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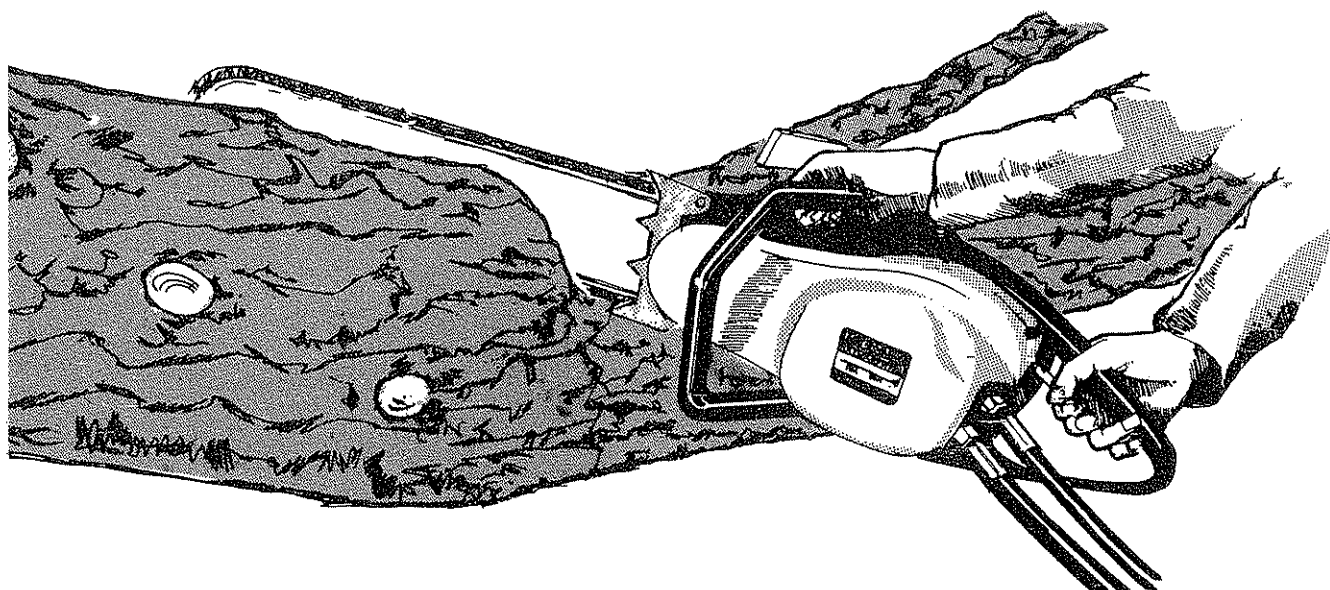
PART No 14 30 850

AMENDED JULY 1978

Instruction and Spare Parts Manual

HYDROCHIEF

HYDRAULIC CHAIN SAW



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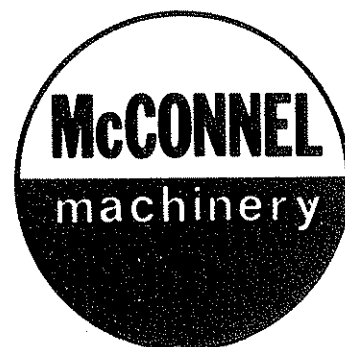
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INTRODUCTION

The Hydrochief chain saw brings many benefits to the operator. These include, quietness of operation, almost complete freedom from vibration, no fumes and vastly reduced maintenance compared to other types of saw.

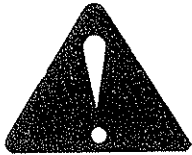
Read this manual carefully before attempting to connect or operate the saw. This will assist you in getting the best performance from the unit. Do make a special effort to read and remember the Safety Precautions. A saw by its very nature is dangerous and should be treated with respect. A badly maintained chain saw is extremely dangerous even when it is being correctly used.

TECHNICAL DATA

Hydraulic Motor	...	External gear type
Control Valve	...	By-pass and "Free Wheel" type incorporating lubrication oil control.
Lubrication System	...	Positive and adjustable metered system fed from hydraulic supply when chain is in motion.
Cutting Chain	...	"Oregon" 3/8" or .404" pitch as standard fitment.
Feed line connection	...	3/8" B.S.P. Male
Return line connection	...	1/2" B.S.P. Male

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

When using the Hydrochief Chainsaw :-

1. Read these precautions before operating the saw !
2. The Hydrochief is not just another Chainsaw. It is deceptively quiet, deceptively powerful.
3. Frequently check the saw stopping device. The chain must remain at rest when the trigger is released. Remember the saw is still 'live' until the hydraulic flow from the tractor is stopped.

- | | | |
|--------|-----|---|
| NEVER | ... | Wear loose, flapping clothing, ties, belts etc. |
| | ... | Wear thick heavy gloves - control of saw is reduced. |
| | ... | Work with a badly maintained or adjusted saw chain; keep it sharp. A blunt chain rapidly overheats and stretches, the links can crack and the chain fly off. |
| | ... | Use a saw for long periods without resting. Concentration and vigilance are affected. Use the pauses to check the chain tension, security of guide bar and 'touching up' the cutters with a file. This is also the opportunity to check every link for possible fracture. |
| | ... | Exceed the rated speed of the motor. |
| | ... | Work with underfoot conditions cluttered up with sawn timber, branches and rubbish. |
| | ... | Use your foot to support or control a log from rolling whilst it is being cut. |
| | ... | Approach an unsupported piece of timber with the tip of the saw, it will be flung back against the operator's knees. |
| | ... | Start to cut down a tree or take off a branch until you have 'surveyed' where it will fall ! |
| ALWAYS | ... | Work within the vicinity of another person - they can render assistance or go for help if you have a serious accident. |
| | ... | Grip the saw with both hands. Do not loose go with either hand whilst cutting. |
| | ... | Wear protective boots with heavy gripped soles and steel toe caps. |
| | ... | Stop immediately if any object has been struck. Examine every link for damage and re-sharpen chain |
| | ... | Stop tractor engine or disconnect the hydraulic supply before making any examination or maintenance adjustments to the saw. |
| | ... | Decide on your 'escape route' and keep it clear, before attempting to cut any large timber. |

SECTION 2 INSTALLATION

1. SELECTION OF TRACTOR

a) The Hydrochief chain saw is suitable for use on tractors having an 'open centre' hydraulic system.

b) Flow rates.

The standard saw, model 3C is suitable for flow rates of 3 to 5 gallons per minute (imp.)

To special order the 2C model is suitable for 2.5 to 4 gpm.

4C model " " " 4 " 6 gpm.

5C model " " " 5 " 7 gpm.

The maximum rate of flow for the saw is marked on the identification plate fitted to the saw cowling.

c) Pressure

The tractor must be capable of producing at least 2000 psi. pressure at the above flow rates. A check can be made by coupling a pressure gauge to the trailer pipe connection of the tractor and then operating that service.

If pressure is below that specified in the tractor handbook then the tractor relief valve and/or pump must be attended to.

2. HOSE REQUIREMENTS

a) Pressure hose

High pressure hose must be 3/8" bore and capable of withstanding a minimum pressure of 2250 psi. A suitable specification would be SAE 100 R1 which has a single wire braid.

Return hose

b) 1/2" bore hose is used in an attempt to keep 'back-pressures' at a minimum level. A good quality fabric braided hydraulic hose can be used for this purpose.

c) Nylon Drain Line

IMPORTANT

Please read the addendum on page 12 of this manual.

d) Hose Lengths

Both the supply and return hoses are normally 30ft long.

Remember that there is approximately a 5 psi. pressure drop for every 1 foot of hose length. Connectors in the hoses can drastically increase this figure which of course means a reduction in power available at the sawhead.

3. CONNECTING SAW TO TRACTOR

The return hose should be connected to the lower union on the saw and fed back directly to the transmission casing of the tractor via the filler plug. In some cases the oil should be returned to gearbox. It is advisable to check with your tractor supplier for the correct procedure for return oil. Tractors such as Ford fitted with Dual-power which employ a transmission pressure lubrication system should have a McConnel By-pass valve fitted, Part No. 80 02 279. This valve allows pressure in the tractor transmission to be retained, while the bulk of the return oil is dumped at low pressure; thus the saw motor seal is not subjected to excessive back pressure.

Under no circumstances fit self-seal or quick release type couplings in the return line. They are liable to raise back pressure in the return line to unacceptable level and damage the motor seals.

The supply, high pressure 3/8" bore hose should be connected to the upper union on the saw and via a high pressure line filter to the auxiliary services coupling. Ensure the self-seal coupling is in full engagement and the connections are spotlessly clean.

4. CHECKING CHAIN TENSION

Before attempting to use the saw, and with the tractor engine stopped the tension of the cutting chain should be correctly set.

The chain is correctly tensioned when, with the chain clear of any resting surface the upper side of the links just touch the underside of the guide bar ie. the driving teeth should be hidden completely in the guide bar slot. To adjust, slacken approximately 3/4 turn the two large nuts on the side of the guard plate and turn the socket headed screw in the front edge of the plate to obtain correct tension. Re-tighten the two nuts firmly and re-check tension.

5. OIL LEVEL CHECK

After initial installation and filling of hose with oil, the tractors hydraulic system should be checked and replenished.

As chain lubrication is a source of oil loss the oil level should be checked frequently.

SECTION 3 OPERATION

1. CLOTHING

Do wear suitable clothing. Flapping coats and loose belts can be very dangerous. Stout footwear with good tread and preferably with steel toe-caps should also be worn. When carrying out any overhead work or 'felling' then a safety helmet is strongly recommended as well as a pair of goggles.

2. ENGINE SPEED

The correct engine speed for your tractor depends on its rated hydraulic output. The tractor handbook should give the necessary information ie. if the output is 8 gpm at 2200 rpm then for a required flow rate of 4 gpm set the engine speed to 1100 rpm. Do not exceed the maximum rated flow for the saw. Although this may increase the cutting speed it could seriously shorten the life of the hydraulic motor.

3. LUBRICATION

Oil is drawn from the hydraulic circuit and is automatically fed to the chain when the saw is running. The correct amount is controlled by an adjustment screw located on the right hand side of the saw. Turn anti-clockwise to increase flow and clockwise to reduce the flow.

Before operating the saw for the first time it is advisable to increase the flow by one full turn to allow rapid filling of the tube taking the oil from the control valve to the chain.

The flow should then be reduced when oil is reaching the chain so that only the smallest quantity of oil can be seen to be thrown from the running chain.

4. APPROACH TO WORK

Holding the saw in front of you with the left hand gripping the loop type side handle and the right hand holding the trigger handle, ensure that the hoses are to the right hand side of your legs and are not likely to snag on any obstruction.

Take up a firm foothold to retain your balance and pull the operating trigger upwards, the saw will start to operate.

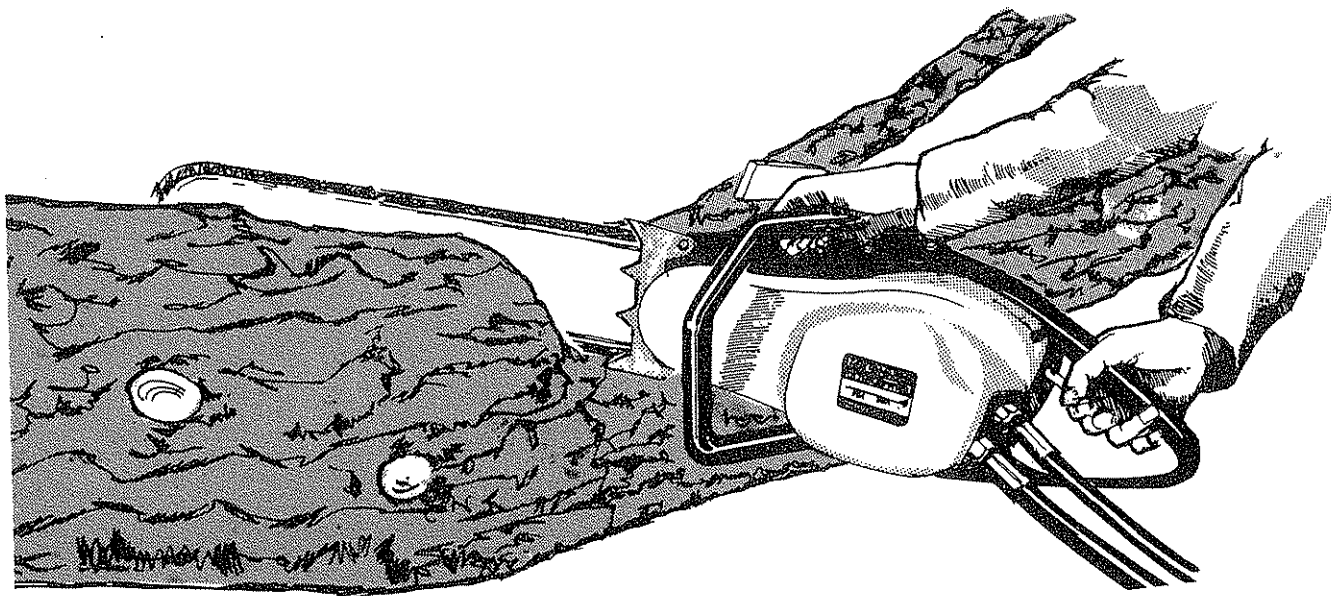
The saw must be put into motion before placing the cutting chain against the timber. Do not force the saw down into the timber. Quietness does not mean the saw is working slowly; in fact it is possible to hold a conversation while working.

Do not allow yourself to be distracted from the work as this could be most dangerous.

Leaning on the saw or otherwise applying excessive pressure onto the chain can result in bringing the saw to a standstill by blowing the tractor's hydraulic relief valve. Applying only sufficient pressure to control the saw, it should be allowed to work its own way through the timber.

Never allow the running saw chain to touch the ground - soil blunts a chain very rapidly. If a metal object or stone is struck then every cutting link of the chain will have been damaged. Bring to rest, stop the tractor and the time spent in re-sharpening the chain will be well spent. Working with a blunt chain will otherwise shorten guide bar, sprocket, chain and motor life. It will also of course seriously reduce performance and work output.

Spare Parts for the HYDROCHIEF CHAIN SAW



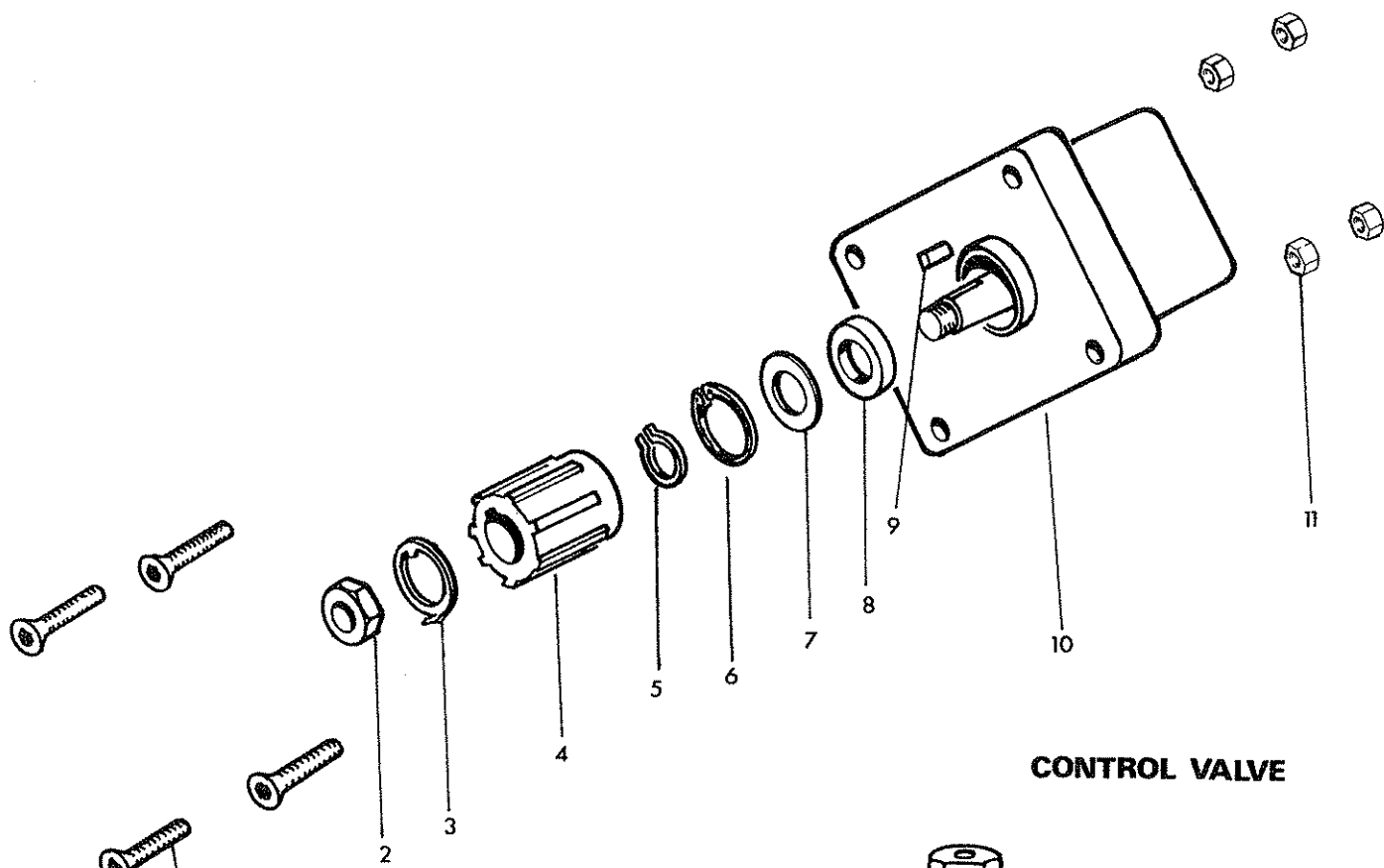
USE ONLY McCONNEL SPARE PARTS

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

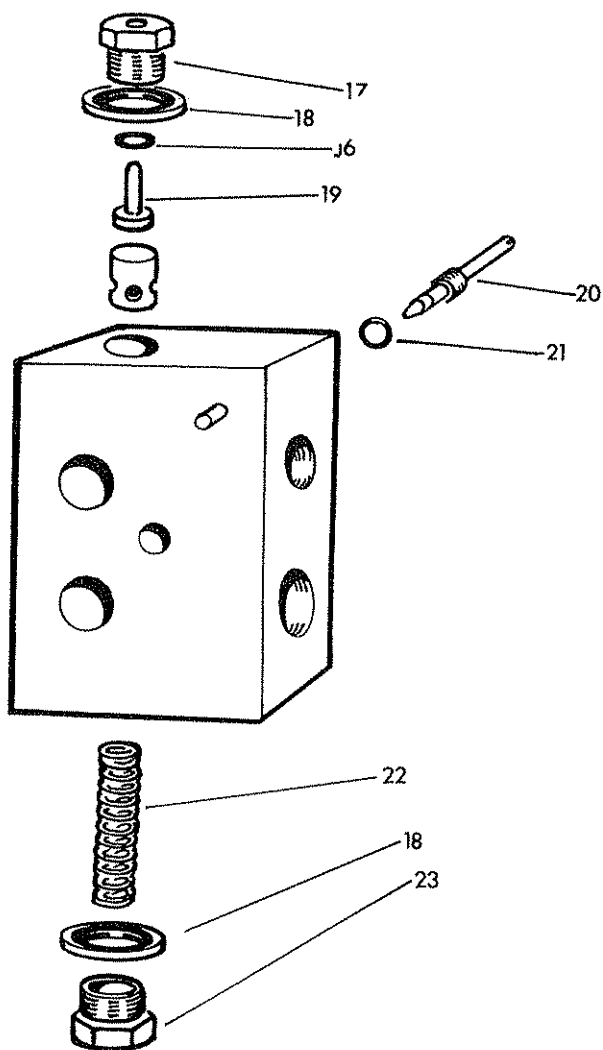
Always quote machine type and serial number as well as the part number.

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.

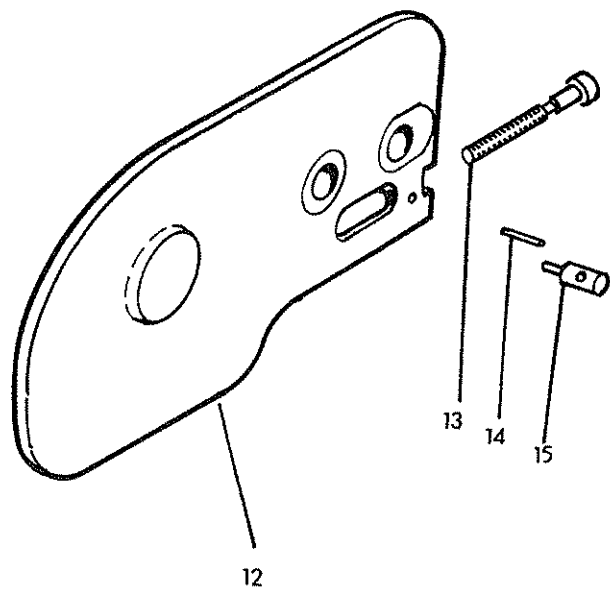
HYDRAULIC MOTOR



CONTROL VALVE

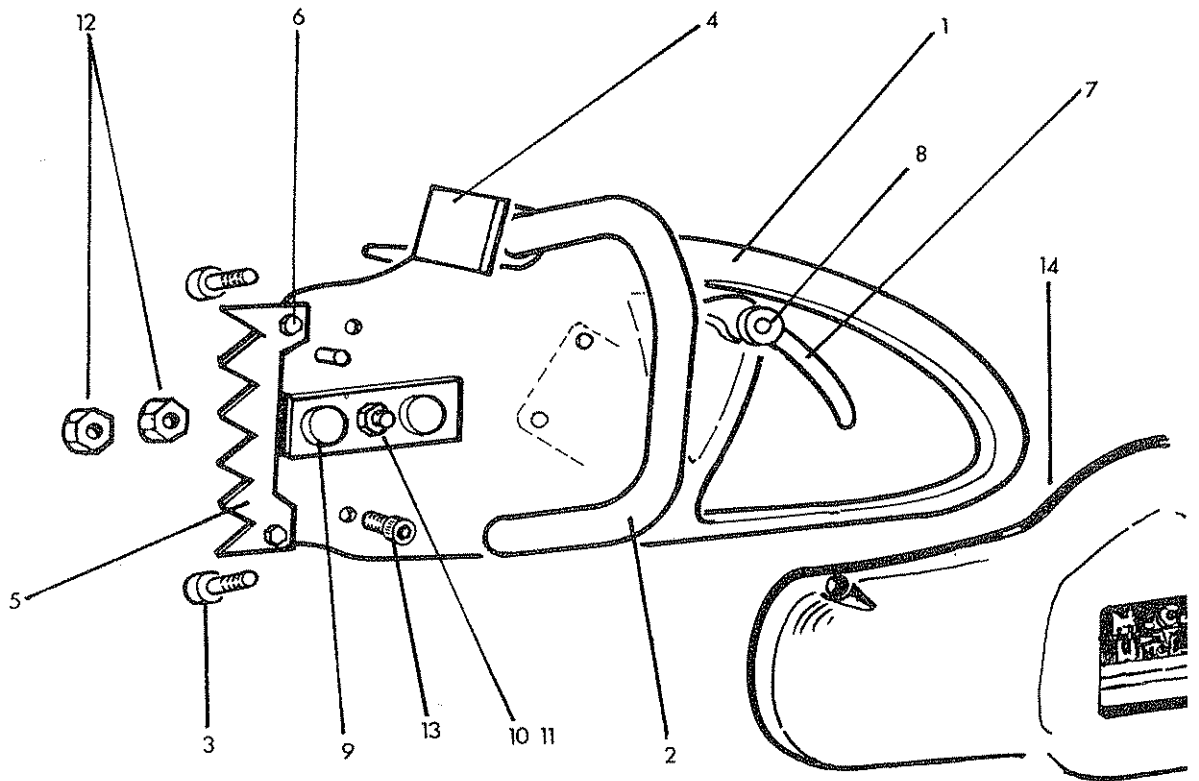


GUARD PLATE

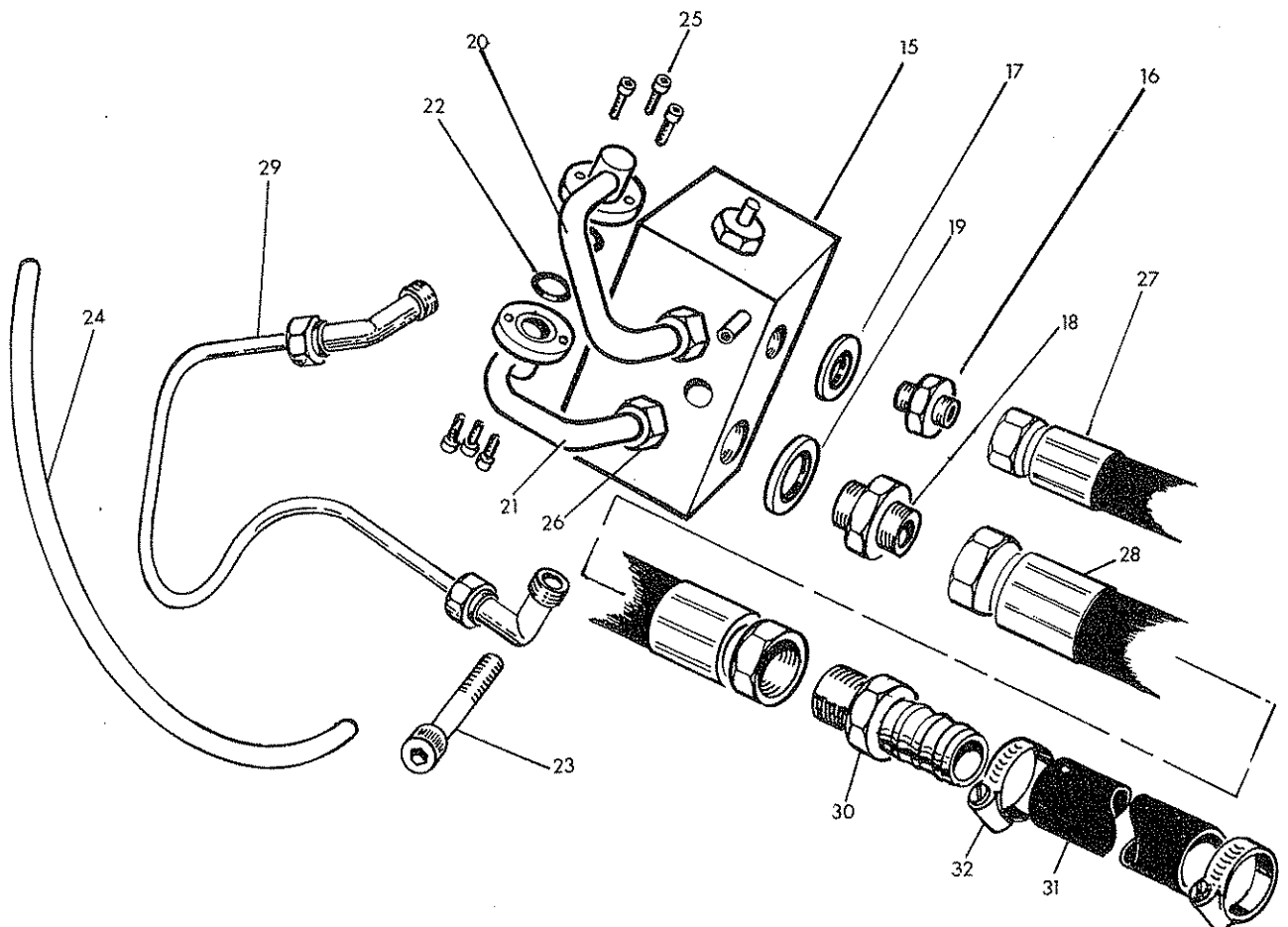


	14 30 262	1	MOTOR ASSEMBLY
1	93 53 063	4	Motor mounting screw M6 x 30
2	14 30 025	1	Shaft nut
3	14 30 013	1	Tab washer
4	14 30 014	1	Splined drive
5	14 30 022	1	Shaft circlip
6	14 30 021	1	Seal circlip
7	14 30 015	1	Seal backing washer
8	14 30 016	1	Motor shaft seal
9	14 30 017	1	Motor shaft key
10	14 30 018	1	Hydraulic motor
11	91 43 003	4	Motor mounting nut M6
12	14 30 263		GUARD PLATE c/w following:-
13	14 30 023		Chain tensioning screw
14	04 20 812		Screw retaining pin 1/8" dia. 3/4" long
15	14 30 024		Chain tensioning pin
	14 30 259	1	CONTROL VALVE
16	14 30 019	1	Gland 'O' ring
17	14 30 008	1	Gland
18	86 50 104	2	Seal 1/2" BSP
19	14 30 009	1	Plunger
20	14 30 010	1	Oiling screw
21	14 30 020	1	'O' ring
22	14 30 011	1	Spring
23	14 30 012	1	Bottom plug
	86 99 160		HYDRAULIC MOTOR SEAL KIT

CHASSIS ASSEMBLY

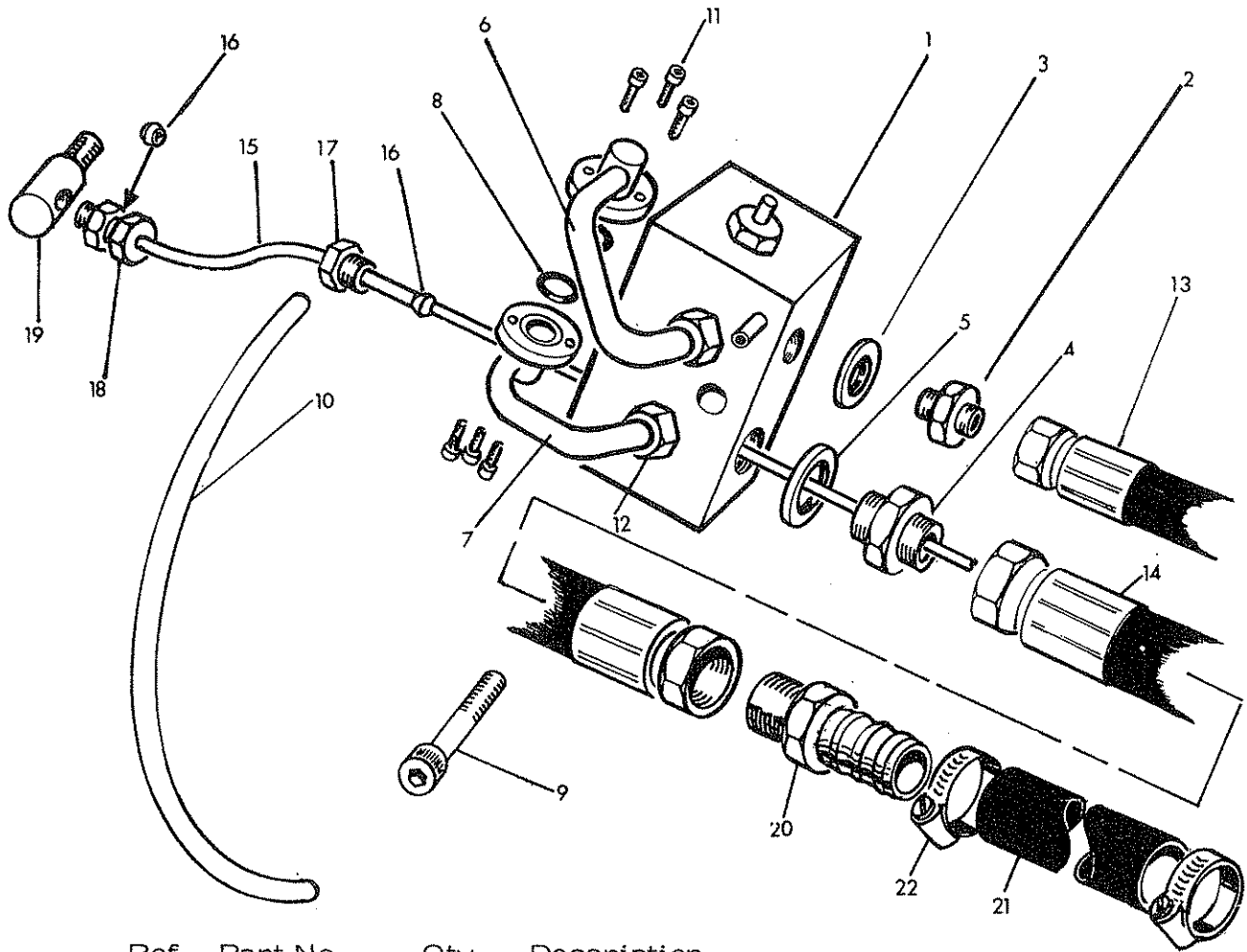


CONTROL VALVE ASSEMBLY (To machine no. 04771344 P)



Ref	Part No	Qty	Description
	14 30 252	1	CHASSIS ASSEMBLY
1	14 30 253	1	Chassis
2	14 30 254	1	Handle
3	93 43 056	2	Handle mounting screw M12 x 25
4	14 30 255	1	Handle guard
5	14 30 256	1	Felling dog
6	93 43 012	2	Felling dogscrew M5 x 10
7	14 30 257	1	Trigger
8	14 30 002	1	Trigger spindle
9	14 30 003	1	Bolt bar assembly
10	93 43 043	1	Fixing screw M6 x 20
11	91 43 003	1	Locknut M6
12	91 43 006	2	Cutterbar locknut M2
13	93 43 042	3	Socket head capscrew M5 x 20
14	14 30 290	1	Cowl
	14 30 258	1	CONTROL VALVE ASSEMBLY
15	14 30 259	1	Control valve complete
16	13 40 004	1	Pressure hose connector 3/8" BSP
17	86 50 105	1	Seal 3/8" BSP
18	14 30 005	1	Return hose connector 1/2" BSP
19	86 50 104	1	Seal 1/2" BSP
20	14 30 260	1	Motor supply pipe
21	14 30 261	1	Motor return pipe
22	86 00 503	2	'O' ring
23	93 43 103	1	Capscrew socket head M6 x 50
24	14 30 006	1	Lubrication pipe
25	93 43 012	6	Motor coupling screw M5 x 10
26	14 30 007	2	Union
27	85 21 023	1	3/8" BSP.M - 3/8" BSP.F x 9M
28	85 13 034	1	1/2" BSP - 1/2" BSP St F/AP x 9M
29	14 30 289	1	Relief pipe assembly
30	14 30 033	1	Hose connector 1/2" BSP - 5/8" bore
31	85 01 087	1	Wire braided rubber hose 5/8" bore x 9" long
32	09 04 204	2	Hose clip

CONTROL VALVE ASSEMBLY (From machine no. 05771345 P)



Ref	Part No.	Qty	Description
	14 30 258	1	CONTROL VALVE ASSEMBLY
1	14 30 259	1	Control valve complete
2	14 30 004	1	Pressure hose connector 3/8" BSP
3	86 50 105	1	Seal 3/8" BSP
4	14 30 005	1	Return hose connector 1/2" BSP
5	86 50 104	1	Seal 1/2" BSP
6	14 30 260	1	Motor supply pipe
7	14 30 261	1	Motor return pipe
8	86 00 503	2	'O' ring
9	93 43 103	1	Capscrew socket head M6 x 50
10	14 30 006	1	Lubrication pipe
11	93 43 012	6	Motor coupling screw M5 x 10
12	14 30 007	2	Union
13	85 21 023	1	3/8" BSP.M - 3/8" BSP.F x 9M
14	85 13 034	1	1/2" BSP - 1/2" BSP St.F/AP x 9M
15	14 30 028	1	Bearing drain tube
16	14 30 029	2	Olive
17	14 30 030	1	Bush
18	14 30 031	1	Drainer coupler
19	14 30 032	1	Motor drain adaptor
20	14 30 033	1	Hose connector 1/2" BSP - 5/8" bore
21	85 01 087	1	Wire braided rubber hose 5/8" bore x 9" long
22	09 04 204	2	Hose clip

ADDENDUM

Nylon Drain Line

Saws from machine number 05771345P are fitted with a nylon drain line long enough to operate with a 25 ft. (7.5 metre) return hose. This drain line must be passed through the inside of the ½ in bore return hose. The plastic cap must be removed from the return connection by either sliding it down the length of the tube or carefully cutting it off.

The function of the drain line is to reduce the back pressure on the motor shaft seal. Considerable pressure is built up at the motor end of the return line and reduces along the line of the hose until atmospheric pressure is reached at the outlet. With cold oil, the motor shaft seal may be unable to withstand excessively high pressure unless this small bore nylon drain line is fitted.

It is obviously advantageous to select 'external service' to start the oil flowing with the engine at idling speed and gradually increase engine revolutions to the required setting. When cold, it is advisable to allow the oil to circulate for a few minutes at idling speed before starting work.

Saws to machine number 04771344P are fitted with a small brass pipe etc., from the hydraulic motor to control valve. This assembly is also effective in reducing the back pressure on the motor shaft seal.



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