOSE CLAMP
10	20966	HOSE CLAMP
11	12751	TIE BAR
12	7065	NYLOC NUT
13	20968	COVER PLATE
14	12744	ARM, FIRST
15	12746	HOSE GUIDE
16	21062	ROLL PIN
17	4974/W	RAM SECOND ARM/FIRST ARM
18	12752	TIE BAR

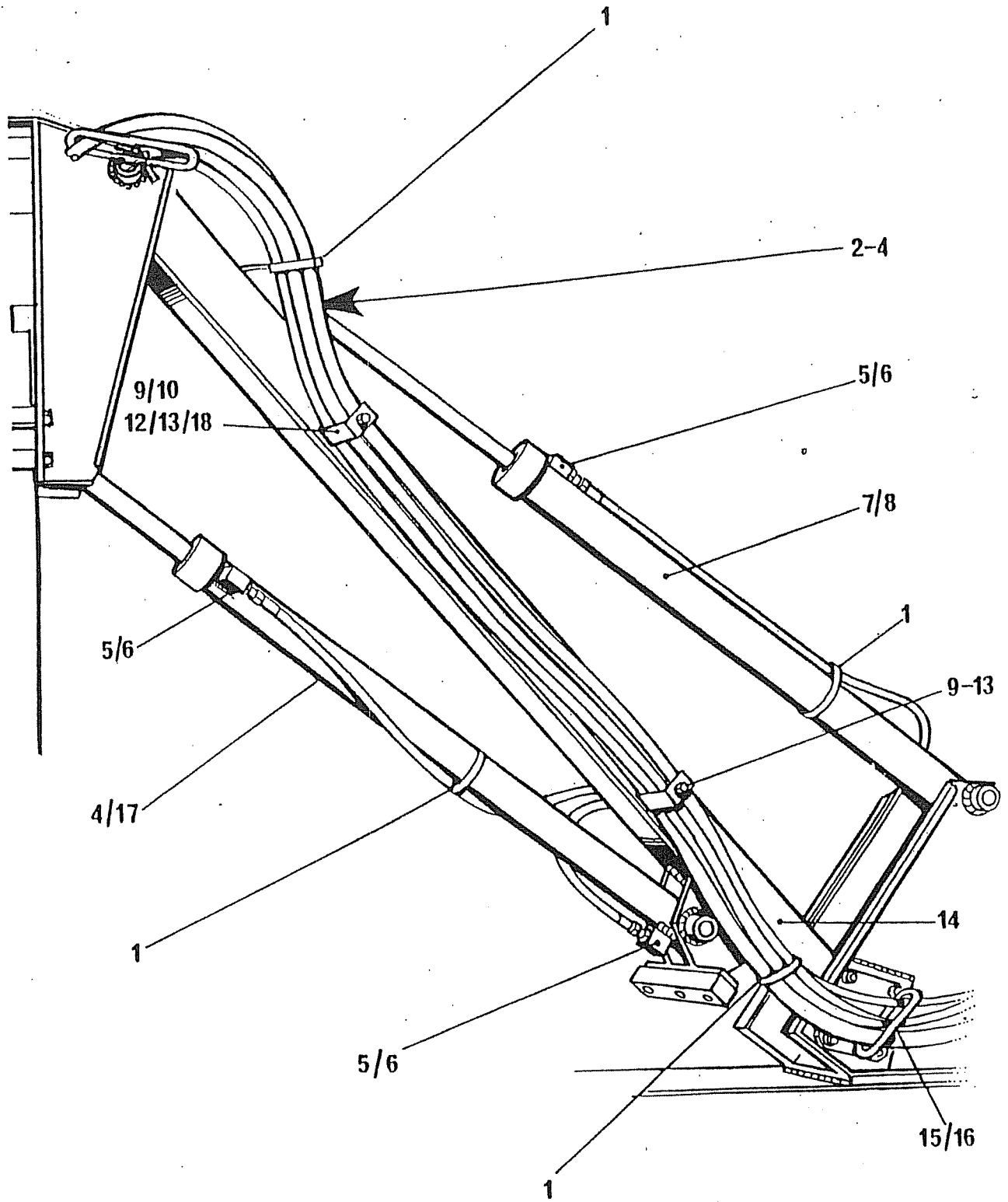


FIG.G



KEY No:	DESCRIPTION AND PART NUMBERS		
		LR16	LR14
1	PIN	12754	12754
2	BOLT	6944	6944
3	NYLOC NUT	7067	7067
4	PIN	12759	12759
5	ROLL PIN	21064	21064
6	SECOND ARM	13610	13615
7	BOLT	6895	6895
8	SPRING WASHER	7121	7121
9	RACK GUARD	12766	12766
10	HOSE STRAP	20876	20876
11	HOOD ANGLING RAM	4975/W	4975/W
12	GREASE NIPPLE	5410	5410
13	ADAPTOR	5279	5279
14	BONDED WASHER	5270	5270
15	PIN	12758	12758
16	HOSE CLAMP	21065	21065
17	HOSE CLAMP	20966	20966
18	TIE BAR	12752	12752
19	NYLOC NUT	7065	7065
20	COVER PLATE	20968	20968
21	HOSE GUIDE	12755	12755
22	SPECIAL WASHER	12756	12756
23	COLLAR	12757	12757
24	ROLL PIN	21066	21066
25	BEARING	20769	20769
26	GREASE NIPPLE	5409	5409
27	BUFFER	-	12972
28	CSK/4D SCREW M10 x 25	-	7373

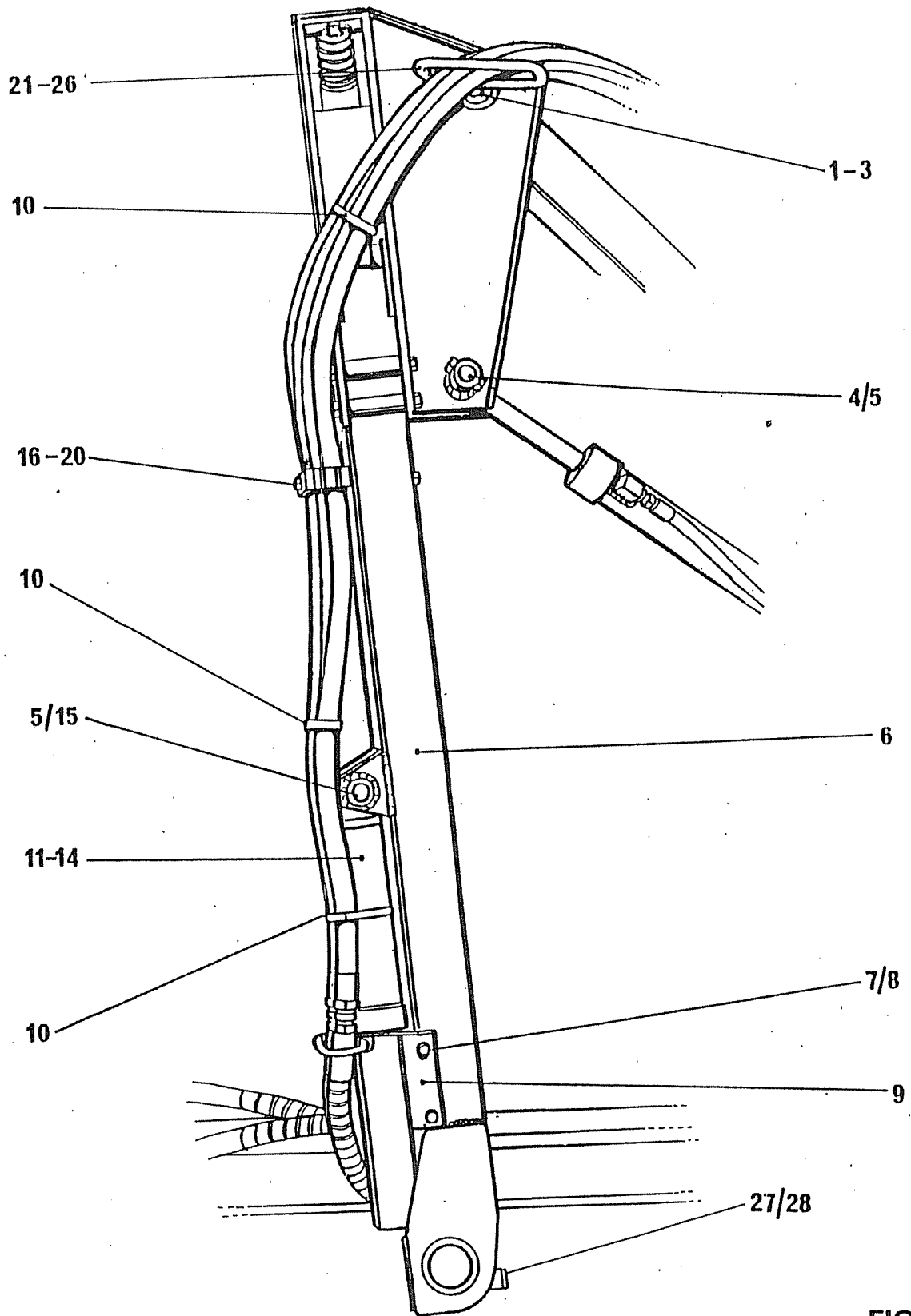


FIG.H

KEY No.	PART No.	DESCRIPTION
1	13610	2ND ARM (LR14 13615)
2	13611	BREAKOUT BRACKET
3	12754	PIN 1st ARM/BREAKOUT
4	6944	BOLT M12 x 65
5	7067	LOCKNUT M12
6	12755	HOSE GUIDE
7	12756	SPECIAL WASHER
8	12757	COLLAR
9	21066	ROLL PIN
10	20769	BEARING
11	4974	RAM 1ST ARM/BREAKOUT
12	13612	PIN 2ND ARM /BREAKOUT
13	6915	SCREW M10 x 16
14	7122	SPRING WASHER M10
15	7118	PLAIN WASHER M24
16	7070	NYLOC NUT M24
17	13616	STOP BRACKET
18	6971	BOLT M16 x 130
19	7068	NYLOC NUT M16
20	13613	SPRING HOUSING
21	21447	DISC SPRING
22	6984	SCREW M10 x 40
23	7109	PLAIN WASHER M20
24	13614	ADJUSTER PIVOT
25	12750	PIN ADJUSTER
26	21064	ROLL PIN

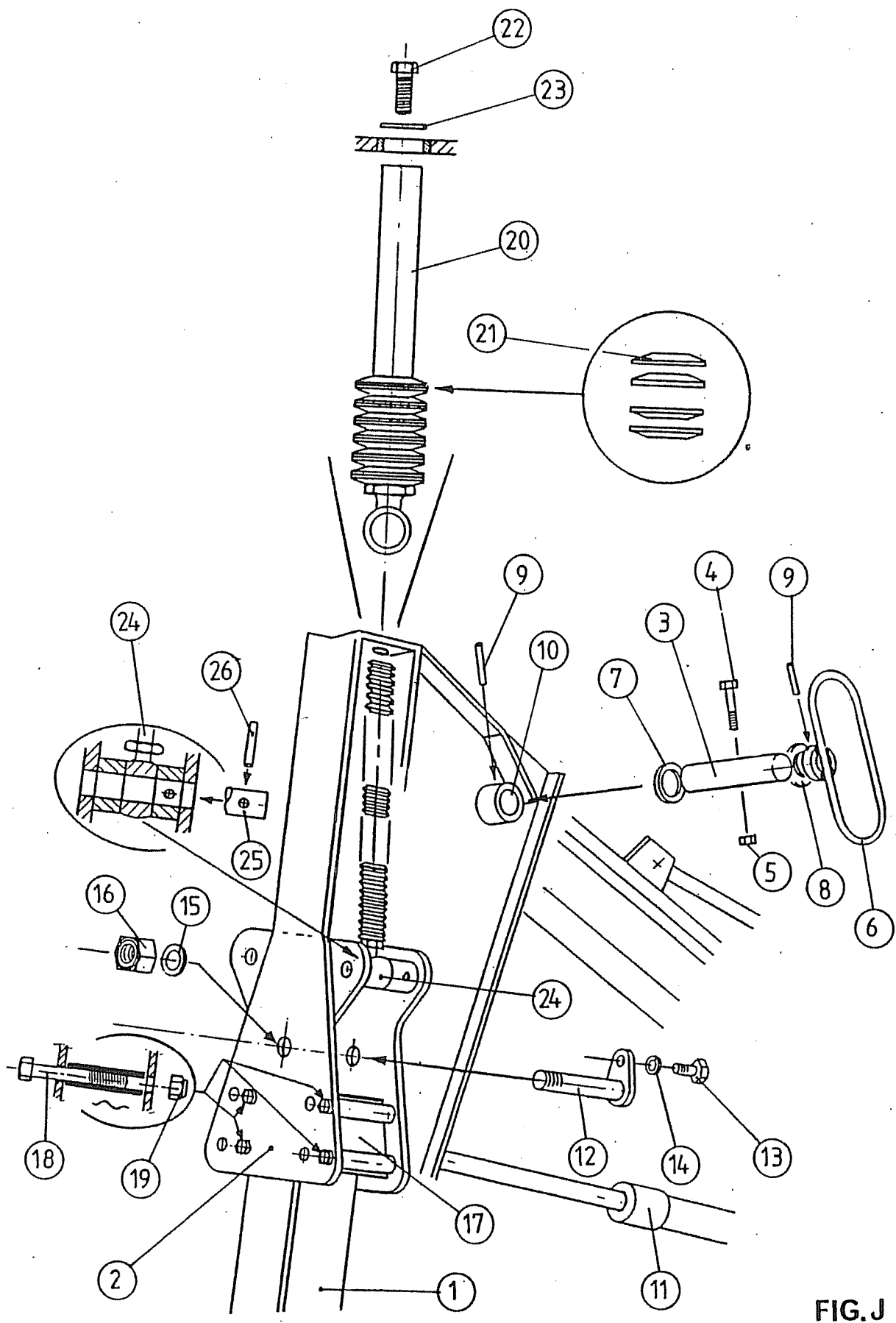


FIG. J

KEY No:	PART No:	DESCRIPTION
1	13610	2ND ARM
2	4975	RAM HOOD ANGLING
3	6942	BOLT M12 x 55
4	7115	PLAIN WASHER
5	7067	NYLOC NUT M12
6	12761	RACK
7	12762	PINION
8	12763	SPLINED SLEEVE
9	21069	THRUST BEARING
10	12808	COLLAR
11	12767	THRUST WASHER
12	5488	CASTELLATED NUT 3/4" UNF
13	12807	PIVOT PIN
14	12756	SPECIAL WASHER
15	5893	NYLOC NUT 1" UNF
16	20767	BEARING
17	12765	PRESSURE PLATE
18	7370	SETSCREW M12 x 55
19	7123	SPRING WASHER
20	7115	PLAIN WASHER
21	13300	SPACER TUBE
22	13302	SHIM 1mm - AS REQUIRED
23	7115	SHIM 2mm - AS REQUIRED
24	12766	RACK GUARD
25	6895	BOLT M8 x 12
26	7121	SPRING WASHER
27	5409	GREASE NIPPLE

# CUTTING HEAD ANGLING

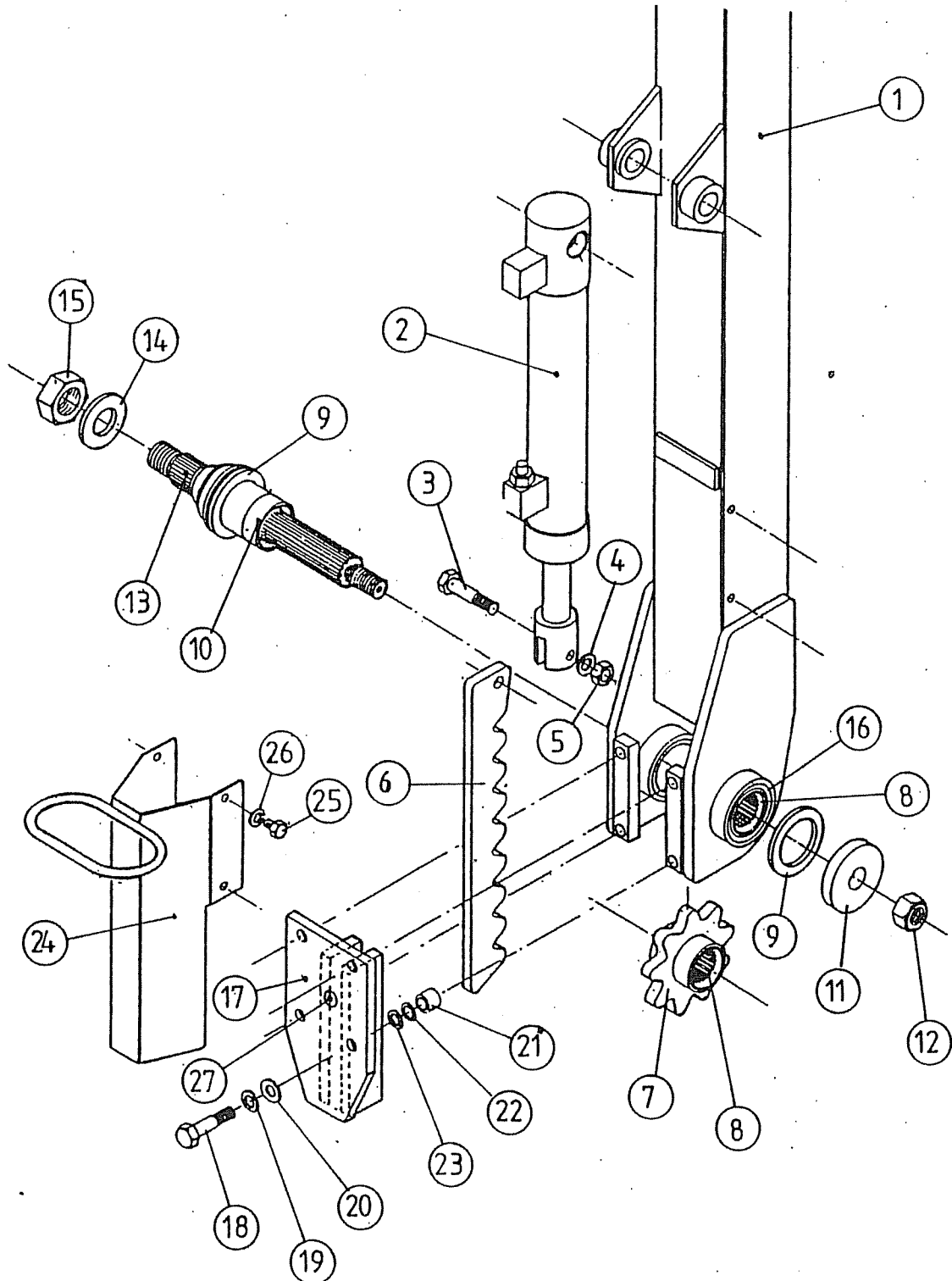


FIG.K

KEY. No.	PART No.	DESCRIPTION
1	5893	NYLOC NUT
2	12756	WASHER SPECIAL
3	12762	PINION INCLUDING SPLINED SLEEVE
4	12761	RACK
5	6922	BOLT
6	7066	NYLOC NUT
7	20767	BEARING
8	5409	GREASE NIPPLE
9	21069	BEARING, THRUST
10	12767	WASHER, THRUST
11	12763	SPLINED SLEEVE
12	5488	NUT, CASTELLATED
13	12764	PIN, PIVOT
14	6777	PIN COTTER

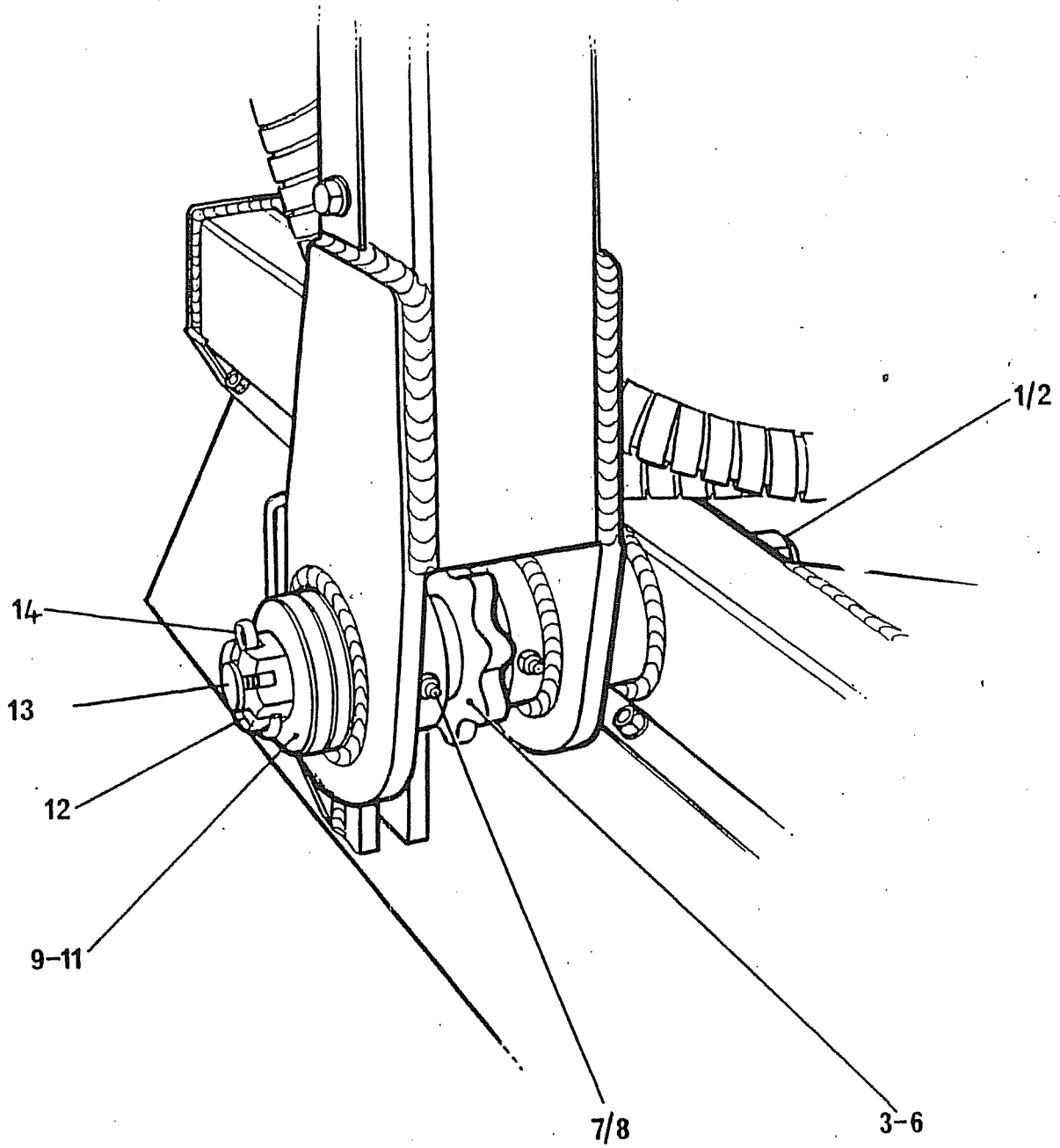


FIG. L



KEY No:	DESCRIPTION AND PART NUMBERS		
		1.2 m	1.0 m
1	COWL	13760	13842
2	FRONT GUARD	13472	13841
3	BOLT M12 x 30	6937	6937
4	NYLOC NUT M12	7067	7067
5	PLAIN WASHER	7115	7115
6	LARGE WASHER	12556	12556
7	FLAP GUARD	11795	11795
7	FLAP GUARD	-	13845
8	FLAP BAR	13468	13846
9	SELF LOCKING RING	21384	21384
10	REAR PICK UP BEAM	13763	13840
11	BOLT M16 x 35	6957	6957
12	NORD LOCK WASHER M16 (4 PAIRS)	21386	21386
13	NYLOC NUT M16	7068	7068
14	RUBBER FLAP	13480	13843
15	FLAP RETAINING STRAP	12503	13844
16	SCREW M8 x 25	6898	6898
17	NYLOC NUT M8	7065	7065
18	SKID	13479	13479
19	C/SUNK BOLT M10 x 30	7296	7296
20	SPRING WASHER M10	7122	7122
21	NYLOC NUT	7050	7050

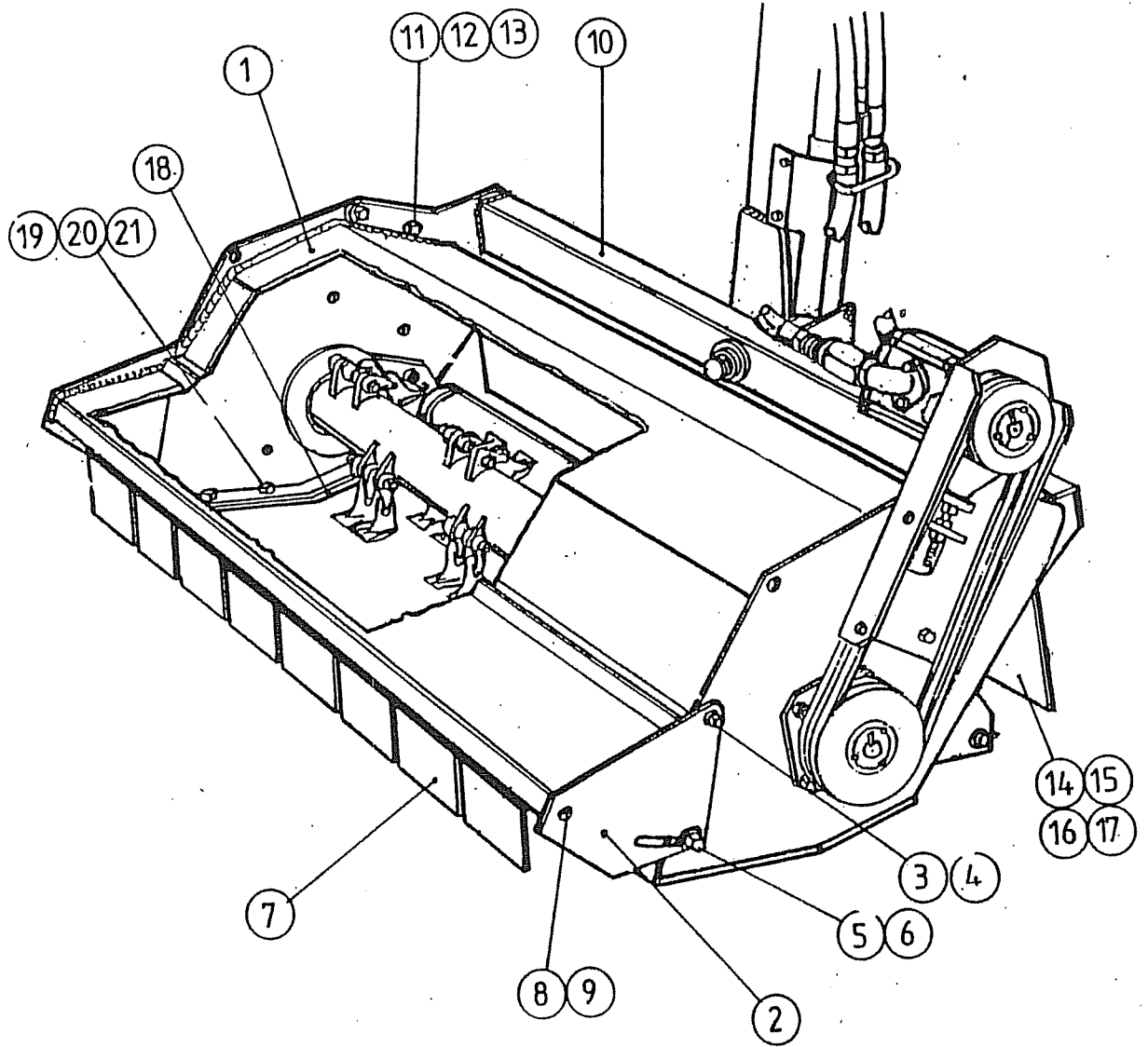


FIG. M

KEY  
No:

DESCRIPTION AND PART NUMBERS

		1.2 M	1.0 M
1	ROTOR SHAFT	13762	13847
2	CUTTER	12810	12810
3	CUTTER	6202	6202
4	SHACKLE	12811	12811
5	SHACKLE	3789	3789
6	SPACER	13297	13297
7	WASHER	7108	7103
8	BOLT M14 x 120	7333	7333
9	NYLOC NUT	7757	7757
10	BEARING	20895	20895
11	BEARING HOUSING	12496	12496
12	CIRCLIP	20896	20896
13	BOLT	6938	6938
14	NYLOC NUT	7067	7067
15	SPACER	12497	12497
16	BEARING END PLATE	12499	12499
17	GREASE NIPPLE	5409	5409
18	BEARING END GUARD	12498	12498
19	BOLT M12 x 15	6936	6936
20	NYLOC NUT	7067	7067
21	ROLLER	20898	21211
22	BOLT M12 x 40	6939	6939
23	TAB WASHER	20894	20894
24	RH ROLLER BRACKET	12501	12501
25	LH ROLLER BRACKET	12502	12502
26	BOLT M12 x 35	6938	6938
27	SCREW M12	6935	6935
28	NYLOC NUT M12	7067	7067
29	SPRING WASHER	7123	7123

# CUTTING HEAD (VIEW 1)

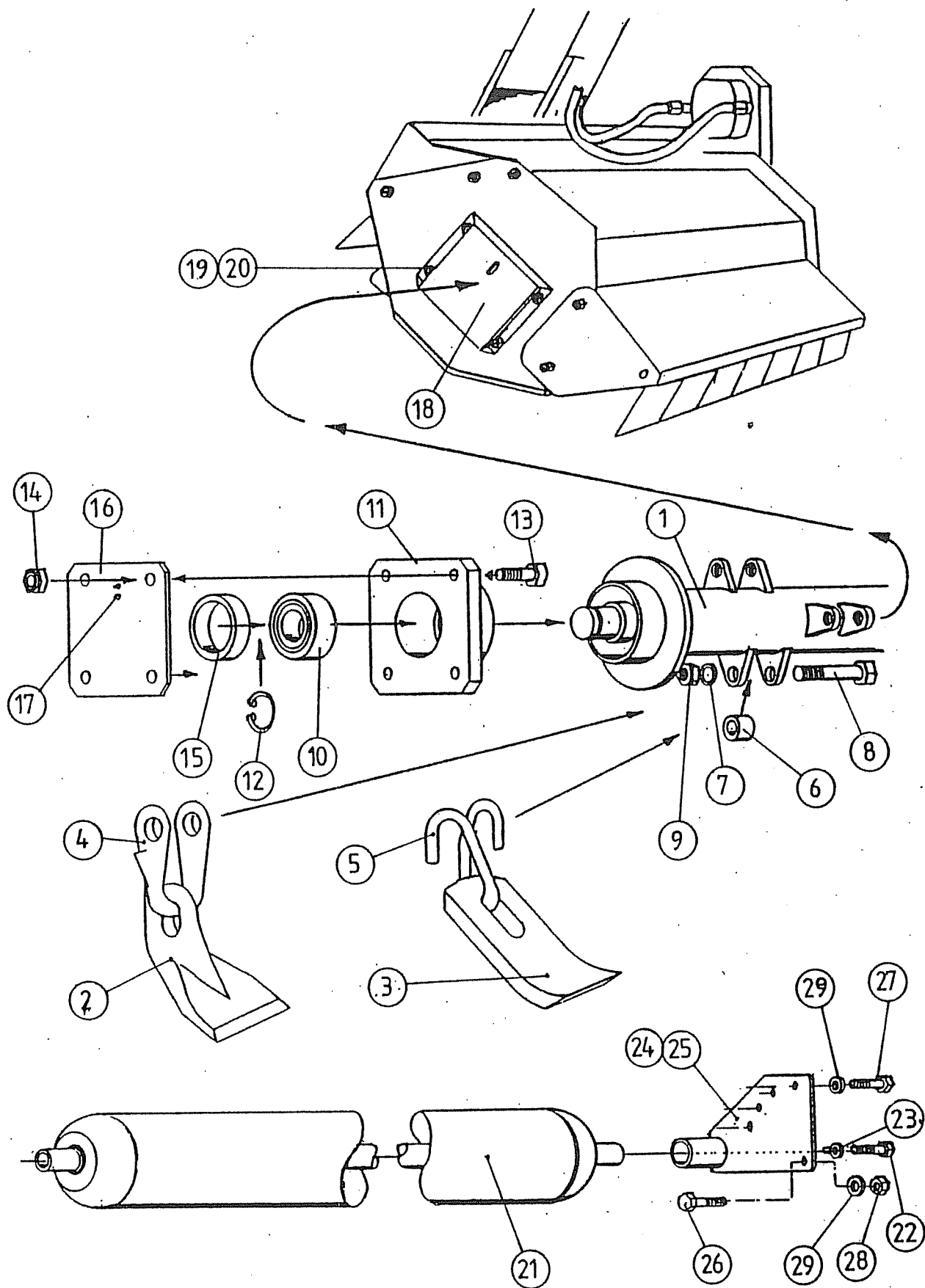


FIG.N

KEY No:	PART No:	DESCRIPTION
1	21075	MOTOR C/W KEY
2	21076	DOWTY CONNECTOR
3	21077	'O' RING
4	21078	SOCKET CAP SCREW
5	21079	SPRING WASHER
6	21122	DOWTY CONNECTOR
7	21123	'O' RING
8	21124	SOCKET CAP SCREW
9	21125	SPRING WASHER
10	21080	ADAPTOR 3/4" BSPM/ 3/4" BSPM
11	5273	BONDED WASHER
12	21099	ADAPTOR 3/4" BSPM/ 3/4" BSPF
13	21081	SWIVEL JOINT
14	533002	GREASE NIPPLE
15	21306	PULLEY 2 GROOVE SPA 160
16	21271	TAPERLOCK BUSH
17	12514	KEY
18	21270	BELT SPA 1320
19	5239	TAPERLOCK BUSH
20	13770	BELT ADJUSTER
21	7301	COACH BOLT M12 x 50
22	7115	PLAIN WASHER
23	7067	NYLOC NUT
24	7334	SET SCREW M12 x 70
25	7051	PLAIN NUT M12
26	13769	MOTOR MOUNTING BRACKET
27	13767	SPACER 16.5 1/D
28	21698	SHIM 16.5 1/D
29	13768	SPACER 12.5 1/D
30	21697	SHIM 12.5 1/D
31	6961	BOLT M16 x 55
32	7068	NYLOC NUT M16
33	21386	NORD LOCK WASHER
34	7108	PLAIN WASHER M16
35	6941	BOLT M12 x 50
36	7067	NYLOC NUT M12
37	13478	BELT GUARD
38	21445	SET SCREW M12 x 16
39	7115	PLAIN WASHER M12
40	7125	SPRING WASHER M12
41	12496	BEARING HOUSING
42	533002	GREASE NIPPLE
43	20895	BEARING
44	12500	BEARING END PLATE
45	20896	CIRCLIP
46	6938	BOLT
47	7067	NYLOC NUT

# CUTTING HEAD(VIEW 2)

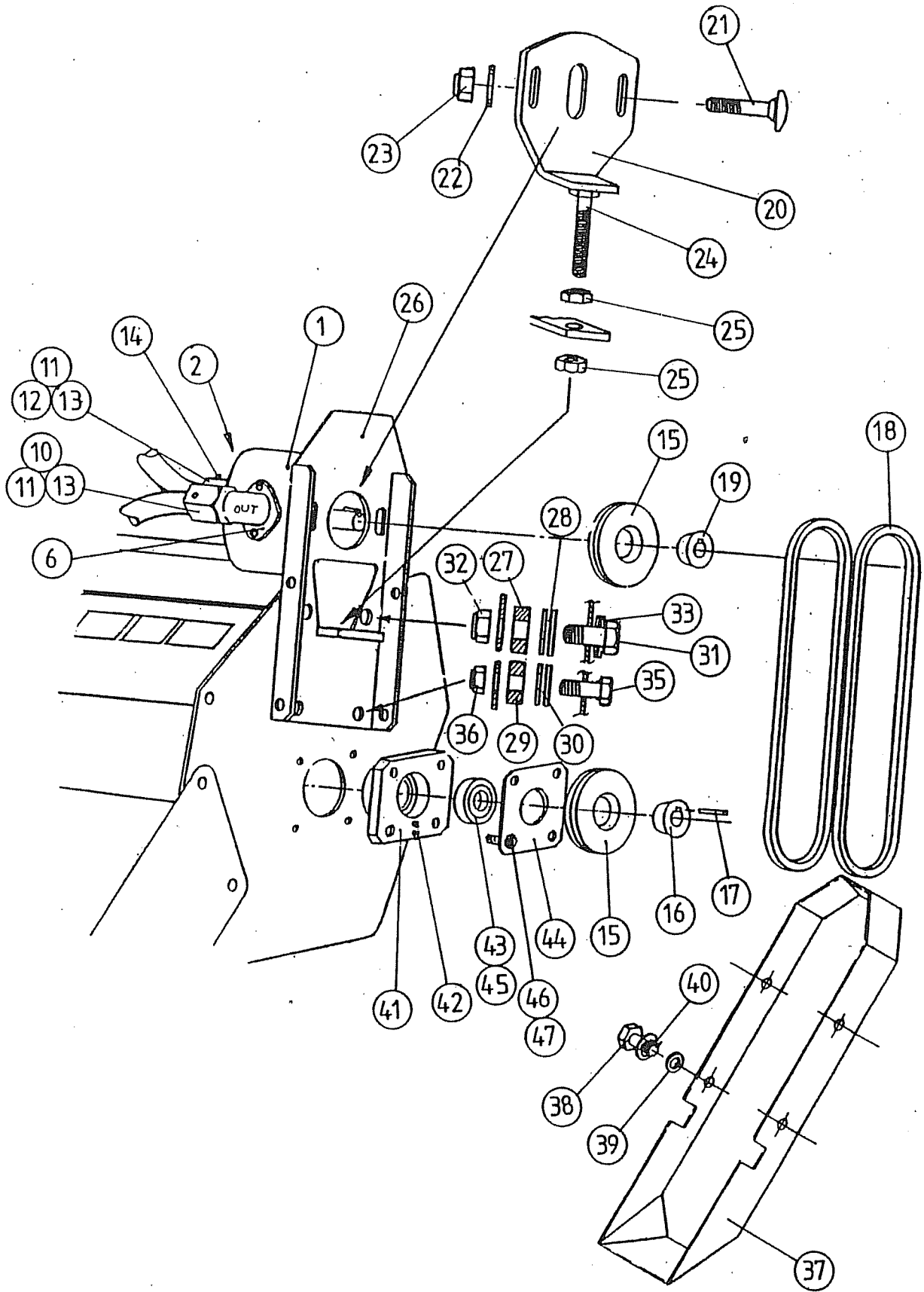


FIG. P

KEY  
No:

DESCRIPTION AND PART NUMBERS

		LR16	LR14
1	CONTROL VALVE	21098	-
2	ADAPTOR	5283	-
3	BONDED WASHER	5273	-
4	ADAPTOR	21080	-
5	CONNECTOR	21076	21076
6	'O' RING	21077	21077
7	GATE VALVE	5388	5388
8	FLUTED ELBOW	12734	12976
9	CONNECTOR	21091	-
10	'O' RING	21092	-
11	CANNISTER ELEMENT	21130	21130
12	ADAPTOR	5282	-
13	BONDED WASHER	5272	-
14	BOLT	6923	-
15	NYLOC NUT	7066	-
16	FILTER	21100	21100
17	ADAPTOR	21101	21101
18	BONDED WASHER	6134	6134
19	ADAPTOR	21099	-
20	CONNECTOR	21087	-
21	'O' RING	21088	-
22	BONDED WASHER	5273	-
23	ADAPTOR	21080	-
24	JUBILEE CLIP	5416	5416
25	ELBOW	12800	12800
26	ADAPTOR	21095	21095
27	BONDED WASHER	6134	6134
28	GEARBOX	21074	21074
29	SETSCREW	6935	6935
30	SPRING WASHER	7123	7123
31	STUD	21068	21068
32	NYLOC NUT	7066	7066
33	PLAIN WASHER	7114	7114
34	CONNECTOR	21083	21083
35	'O' RING	21084	21084
36	PUMP	21082	21205
37	CABLE	20729	-

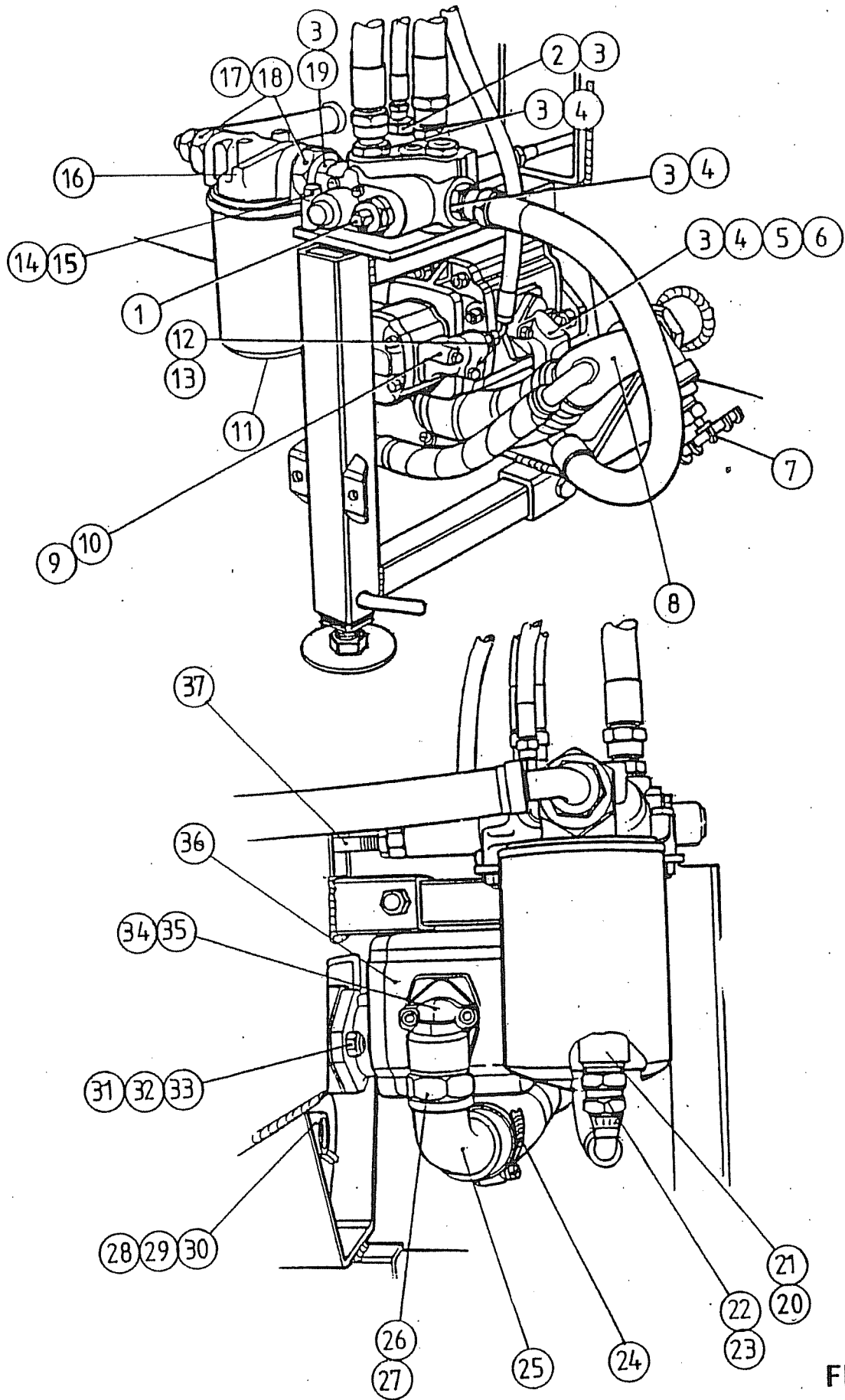


FIG. Q



KEY No:	PART No:	DESCRIPTION
1	21207	RELIEF VALVE
2	6907	BOLT M8 x 70
3	7065	NYLOC NUT M8
4	21080	ADAPTOR
5	21208	COMPACT ELBOW
6	21099	ADAPTOR
7	5273	BONDED WASHER
8	21100	RETURN LINE FILTER
9	21101	ADAPTOR
10	6134	BONDED WASHER
11	21130	CANISTER ELEMENT
12	21205	PUMP
13	21068	STUD M10 x 45
14	7066	NYLOC NUT M10
15	7114	PLAIN WASHER M10
16	21074	GEARBOX
17	6938	SET SCREW M12 x 35
18	7123	SPRING WASHER M12
19	21083	DOWTY CONNECTOR
20	21084	'O' RING
21	21085	SOCKET CAPSCREW
22	21086	SPRING WASHER
23	21095	ADAPTOR SUCTION
24	6134	BONDED WASHER
25	12800	ELBOW
26	5416	JUBILEE CLIP

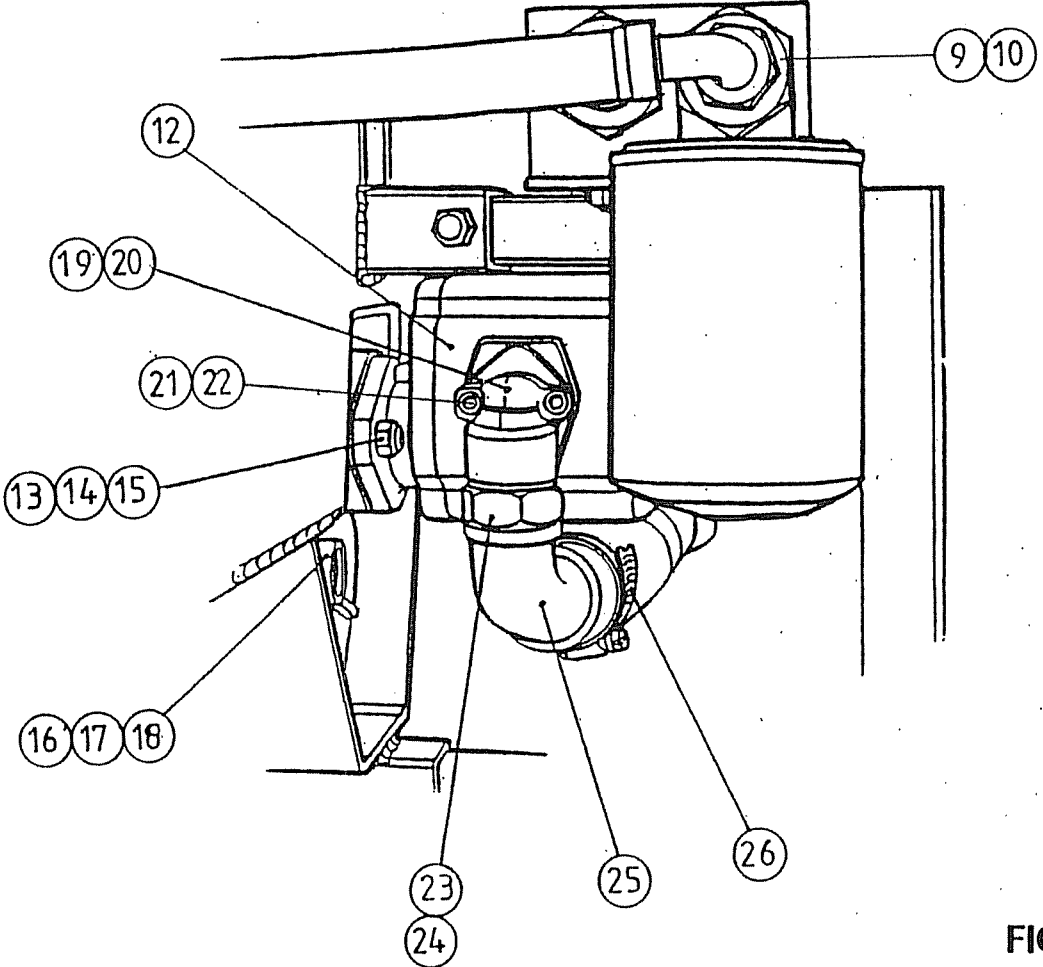
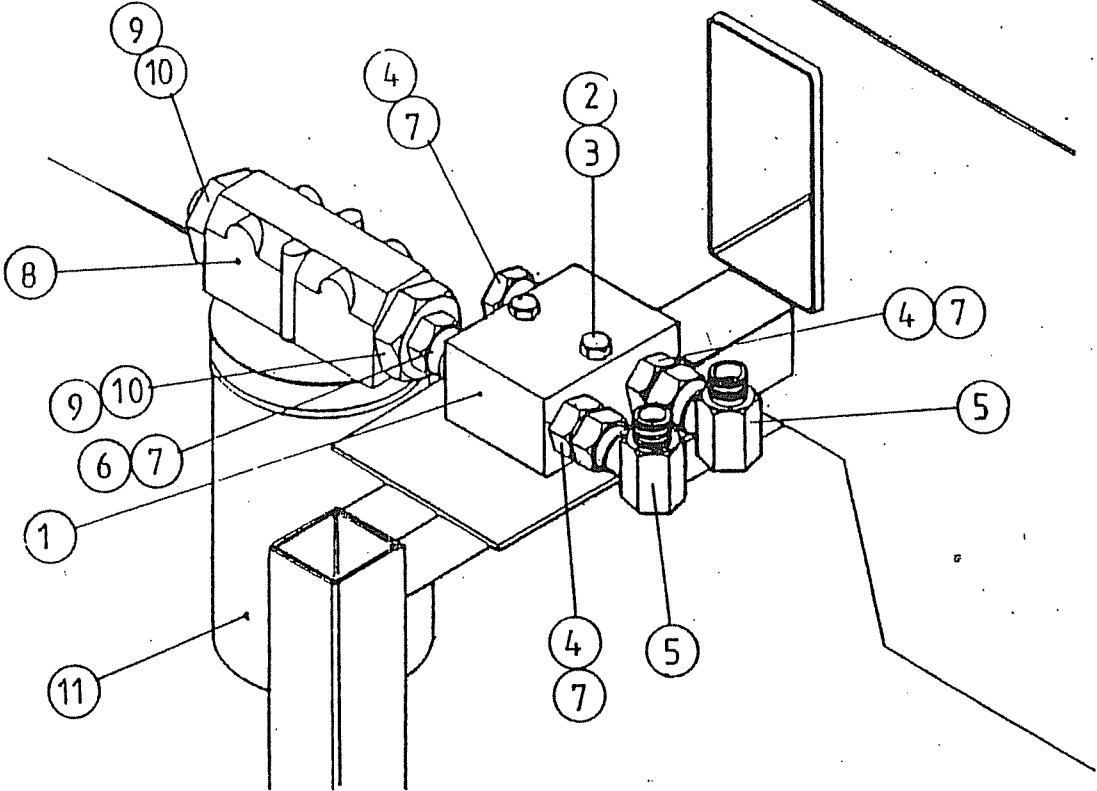


FIG. R

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KEY No.	PART No.	DESCRIPTION
1	6924	BOLT
2	7122	WASHER, SPRING
3	21097	RESTRICTOR
4	5272	WASHER, BONDED
5	5283	ADAPTOR
6	5273	WASHER, BONDED
7	5282	ADAPTOR
8	6369	RESTRICTOR
9	21096	VALVE, RAM CONTROL

CONTROL VALVE

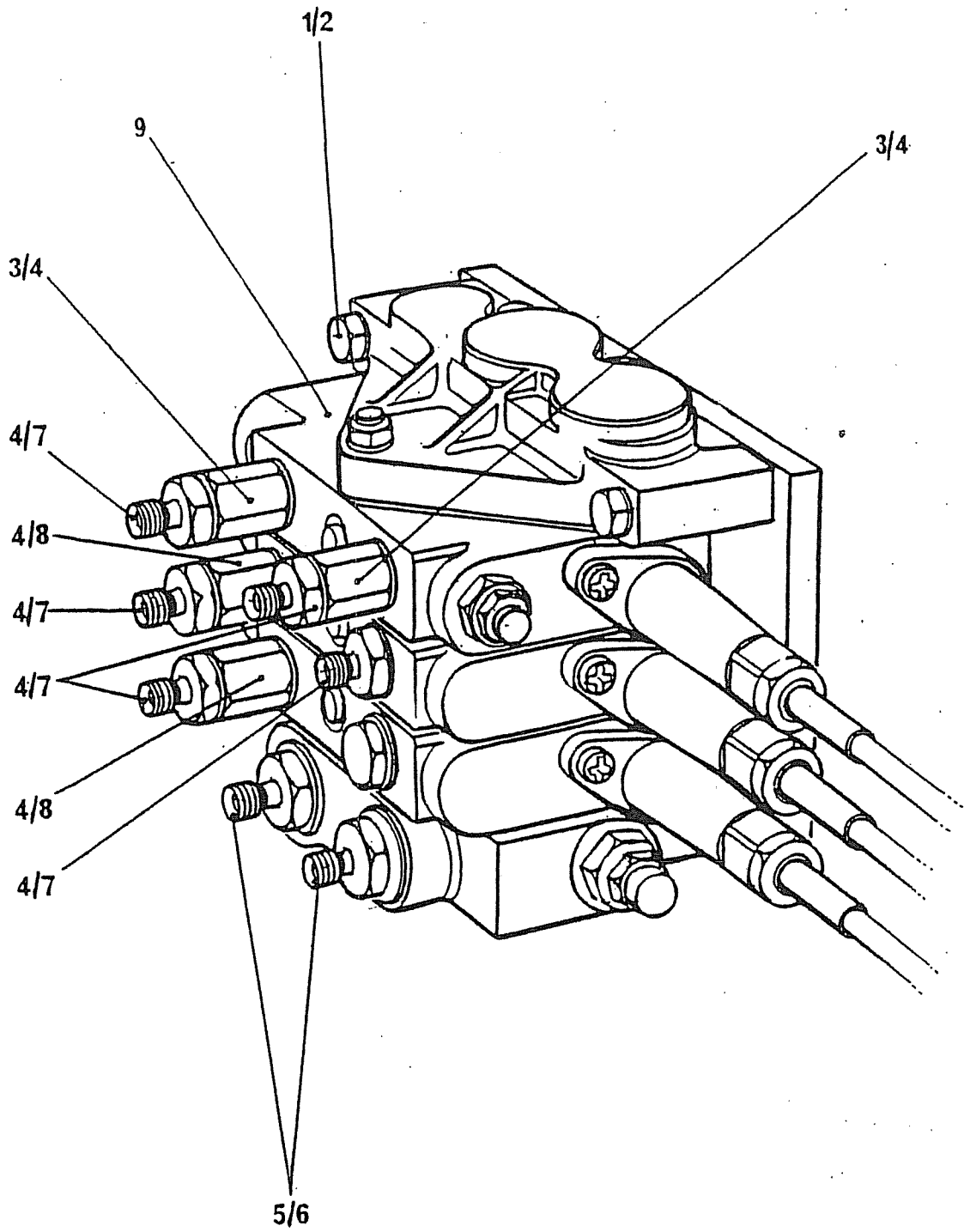


FIG. S

KEY  
No:

DESCRIPTION AND PART NUMBERS

		4973/W	4974/W	4975/W
1	PISTON	21176	21160	20930
2	SEAL, PISTON	21177	20935	20935
3	CYLINDER	21172	21158	21150
4	ROD	21173	21159	21151
5	'O' RING	21178	20936	20936
6	BACK UP RING	21180	21168	-
7	WIPER	20938	21165	20938
8	GREASE NIPPLE, ROD	5409	5409	-
9	BUSH, ROD	21179	21166	-
10	CAP	21174	21162	20932
11	GLAND	21175	21161	21152
12	SEAL, ROD	20787	21164	20787
13	'O' RING	20937	20937	20937
14	NUT	20939	21163	20939
15	BUSH, CYLINDER	21179	21153	21153
16	GREASE NIPPLE, CYLINDER	5410	5409	5410
17	MILLS PIN	-	21167	-
18	CLEVIS	-	-	12760
-	SEAL SET	40004	40005	4961

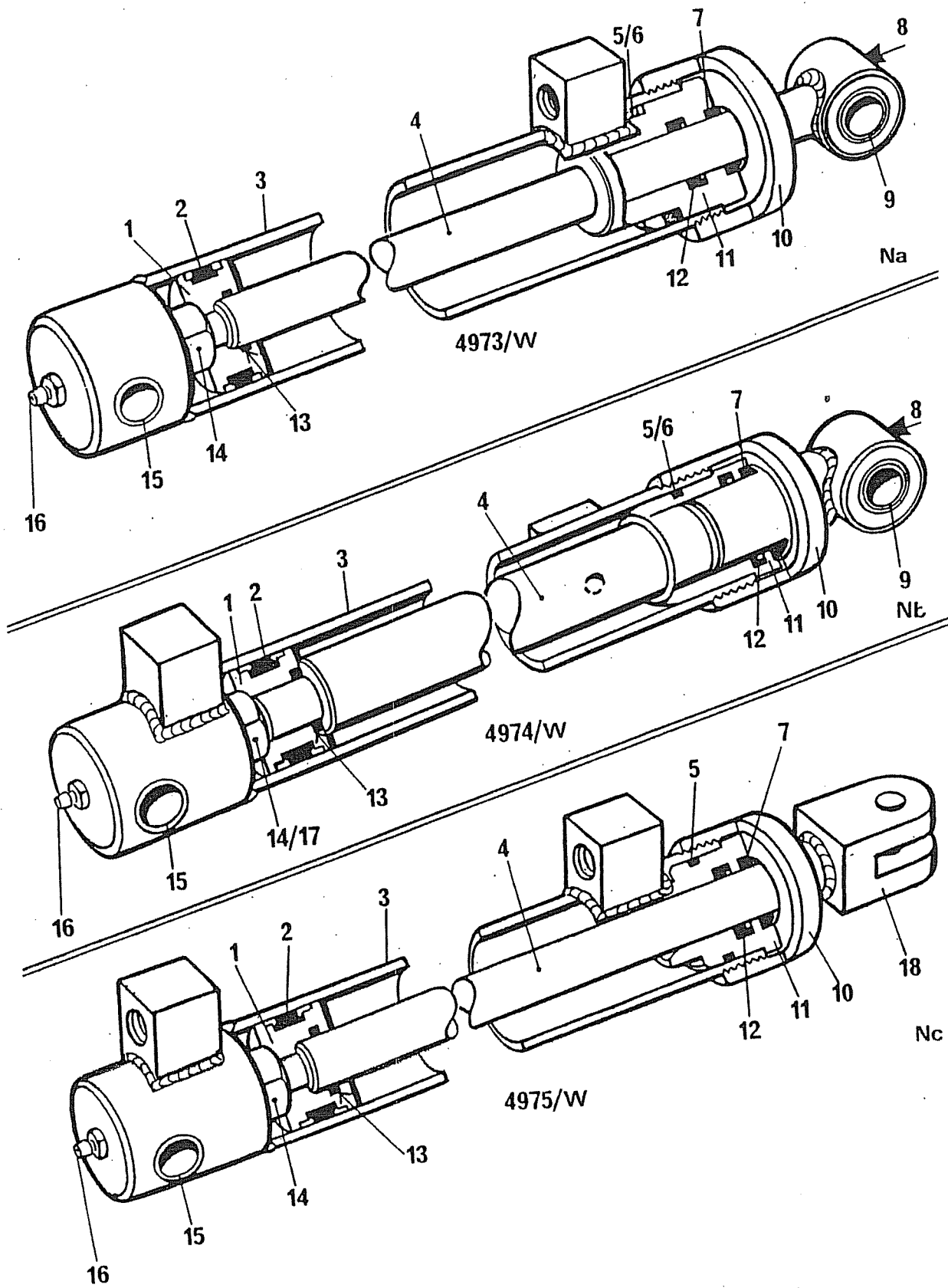


FIG.T

KEY  
No:

DESCRIPTION AND PART NUMBERS

		16 LR	14 LR
1	PHILLIPS HEAD SCREW 1/4" UNC x 2	21055	21055
2	SETSCREW M16 x 30	6956	6956
3	NYLOC NUT M12	7067	7067
4	PLAIN WASHER M12	7115	7115
5	CAB MOUNTING PAD	11716	11716
6	COUNTER SUNK BOLT	7297	7297
7	CONTROL HEAD MOUNTING ARM	11717	11717
8	CABLE	20729	-
9	CABLE	21103	21103
10	CONTROL HEAD	21102	-
11	CONTROL HEAD	20441	20441
12	QUICK RELEASE BOLT )	12264	11715
13	KNOB )	20440	20440

# CONTROL LEVERS & CABLES

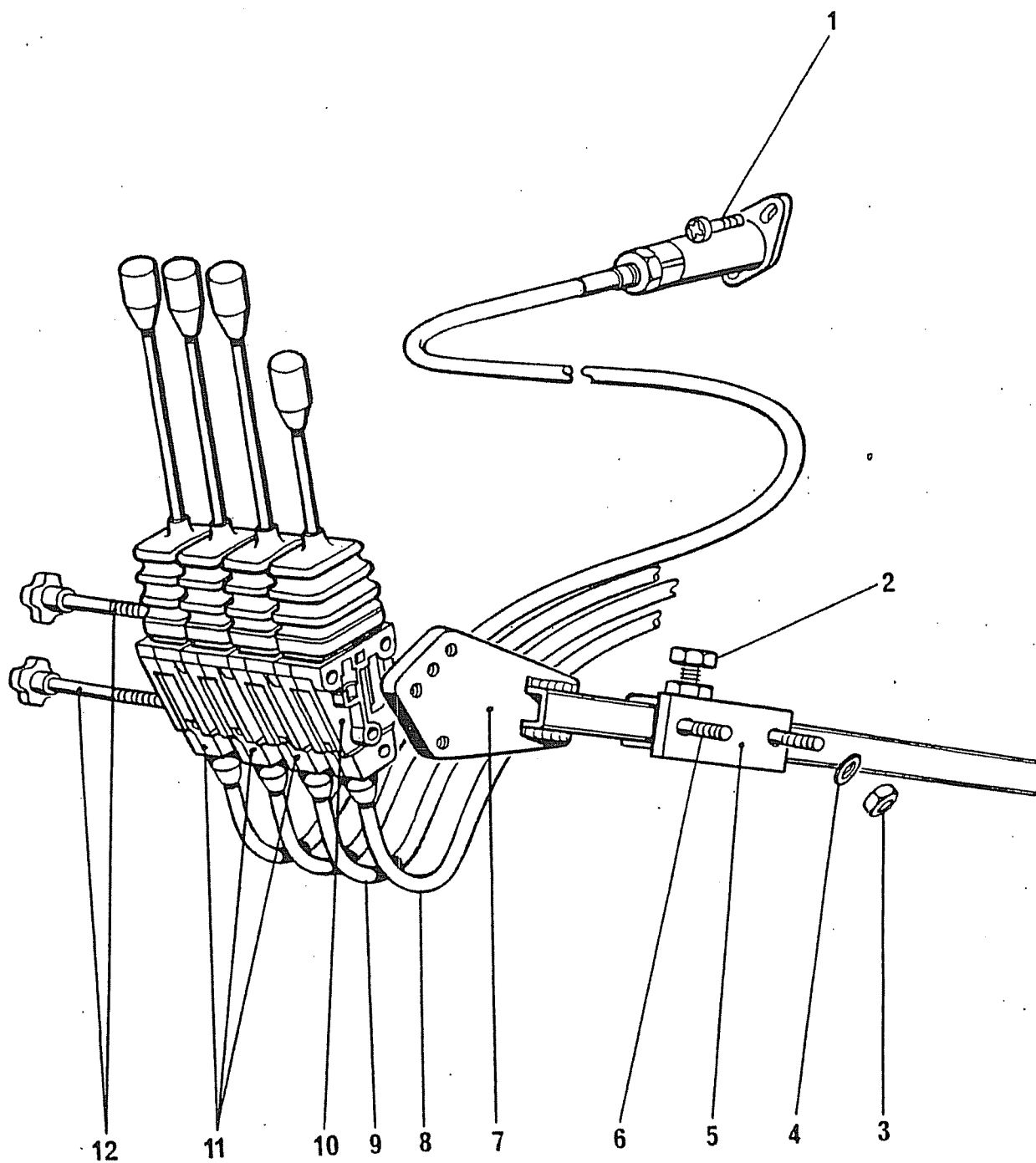


FIG. U



KEY No.	PART No.	DESCRIPTION		
1	21109	HOSE	¾" x 1.000 mm	STR/STR
2	21075	MOTOR		
3	21108	HOSE	¾" x 4510 mm	STR/STR
4	21098	MOTOR CONTROL VALVE		
5	21107	HOSE	¾" x 555 mm	STR/90°
6	21294	HOSE	¾" x 135 mm	90°/PLAIN
7	21100	FILTER, RETURN LINE		
8	21082	PUMP		
9	21104	HOSE, SUCTION	2" x 250 mm	
10	21105	HOSE	¾" x 230 mm	STR/90°
11	21061	FILTER, SUCTION		
12	5388	GATE VALVE		
13	21110	HOSE	¼" x 1575 mm	STR/90°
14	21096	RAM CONTROL VALVE		
15	21111	HOSE	¼" x 1345 mm	STR/STR
16	21112	HOSE	¼" x 2145 mm	STR/90°
17	4973/W	RAM	KINGPOST/1ST ARM	
18	6369	RESTRICTOR		
19	21114	HOSE	¼" x 1980 mm	STR/90°
20	21113	HOSE	¼" x 1650 mm	STR/90°
21	4974/W	RAM	2ND ARM/1ST ARM	
22	21116	HOSE	¼" x 4065 mm	STR/90°
23	21097	RESTRICTOR		
24	21115	HOSE	¼" x 3785 mm	STR/90°
25	4975/W	RAM	HOOD ANGLING	
26	21243	HOSE	¾" x 4510 mm	STR/STR
27	6529	HOSE	¼" x 54 "	STR/90°
28	31137	HOSE	¼" x 380 mm	STR/90°
29	21136	ACCUMULATOR		

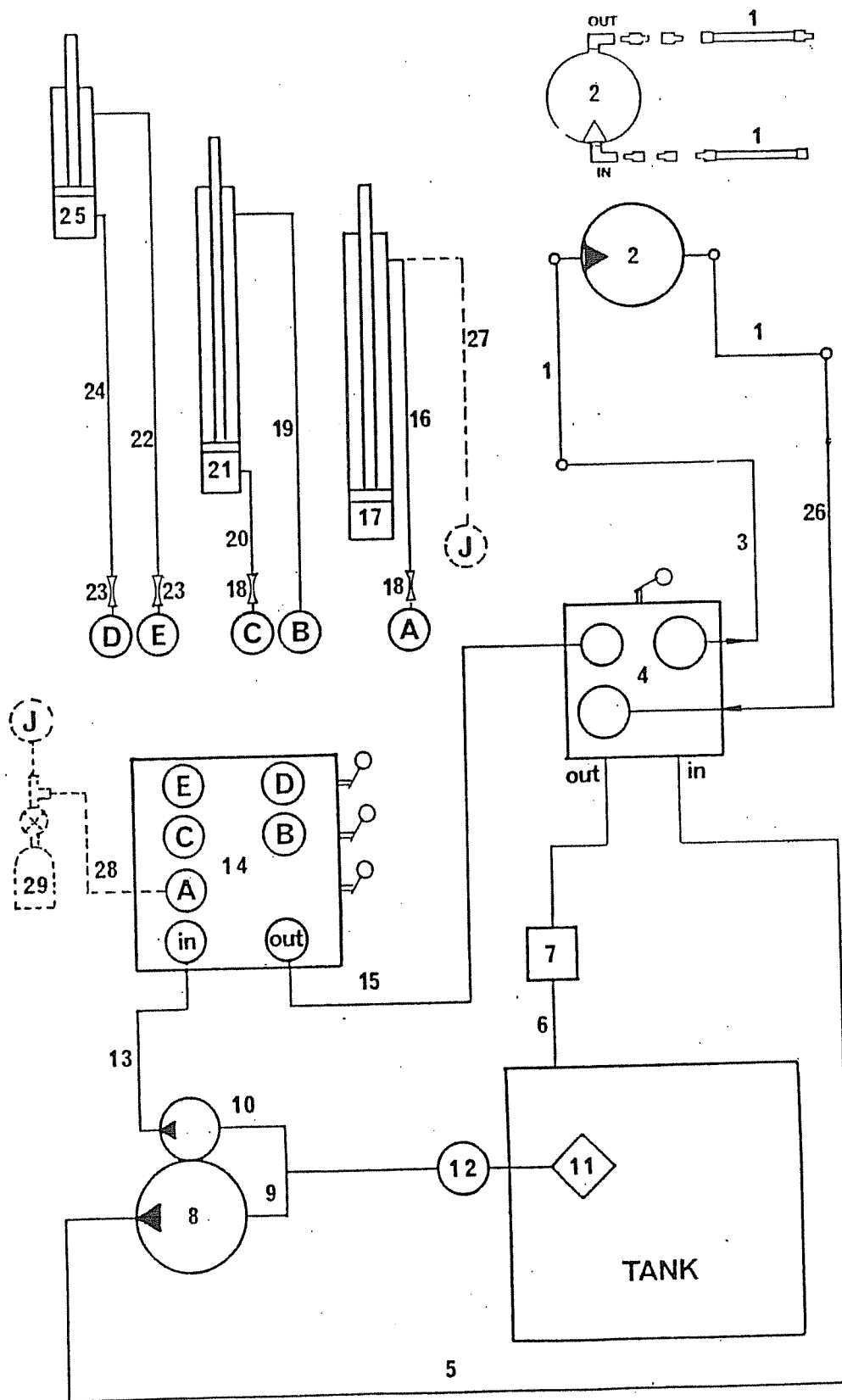


FIG. V

KEY No:	PART No:	DESCRIPTION	
1	21109	HOSE	3/4" x 1000mm ST/STR
2	21075	MOTOR	
3	21108	HOSE	3/4" x 4510mm ST/ST
4	21207	RELIEF VALVE	
5	21209	HOSE	3/4" x 555mm ST/90°
6	21294	HOSE	3/4" x 135mm 90°/PLAIN
7	21100	RETURN LINE FILTER	
8	21205	PUMP	
9	21104	SUCTION HOSE	2" x 250mm
10	21243	HOSE	3/4" x 4510mm ST/ST
11	21061	SUCTION FILTER	
12	5388	GATE VALVE	
13	5427	HOSE	3/8" x 1370mm 90°/ST
14	21096	RAM CONTROL VALVE	
15	5427	HOSE	3/8" x 1370mm 90°/ST
16	21112	HOSE	1/4" x 2145mm STR/90°
17	4973/W	RAM	KINGPOST/1ST ARM
18	6369	RESTRICTOR	
19	21114	HOSE	1/4" x 1980mm STR/90°
20	21113	HOSE	1/4" x 1650mm STR/90°
21	4974/W	RAM	2ND ARM/1ST ARM
22	21116	HOSE	1/4" x 4065mm STR/90°
23	21097	RESTRICTOR	
24	21115	HOSE	1/4" x 3785mm STR/90°
25	4975/W	RAM	HOOD ANGLING
26	6529	HOSE	1/4" x 54" 90°/PLAIN
27	21137	HOSE	1/4" x 380mm STR/90°
28	21136	ACCUMULATOR	

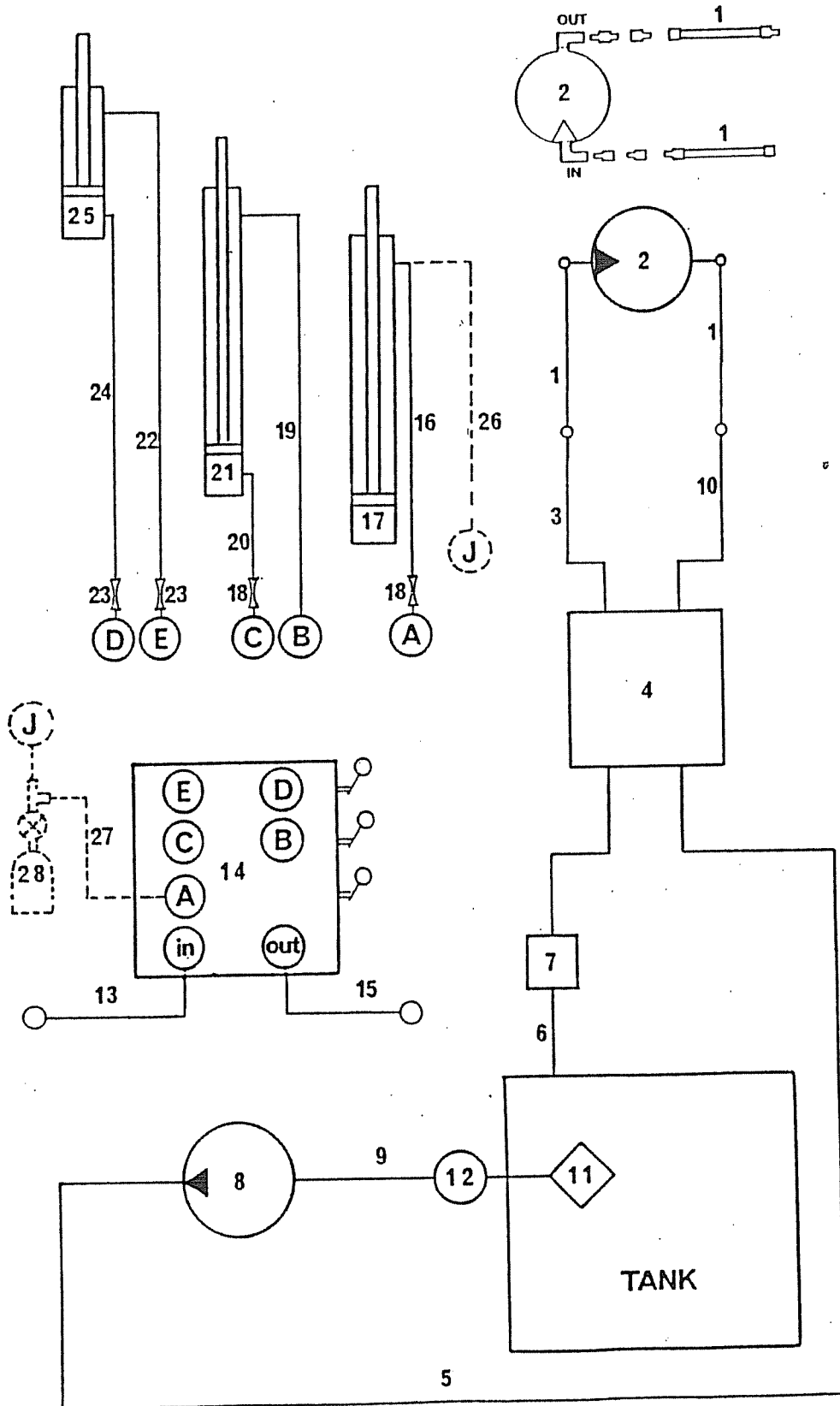


FIG. W

KEY No:	PART No:	DESCRIPTION
1	13773	FRAME
2	12793	PIN - AXLE BOX
3	6512	EYE BOLT M20
4	7117	PLAIN WASHER M20
5	7125	SPRING WASHER M20
6	7053	PLAIN NUT
7	13783	SUBFRAME PIN
8	5400	'R' CLIP
9	-	SUPPLIED WITH TRACTOR
10	-	VARIES WITH TRACTOR
11	13774	LOWER LINK PIN
12	7696	LINCH PIN

# STABILIZER FRAME

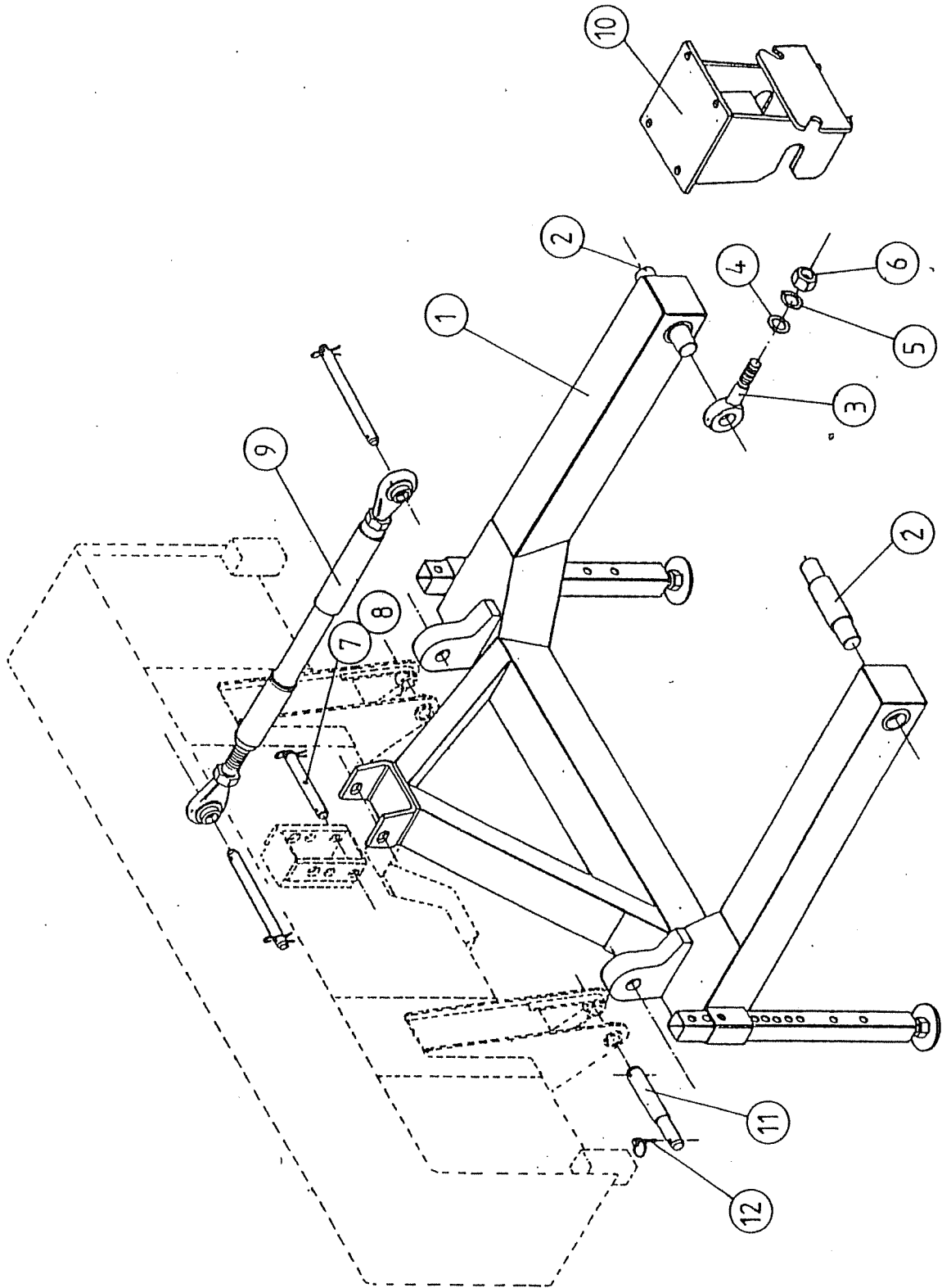


FIG. X

KEY No:	PART No:	DESCRIPTION
1	13780	BRACING LINK ASSY
2	13764	BALL END RH
3	13765	BALL END LH
4	13766	CENTRE TUBE
5	13775	LOCK NUT 1" 8' UNC RH
6	13781	TOP LINK CAT. 1
6	13782	TOP LINK CAT. 2
7	7696	LINCH PIN
8	12815	SPACER (USE WITH CAT.1 PIN)
9	13774	PIN
10	7696	LINCH PIN
11	12804	TOP LINK PIN CAT. 1
11	12805	TOP LINK PIN CAT. 2
12	-	SUPPLIED WITH TRACTOR

LINKAGE BRACING

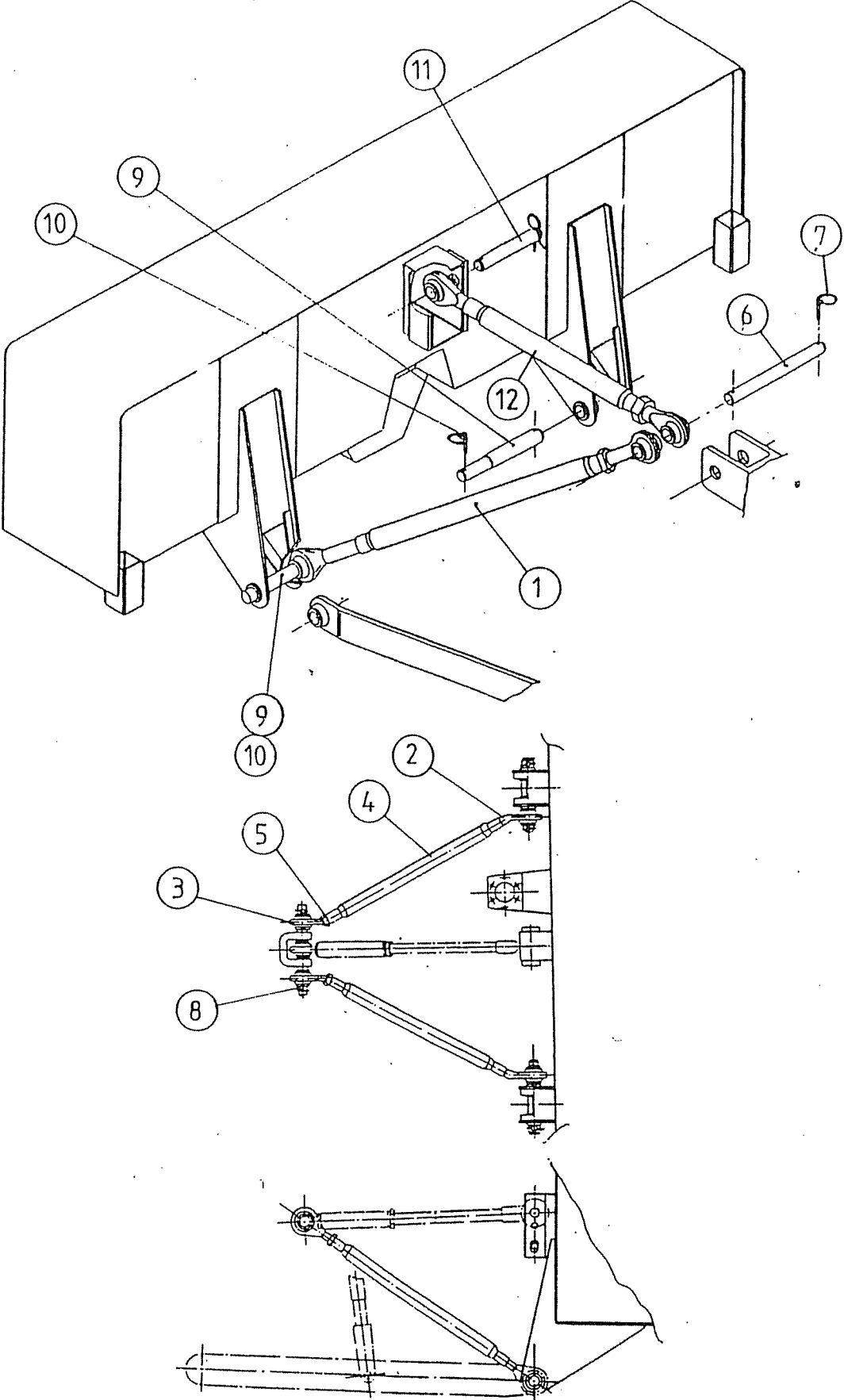


FIG. Y



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