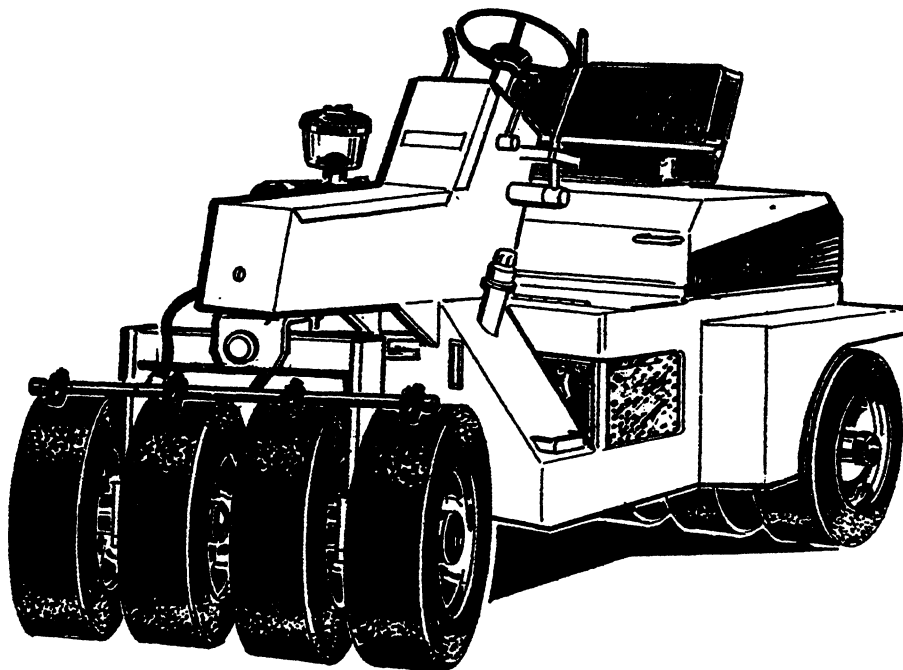


# **LeeBoy**

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## **OPERATORS, SERVICE AND PARTS MANUAL**



### **PNEUMATIC ROLLER**

**Model - 420**

**MANUAL NO. 420498**

**LEEBOY**

688 Highway 16 North • Denver, North Carolina 28037  
PHONE: A.C. 704-483-9721 • FAX # 1-704-483-5802

## USER'S REFERENCE INFORMATION

DELIVER DATE _____	EQUIPMENT SERIAL NO. _____
TYPE ENGINE _____	ENGINE NO. _____
DEALER'S NAME & ADDRESS _____ _____ _____ _____	EQUIPMENT HOURS _____

**\*\*\*CALIFORNIA\*\*\***

**Proposition 65 Warning**

Diesel engine exhaust and some of its constituents are known to the State of California to cause cancer, birth defects, and other reproductive harm.

## SAFETY NOTICE

All danger points about the MODEL 420 ROLLER are explained and labeled by decals to the best of our knowledge. If anyone in the field discovers anything omitted, please notify your closest dealer or factory.

## LIMITED WARRANTY

B.R. Lee & Sons, Inc. warrants to the original customer that the equipment manufactured by B.R. Lee & Sons, Inc. to whom said equipment is sold as new shall be free from defects in material and workmanship for 90 days after the date of first use or delivery whichever comes first.

This warranty is limited to the following: If any part of the equipment becomes defective during the period described and is brought to an authorized B.R. Lee & Sons, Inc. dealer, the dealer will, without charge, repair the part which has become defective or replace it without charge. B.R. Lee & Son, Inc. is not responsible for damaged or malfunction resulting from misuse, failure to follow recommended maintenance requirements, alteration, accident or fire.

**THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES OR REPRESENTATION OF ANY KIND WHATSOEVER, EXPRESSED OR IMPLIED, EXCEPT THAT OF TITLE. ACCORDINGLY, ALL IMPLIED WARRANTIES, INCLUDING ANY WARRANTY OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE HEREBY DISCLAIMED. B.R. LEE & SONS, INC., SHALL NOT BE RESPONSIBLE FOR LOSS OF TIME, LOST PROFITS, LOST USE, OR ANY OTHER CONSEQUENTIAL DAMAGES OR ANY INCIDENTAL DAMAGE.**

B.R. Lee & Sons, Inc. does not authorize any person to amend or extend this limited warranty on its behalf.

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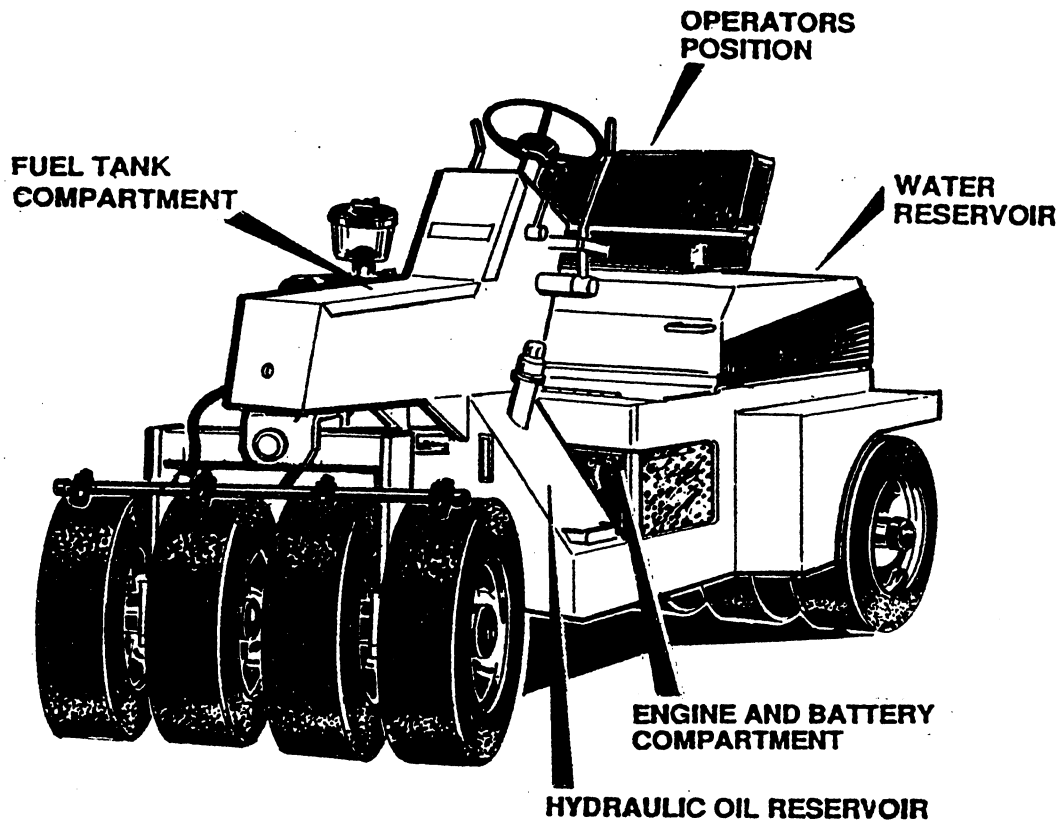
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## GENERAL INFORMATION

This section is provided to aid the operator in the operations of this roller in such areas as inspection, engine start-up, engine shut down, towing and transporting.

This section does not attempt to show rolling technique of rolling asphalt. The actual rolling of asphalt should only be done by a qualified asphalt roller operator who has been well trained in all types of rolling applications. The operator should also thoroughly understand the mechanical characteristic of a roller and the varying elements and terrain that it can safely operate in.



## MODEL 420 PNEUMATIC ROLLER

## RECEIVING

Although the roller has been checked thoroughly at the factory, road hazards or vandalism that could happen while being transported may result in damage. For this reason it is a good operation procedure to check the roller before putting it into service.

1. Check engine oil/see engine manual.
2. Check for fuel, oil, water and hydraulic leaks.
3. Check inside of water tank for contaminants or objects that could be harmful to the water system.
4. Check for damage or missing parts. If parts are missing or roller is damaged, check with dealer.
5. Check tire pressure and also look for defects.
6. Check lubrication of joints axle housing sprockets and chains. (See lubrication chart.)

### **! WARNING !**

**THIS ROLLER SHOULD ONLY BE OPERATED BY A QUALIFIED ROLLER OPERATOR WHO IS FAMILIAR WITH ALL OF THE MECHANICAL CHARACTERISTICS OF THE ROLLER AND THE VARYING ELEMENTS AND TERRAIN THAT IT CAN SAFELY OPERATE IN.**

### **! WARNING !**

**DO NOT USE YOUR HANDS OR USE OBJECTS IN THE PROCESS OF FINDING HYDRAULIC LEAKS. HYDRAULIC LEAKS CAN BE SEEN.**

## INSPECTION

Prior to operating the roller, check it out thoroughly. This should help provide for a more trouble free roller. Follow the procedures below to help in this inspection.

1. Check roller for leaks, excessive wear and loose components.
2. Check engine oil for proper level. See engine manual.
3. Check hydraulic oil, making sure oil level is visible in sight gauge on side of reservoir. If additional oil is needed, fill until oil is visible in sight gauge.
4. Check battery for proper water level. Also, make sure cables and cable terminals are free of corrosion.

5. Check for proper lubrication of all components. (See lubrication chart)
6. Check tire pressure. Look for bad tire wear and obstructions between tires.
7. Check slack in chain, make adjustment if required. (See page 6.)

### **! CAUTION !**

**DECALS PROVIDE VALUABLE INFORMATION AND SHOULD BE REPLACED IF MISSING OR WORN.**

### **! WARNING !**

**DO NOT OPERATE HYDRAULIC LEVERS OR ATTEMPT TO MOVE ROLLER UNLESS SEATED IN THE OPERATOR'S POSITION.**

### **! DANGER !**

**DO NOT FILL FUEL TANK WHILE ENGINE IS RUNNING.**

### **! WARNING !**

**DO NOT LEAVE ROLLER RUNNING OR WITH KEYS AVAILABLE WHILE UNATTENDED.**

# OPERATIONS

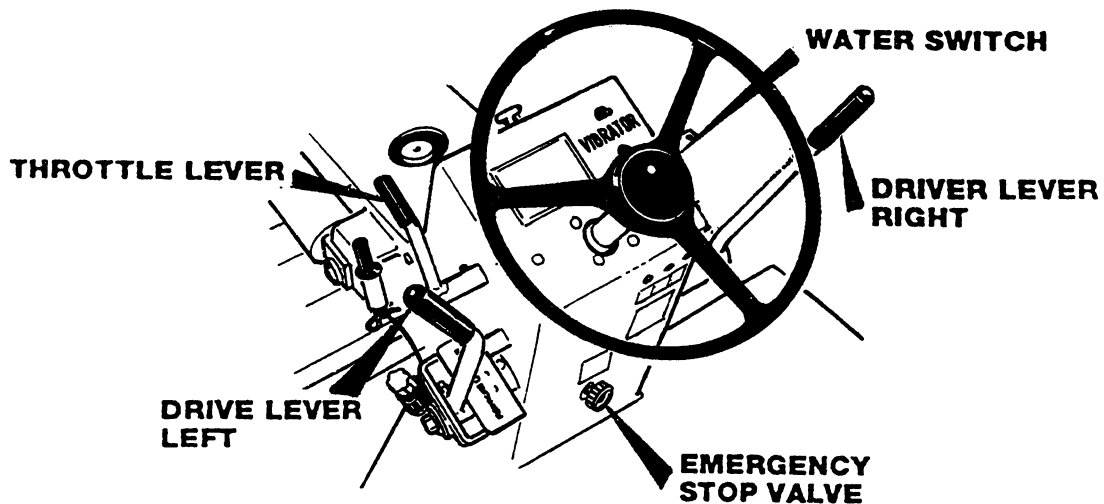


FIGURE 1

## ENGINE START-UP

The following procedures are for starting the engine. Make sure you have inspected the roller thoroughly before you put it into operation.

1. Engine Start-Up:
  - A. Set throttle to full open.
  - B. Turn ignition on, to the start position.
  - C. After start-up, reduce throttle setting and allow engine to warm up. If engine did not start, repeat A, B, and C.
2. Engine Shut-Down:
  - A. Reduce engine speed to slow idle.
  - B. Pull "Engine Kill" knob.
  - C. Turn ignition to off.

### ! WARNING !

WHEN LIFTING THE WATER TANK TO GAIN ACCESS TO THE ENGINE OR FOR ANY REASON, MAKE SURE THE WATER HAS BEEN DRAINED AND AN ASSISTANT IS USED EITHER MECHANICAL OR A CAPABLE PERSON.

### ! WARNING !

ALL MAINTENANCE PERFORMED TO THE ROLLER SHOULD ONLY BE DONE BY A QUALIFIED MECHANIC.

### ! CAUTION !

RUNNING THE ENGINE AT HIGH RPM'S WILL SHORTEN ITS USEFUL LIFE.

## EMERGENCY STOP VALVE

The emergency stop valve is provided to give an extra degree of safety. If a loss of hydraulic pressure occurred during rolling operation, the roller can be stopped with the emergency stop valve.

1. If the hydraulic pressure is lost during operation, pull emergency stop valve to stop roller.
2. Use emergency stop valve if roller engine is running and operator is off the roller.

### ! CAUTION !

IF EMERGENCY STOP VALVE IS NOT PULLED ALL THE WAY OUT, THE STEERING AND VIBRATION OF THE ROLLER WILL NOT FUNCTION PROPERLY.

## FORWARD/REVERSE AND BRAKING

The roller has been designed to operate from forward to reverse with a single drive lever. There are however, two drive levers: one on either side of the steering column. These levers are inter-connected and arranged in this manner for the operator's convenience.

Braking is accomplished by bringing the forward/reverse lever to the neutral position. When the forward/reverse lever is in the neutral position, the roller is fully braked.

When operating on an incline, and roller starts to pull down, (motor under load) increase the throttle setting or push or pull drive lever toward neutral or a combination of the two.

## TO OPERATE, FOLLOW THE PROCEDURES BELOW

1. Start engine as instructed in start-up procedures.
2. **To move forward** - ease the drive lever toward the front of roller until the desired speed is reached.
3. **To stop** - pull the drive lever to the neutral position.
4. **To move rearward** - ease the drive lever toward the rear of the roller until desired speed is reached.
5. **To stop** - push the drive lever to the neutral position.

## WATER SPRAY SYSTEM

The water spray switch is located on the console as shown in figure 1. During operations this allows the operator to turn on and off this function as desired.

### NOTE:

The following procedures should only be followed after reading and fully understanding the contents of this manual.

1. The engine should be running before energizing water system.

NOTE: To prevent freezing of water in cold climate, drain the water system. (Open Valve Below Pump). Pump).

## ! WARNING !

WHEN LEAVING THE ROLLER UNATTENDED MAKE SURE THE KEYS HAVE BEEN REMOVED AND THE ROLLER IS CHOCKED; (PREVENTING IT FROM ROLLING).

## ! WARNING !

ONLY THE OPERATOR SHOULD BE ON THE ROLLER AND SEATED IN THE OPERATOR'S POSITION WHILE THE ROLLER IS IN MOTION.

## ! WARNING !

NEVER OPERATE THE ROLLER WITH WATER TANK RAISED.

## ! WARNING !

WHEN WATER TANK IS RAISED, ALWAYS MAKE SURE SAFETY PROP LEVER IS FREE TO SWING. THE SAFETY LEVER PROP SHOULD BE IN THE LOCK POSITION BEFORE DOING ANY WORK THAT REQUIRES WATER TANK TO BE RAISED.

## --- CALIFORNIA --- PROPOSITION 65 WARNING

DIESEL ENGINE EXHAUST AND SOME OF ITS CONSTITUENTS ARE KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER, BIRTH DEFECT, AND OTHER REPRODUCTIVE HARM.

## ! CAUTION !

REMOVE GROUND CABLE FROM BATTERY BEFORE DOING ANY WELDING TO ROLLER

2. Locate water energizing switch on console and position switch to "on".
3. With roller's forward and rearward lever in neutral, check spray patterns on both front and rear wheels. If spray pattern needs adjusting, turn wing knobs to loosen. With a screwdriver, direct the spray so it will completely moisten an area across each tire. To secure, hold the screwdriver so that the spray nozzle will not turn and tighten the wing knob. See figure 2.

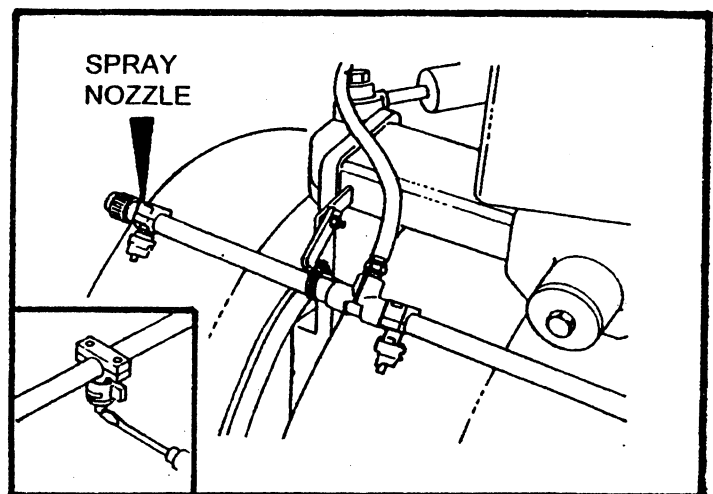
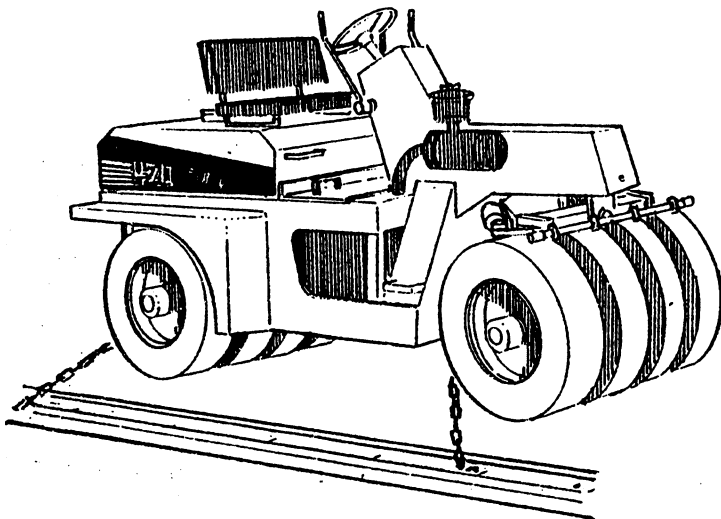


FIGURE 2

## TRANSPORTING

When transporting the roller, use a flat bed vehicle that is large enough to handle the roller through all driving situations.

1. Park transport vehicle on level surface, secure working hand brake and block wheels in both directions.
2. Load roller onto the flat bed vehicle. Block tires to prevent roller from rolling forward or backward.
3. Secure the roller to the flat bed vehicle with a chain having adequate strength so as not to fail during transporting. Secure roller with chain as shown in figure 3.



**FIGURE 3**

## PREVENTATIVE MAINTENANCE

To prolong the useful life of the roller, a schedule for performing preventative maintenance has been provided below. In conjunction with this schedule, an effort should be made to keep all functions of the roller working and looking as good as the day it arrived.

### ENGINE

1. Change oil and replace oil filter every 125 hours, more often if roller sits for long periods of time or roller is subjected to hot or sandy conditions. (Check engine manual for proper oil and filter requirements).
2. Clean air filter every 125 hours - more often if sandy conditions exist. Replace if needed.

3. Replace fuel filter every 500 hours - more often if sandy conditions exist.
4. Check engine manual for additional preventative procedures.

#### NOTE:

Check battery for proper water level. Also, make sure cables and cable terminals are free of corrosion.

## HYDRAULIC SYSTEM

1. Replace hydraulic oil filter cartridge every 125 hours or when oil filter gauge indicates.
2. Change hydraulic oil annually. If contaminants are present, flush the hydraulic system before refilling.
3. Make necessary repairs to those items that are loose, corroded, show excessive wear, or are leaking.
4. Replace missing hydraulic line tie straps.

## DRIVE TRAIN

1. Check tires for excessive wear, tire pressure and objects embedded in or between tires.
2. Check bearings, bearing housing, shaft housings and chains for proper lubrication (See lubrication chart on page 9).
3. Check drive chains for correct tightness. (See page 6).
4. Check bushing and bearings for excessive wear.
5. Replace rubber handles, operators seat, frame, floor board insulators, and decals as required.

## WATER SYSTEM

1. Check hoses for leaks excessive wear and broken ties and straps. Replace as needed.
2. Check water pressure pump plus spray nozzles. Clean and service, replace if necessary.
3. Check water for contaminants. Drain water if contaminated.

# ! CAUTION !

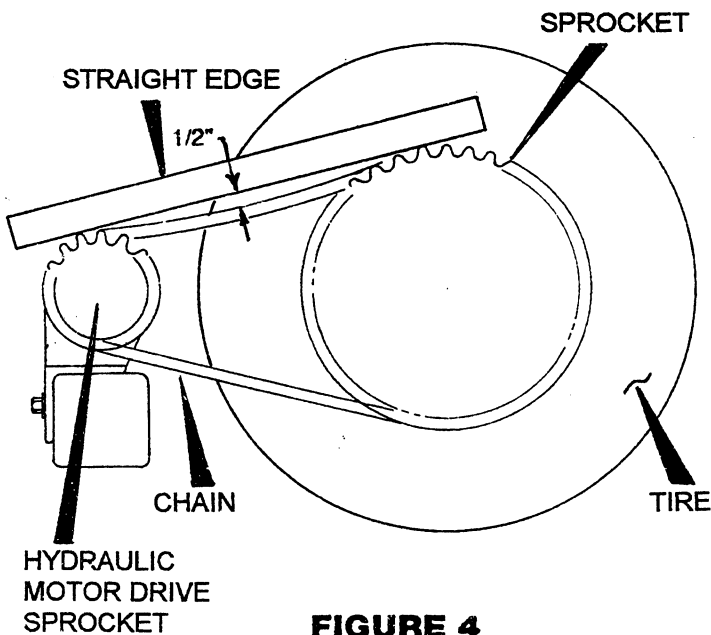
IF HYDRAULIC OIL, FUEL, OR ENGINE OIL LEAK IS PRESENT, MAKE REPAIR AS NECESSARY.

## DRIVE CHAIN ADJUSTMENT

### GENERAL

The sprocket and chain should be inspected every 50 hours or monthly. To keep these items mechanically sound, adjustment and lubrication is required. See figure 4 and follow procedures below to assist you and to determine if adjustment is necessary.

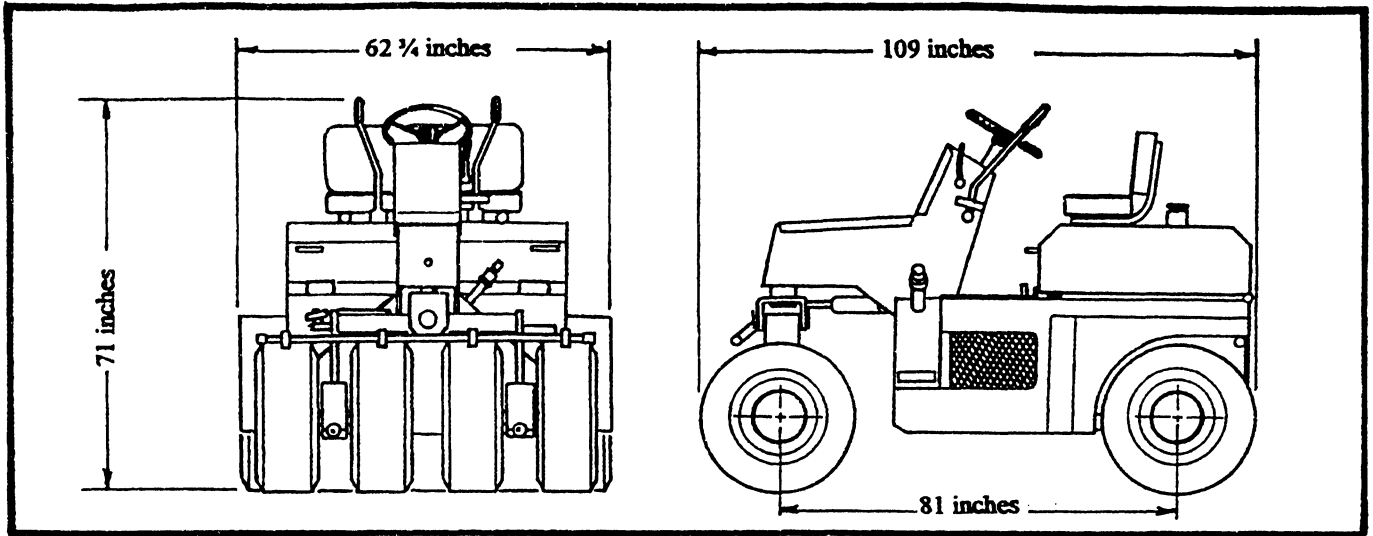
1. In order to determine the slack in the chain, you first will need to push the roller ahead until the bottom of the chain tightens up. After the chain is tight at the bottom, check the slack on the upper part of the chain. Refer to Figure 4. Note: not more than one (1) inch of slack should exist. A setting of 3/4 inch to 1 inch of slack is preferred.
2. If adjustment is necessary, loosen the bolts holding the two pillar bearings. Loosen the jam nut on the adjustment screw. Turn the adjustment screw clockwise to tighten chain. Both chains should be tightened the same amount. Make small adjustments until slack is the same on both chains.
3. After adjustment is made, tighten jam nuts and bolts on both pillar bearings.
4. Lubricate the chains as required before putting the roller back into operation.



**FIGURE 4**

## TROUBLE SHOOTING GUIDE

PROBLEM	SOLUTION
ENGINE WILL NOT TURN OVER:	<ol style="list-style-type: none"> <li>1. Check Battery</li> <li>2. Check Ignition Switch</li> <li>3. Check Neutral Safety Switch</li> <li>4. Check Starter Solenoid</li> <li>5. Check Engine Ground</li> </ol>
ENGINE WILL NOT START:	<u>See Engine Manual</u>
WATER SYSTEM WILL NOT OPERATE:	<ol style="list-style-type: none"> <li>1. Check Water Level</li> <li>2. Check Strainer Under Tank</li> <li>3. Check Nozzle Strainer</li> <li>4. Check Water Pump               <ol style="list-style-type: none"> <li>A. Check Pump Switch</li> <li>B. Check Hot Wire To Pump</li> <li>C. Check Ground To Pump</li> </ol> </li> </ol>
FORWARD/REVERSE LEVEL WILL NOT STAY IN POSITION OR IS TIGHT:	<ol style="list-style-type: none"> <li>1. Grease</li> <li>2. Adjust Friction Nut At Bottom Of Left Hand Lever</li> </ol>
ROLLER WILL NOT MOVE	<p><u>HYDRAULIC MOTOR</u>            With brake on, put a pressure gauge in the drive hose. Start engine and charge the pump. If pressure reaches 3000 PSI, disconnect the hydraulic motor from the brake. Check the motor. If it turns properly when pump is engaged, then it is operating and is ready for service.</p> <p><u>HYDRAULIC BRAKE</u>            Disconnect one hose from the hydraulic brake. Connect a pressure gauge between hose end and brake. With engine running, if pressure reading is between 200 to 300 PSI, the brake must be bad. If pressure does not reach 200 to 300 PSI, check to determine if brake valve is allowing the pressure needed to release brake escape back to reservoir tank. Now disconnect hose from pump to brake valve. Connect gauge and charge system. If pressure gauge read's 200 to 300 PSI, brake valve is bad. If pressure does not reach 200 to 300 PSI the hydraulic pump is bad.</p>
BATTERY NOT CHARGING	<p><u>ELECTRICAL CHARGING SYSTEM</u></p> <ul style="list-style-type: none"> <li>• Check battery-charge terminals.</li> <li>• Check alternator for output.</li> <li>• Clean away corrosive.</li> <li>• Check connections at starter.</li> <li>• Check solenoid and connections.</li> <li>• Check voltage regulator output.</li> <li>• Check auxiliary oil pressure switch on oil filter. This switch can go bad, preventing excitation to battery. If switch is bad, replace.</li> <li>• Check wire connection between regulator and wiring harness.</li> <li>• Check solenoid oil pressure.</li> </ul>



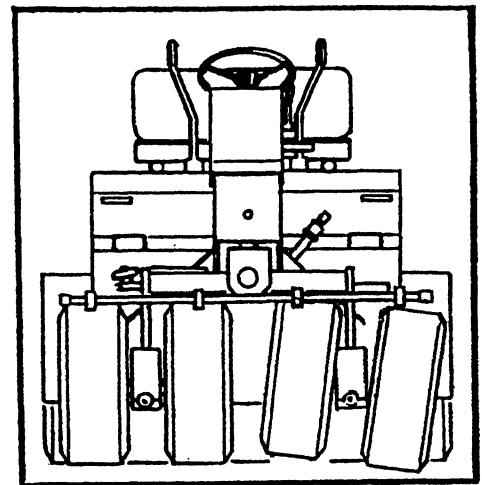
**420P Roller Specifications**  
 Jan. 14, 1998

**LeeBoy MODEL 420P ROLLER**

**MINIMUM SPECIFICATIONS FOR 420P ROLLER**

Preliminary specifications

Static weight:	Rear: 3100
	Front: 1900
Loaded weight:	Rear 3694
	Front 2050 (Est)
Transmission:	Hydrostatic, dual control forward/reverse
Final Drive:	Chain & sprocket, automatic low-pressure brake
Travel speed:	Zero - 7 MPH
Length:	109 inches
Width:	62 3/4 inches
Height:	71 inches
Wheelbase:	81 inches
Tires:	7.50 15 NHS (4 front & 5 rear)
Hydraulic reservoir:	27 gallons
Water tank:	Stainless steel water tank which is hinged to allow access (when empty) to engine compartment. Water tank shall hold 93 gallons. Water spray system must be pressurized.
Engine:	35 HP air-cooled diesel
Operator's seat:	Shall be full width, fully cushioned seat.
Operator's controls:	Forward / reverse lever shall be mounted on both sides of the drivers console.
Instrumentation:	Warning lights shall be provided for oil pressure and voltage. An hour meter will also be provided.
Electrical system:	12 volt negative ground
Steering:	Hydraulic power steering

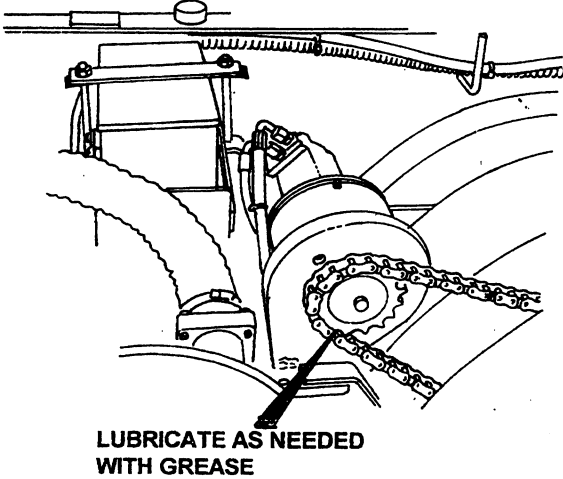
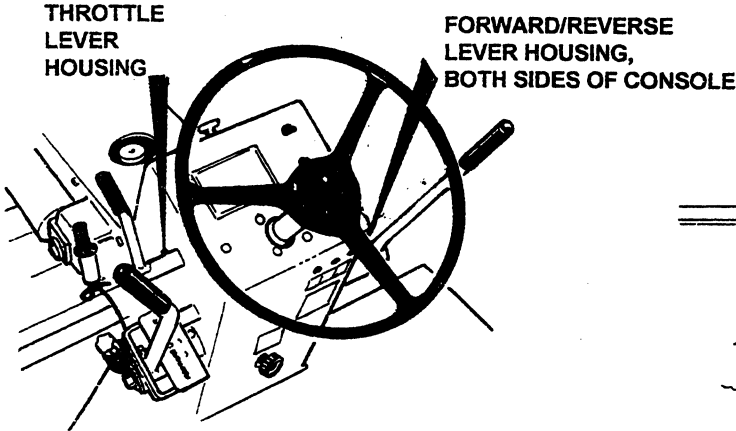
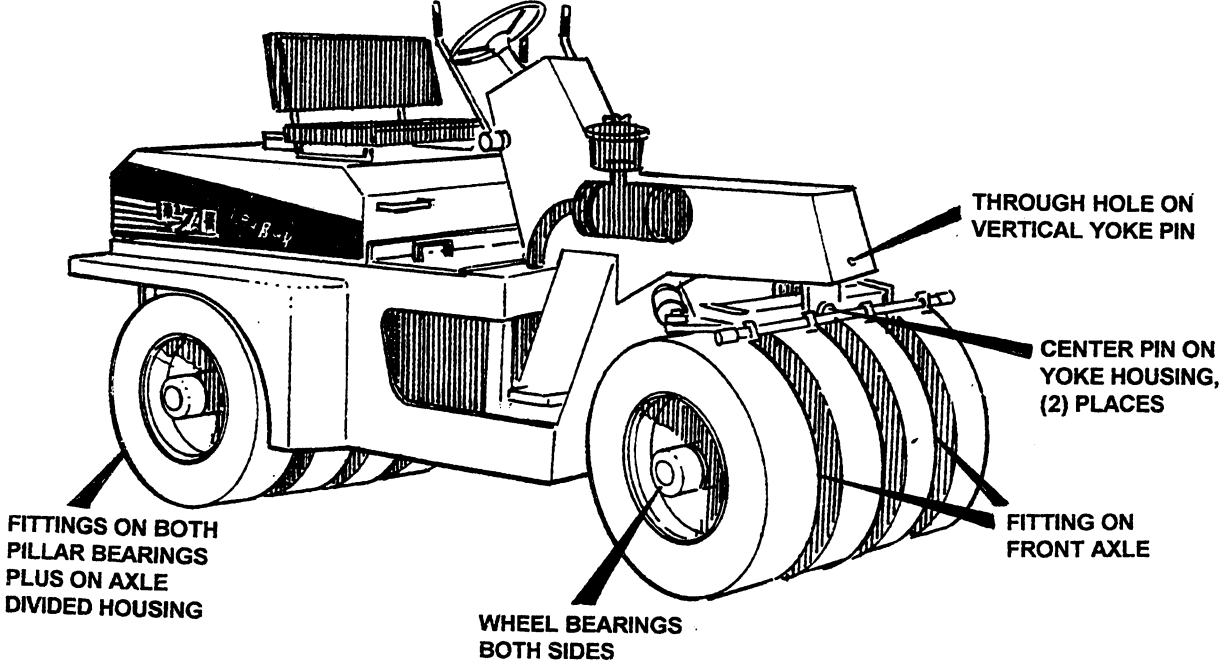


**FRONT AXLE PIVOT STEER**

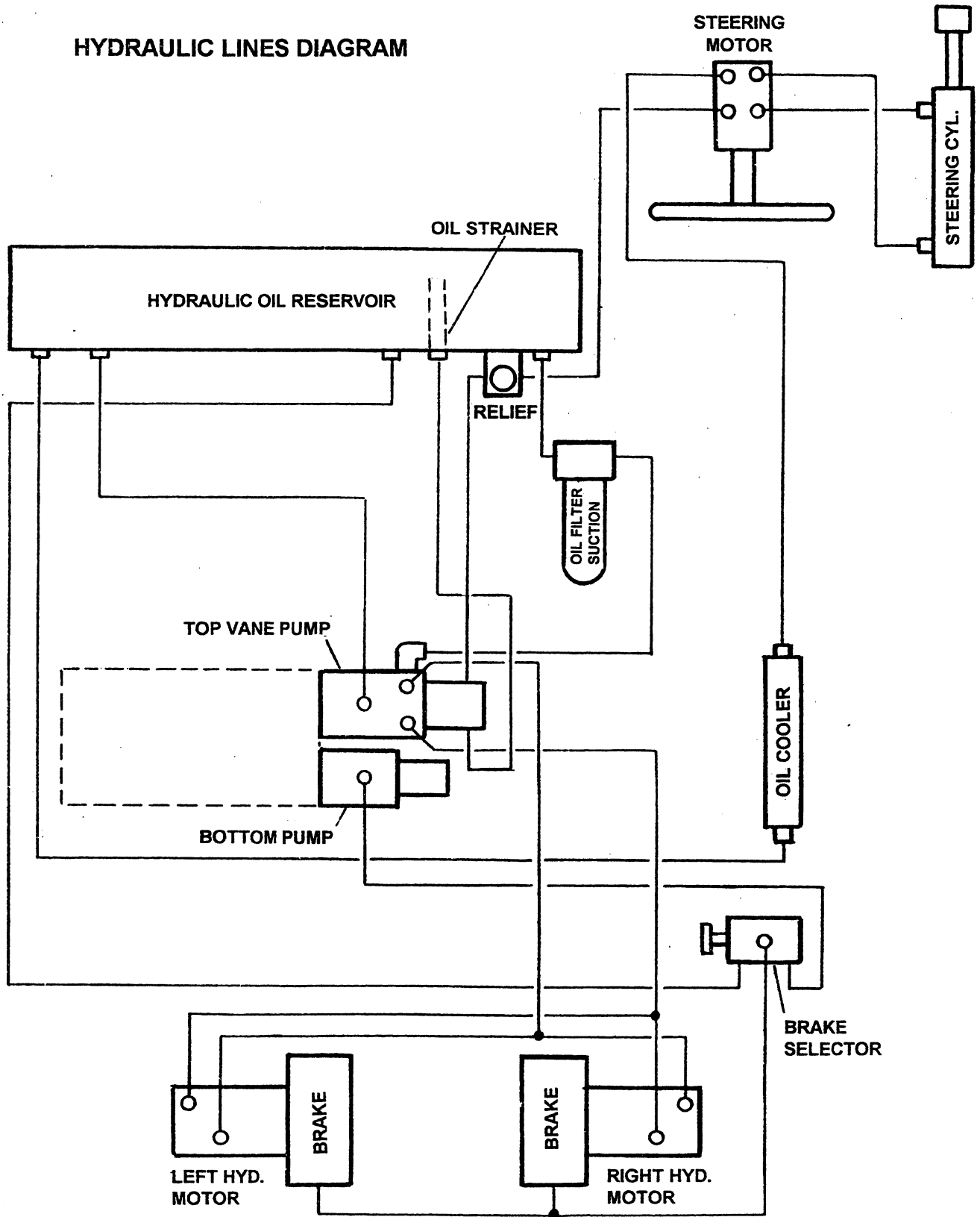
Because of continuous research and improvements to our machines we reserve the right to change these specifications.

# LUBRICATION CHART

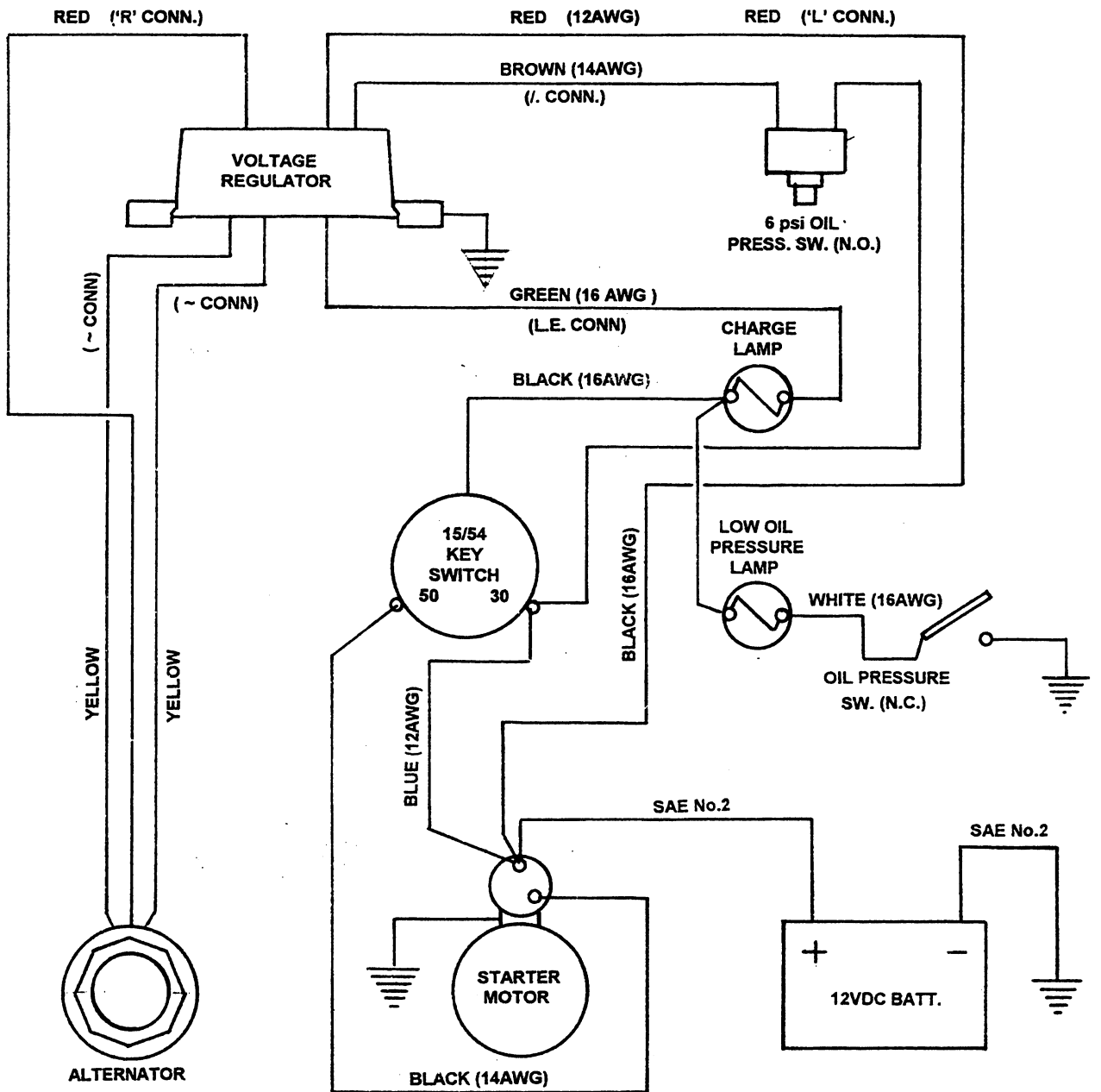
Location of grease fittings are identified in illustrations below. Lubricate these fittings every 40 hours with SHELL AVANIA EP grease 2 or equivalent.

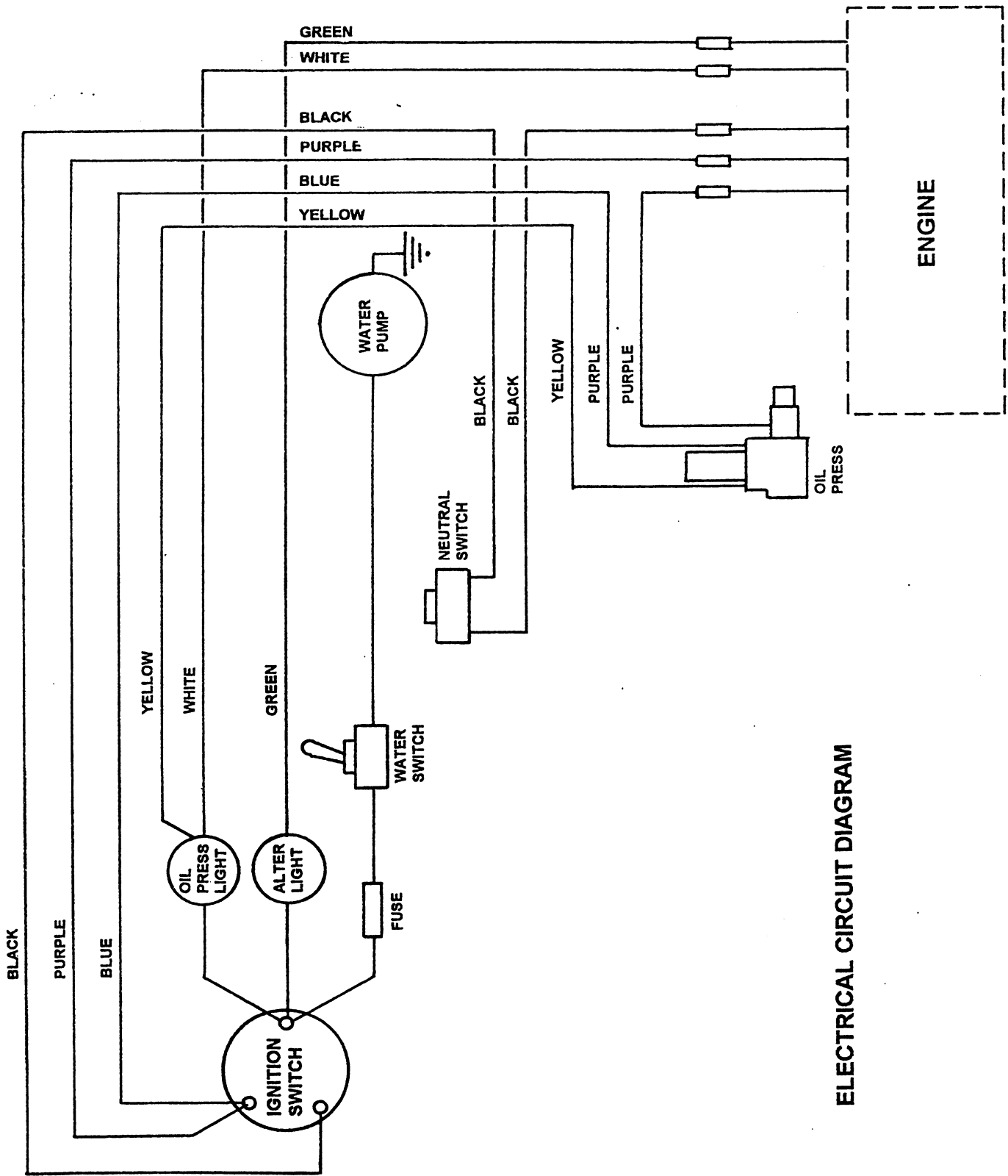


# HYDRAULIC LINES DIAGRAM



# ELECTRICAL CIRCUIT DIAGRAM



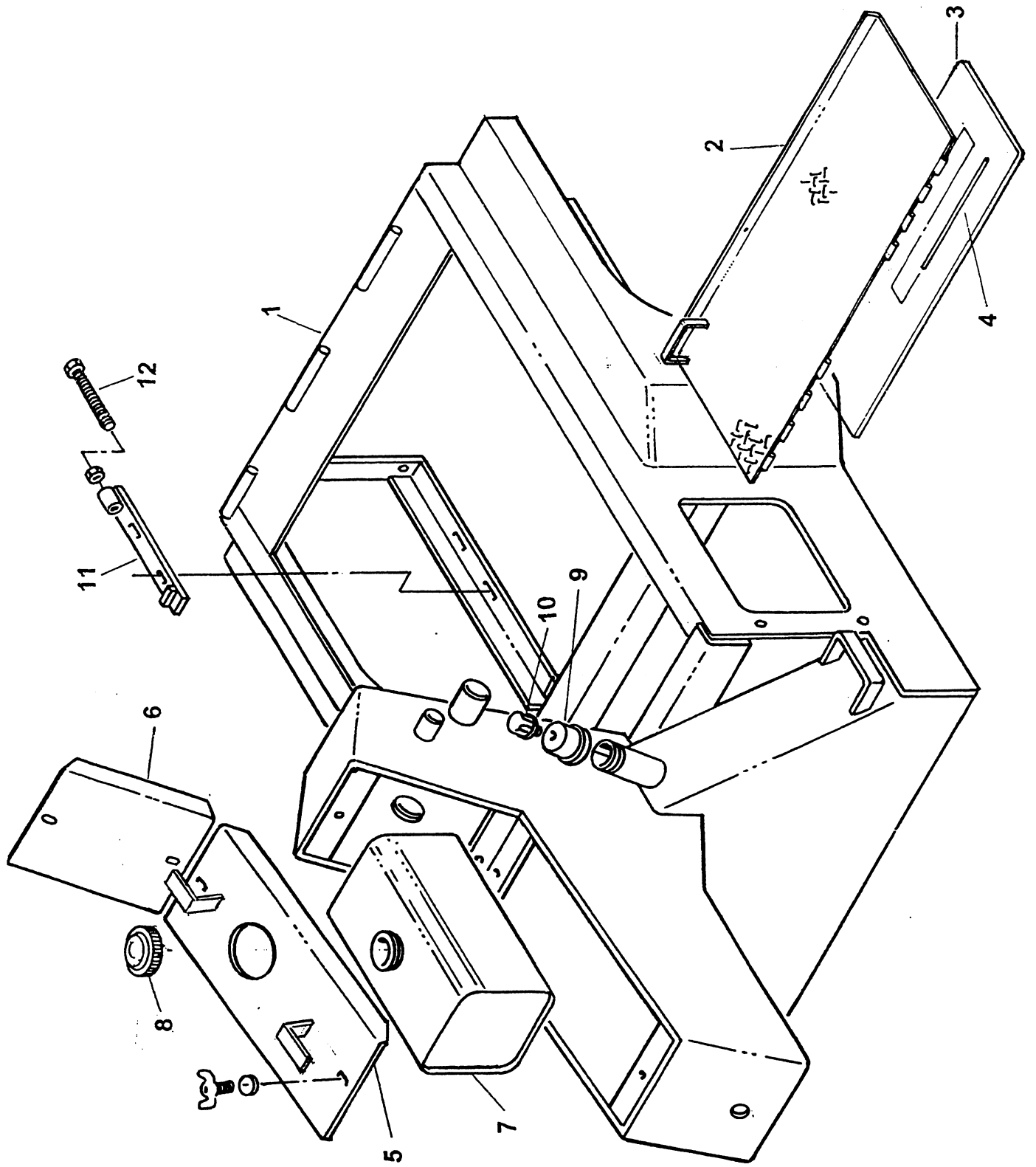


**ELECTRICAL CIRCUIT DIAGRAM**



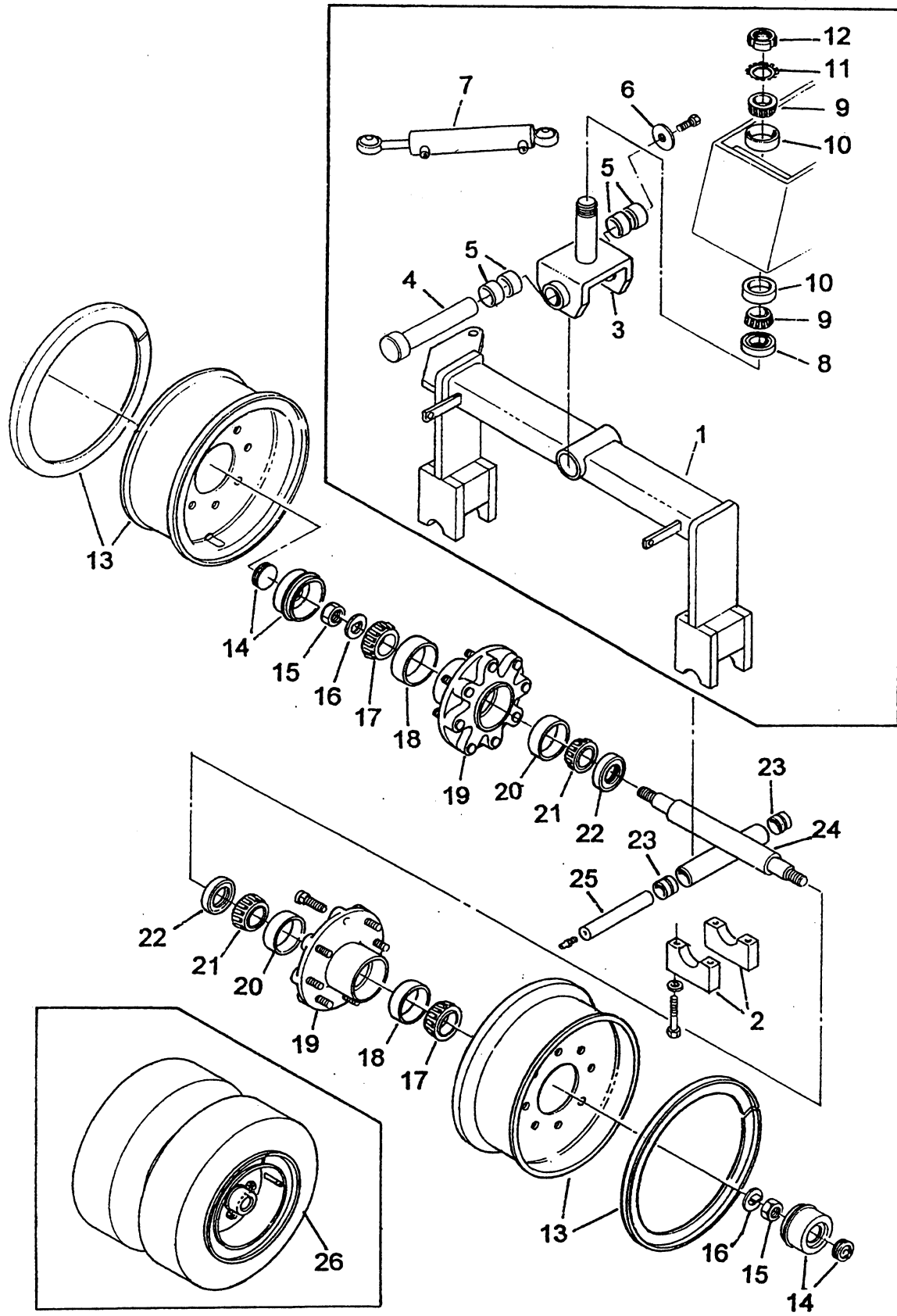
**PARTS SECTION  
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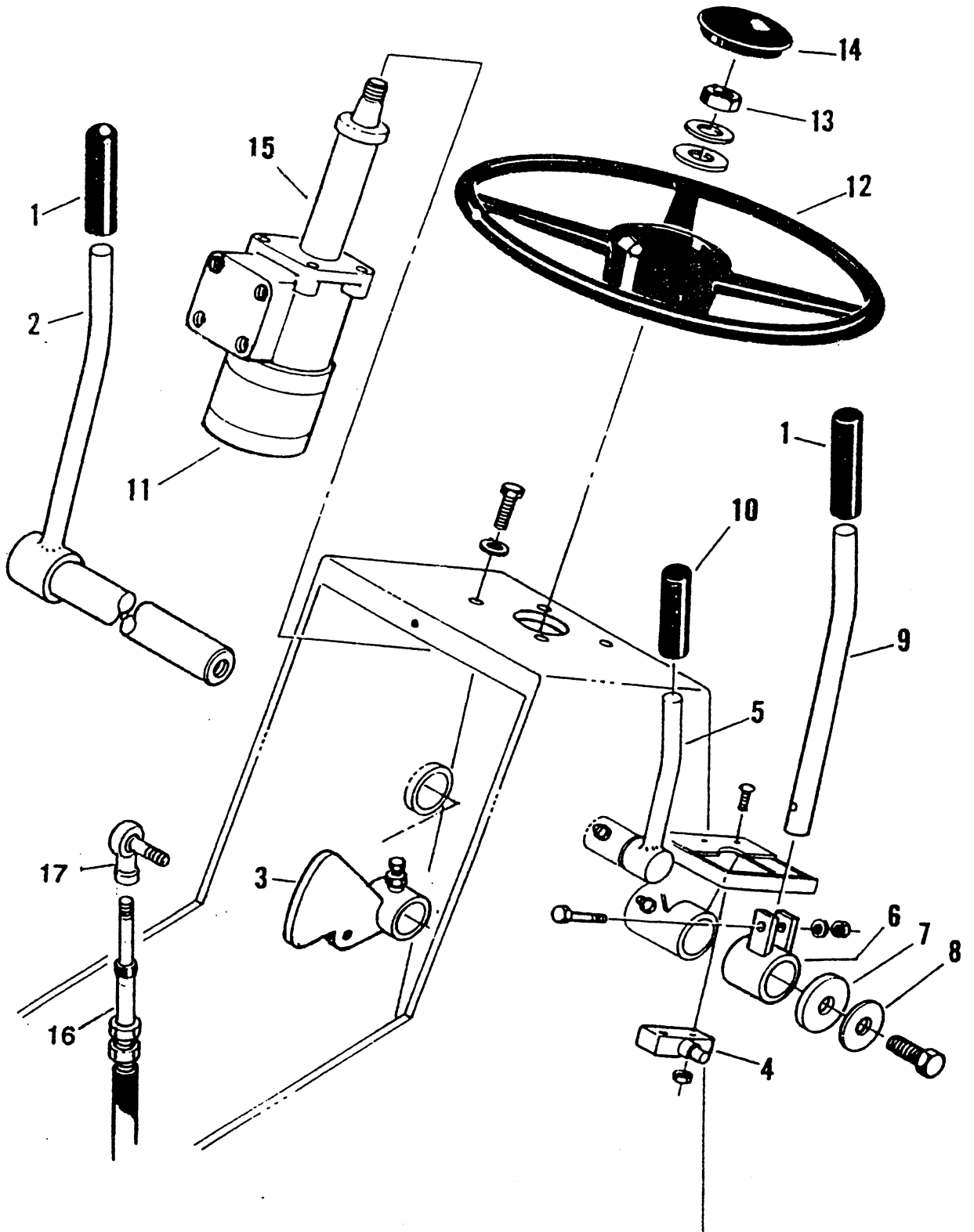
## MAINFRAME

ITEM NO.	PART NO.	DESCRIPTION	QTY.
1	410044R	Mainframe	1
2	410091	Panel, engine access floor	1
3	410111	Insulator, wood floor panel	1
4	410100	Hinge, floor engine access panel	1
5	410122	Panel, fuel tank access	1
6	410041	Panel, top access	1
7	410030	Tank, fuel	1
8	330010	Cap, fuel tank	1
9	410080	Cap, hydraulic tank	1
10	620050	Cap, breather	1
11	410141	Adjuster, rear axle	2
12	410151	Screw, rear axle adjustment	2



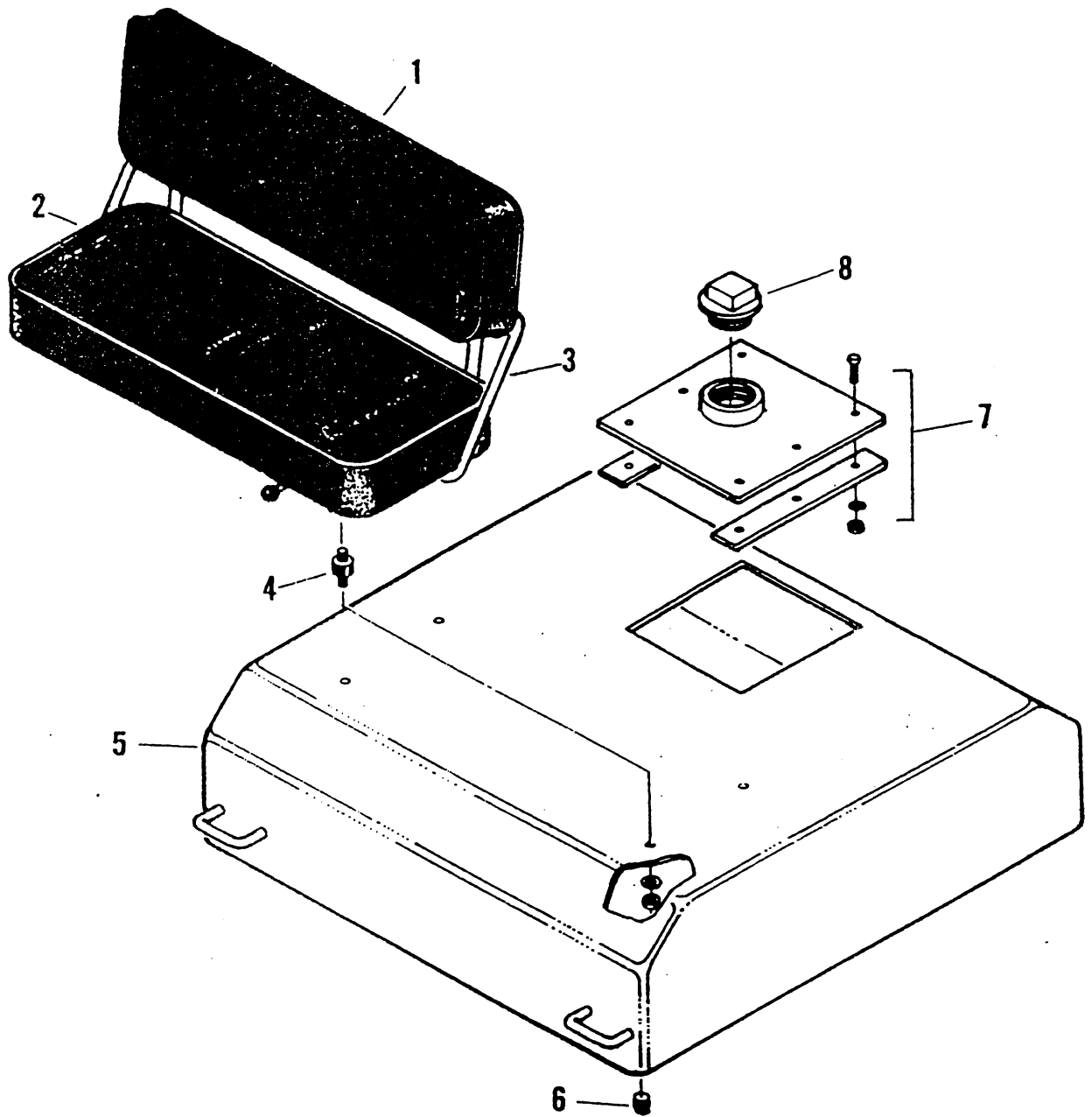
## CROSS MEMBER AND FRONT AXLE ASSEMBLY

ITEM NO.	PART NO.	DESCRIPTION	QTY.
1	420204	Cross member, front end	1
2	313181	Support block, front axle	2
3	420032	Yoke, steering	1
4	420042	Pin, steering yoke	1
5	210010	Bushing, front cross member	4
6	420022	Washer, backup	1
7	210460	Cylinder, hydraulic steering	1
8	210240A	Seal, steering yoke	4
9	210180A	Bearing, steering yoke	2
10	210190A	Race, steering yoke	2
11	210170A	Lock washer, steering yoke	1
12	210160A	Locknut, steering yoke	1
13	420110	Wheel Assembly, front	1
14	420120	Cap, dust	1
15	610260	Nut, axle	1
16	610250	Lock Washer	1
17	420130	Bearing, cone	2
18	420140	Bearing, cup	2
19	420150	Hub, wheel	1
20	110280	Bearing, cup	2
21	110290	Bearing, cone	2
22	420160	Seal, axle	2
23	110130A	Bushing	2
24	420170	Spindle, twin	1
25	420181	Axle, front wheel pivot	1
26	420190	Tire	1



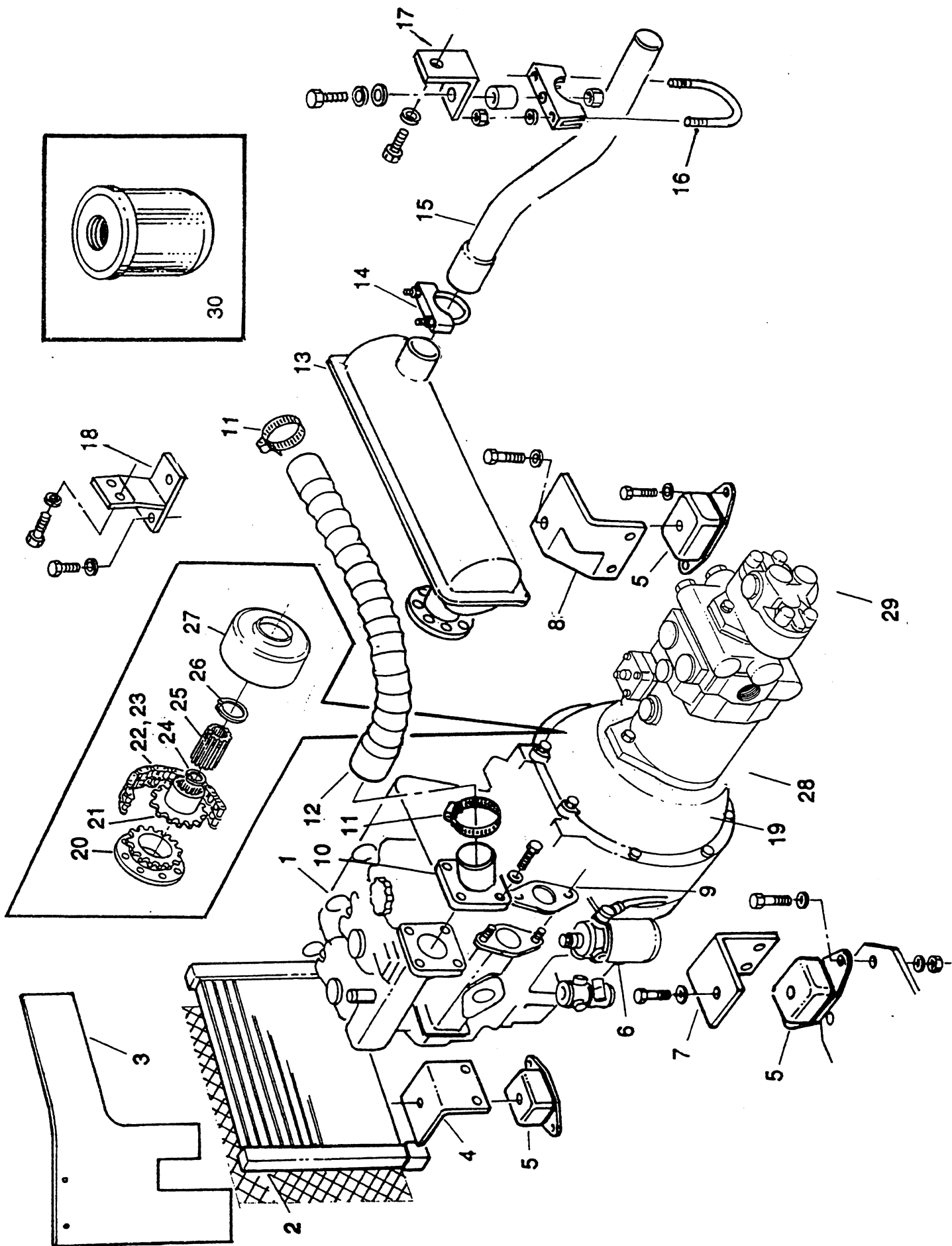
## STEERING AND DRIVE CONTROL ASSEMBLY

ITEM NO.	PART NO.	DESCRIPTION	QTY.
1	490010	Cover, drive handle	2
2	490022	Drive Lever, R.H.	1
3	490031	Lever, pump	1
4	490040	Switch, neutral safety	1
5	490052	Lever, throttle	1
6	490062	Bushing, L.H. drive lever	1
7	490071	Spacer	1
8	490080	Washer, spring	1
9	490092	Drive Lever, L.H.	1
10	490100	Cover, throttle lever	1
11	300050	Hydraulic Motor, power steering	1
12	300030	Steering Wheel	1
13	300020	Nut, steering wheel	1
14	300010	Cover, steering wheel	1
15	300040	Steering Column	1
16	500770	Cable, forward & reverse	1
17	140280	Ball Joint, rod end	



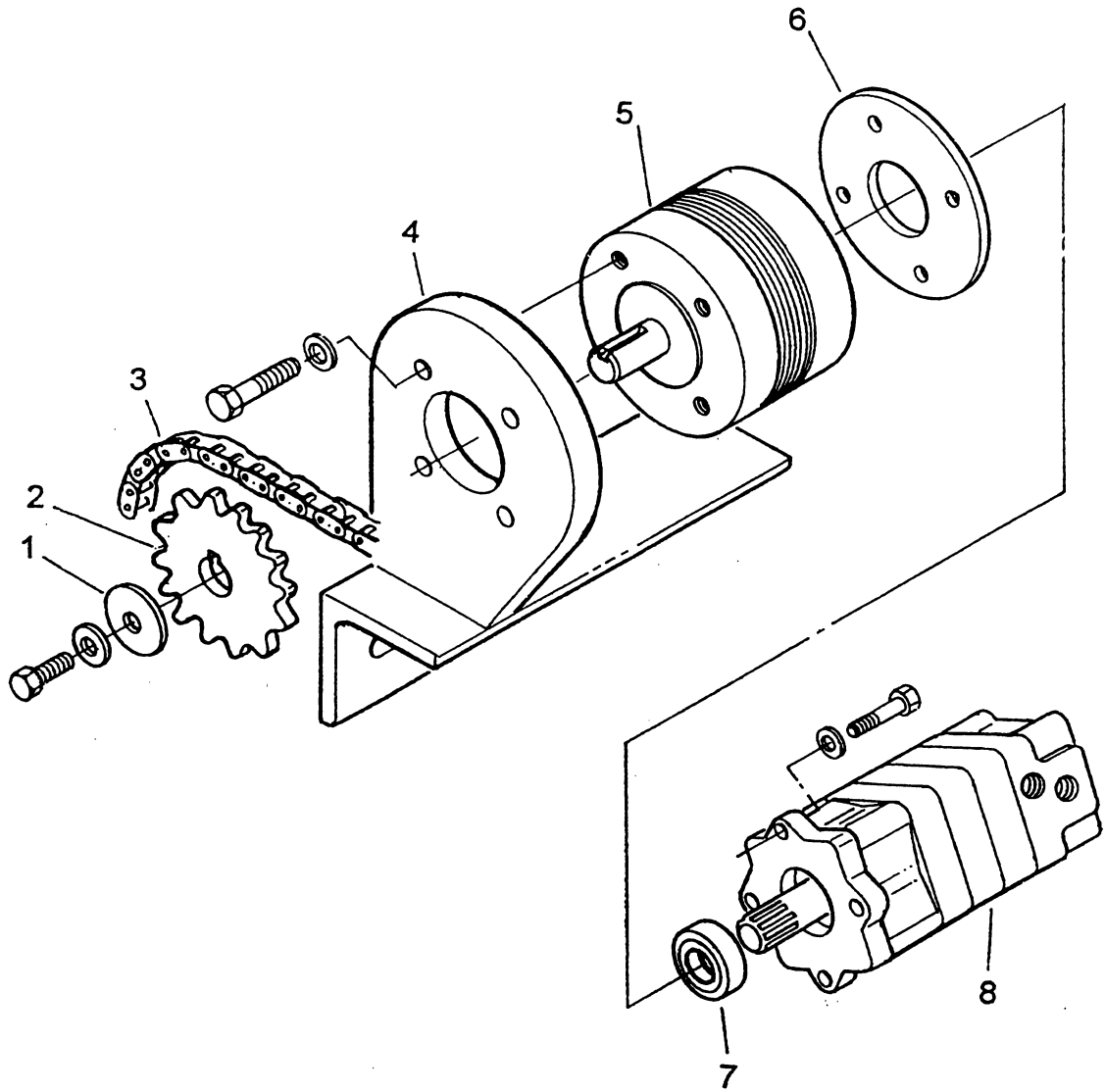
## WATER TANK AND SEAT ASSEMBLY

ITEM NO.	PART NO.	DESCRIPTION	QTY.
1	440010	Seat, back rest	1
2	440020	Seat, lower cushion	1
3	440030	Frame, seat	1
4	440040	Shock Mount, seat	4
5	440054	Tank, water	1
6	420180	Plug, drain	1
7	440072	Panel, fill & access	1
8	440080	Fill Plug	1



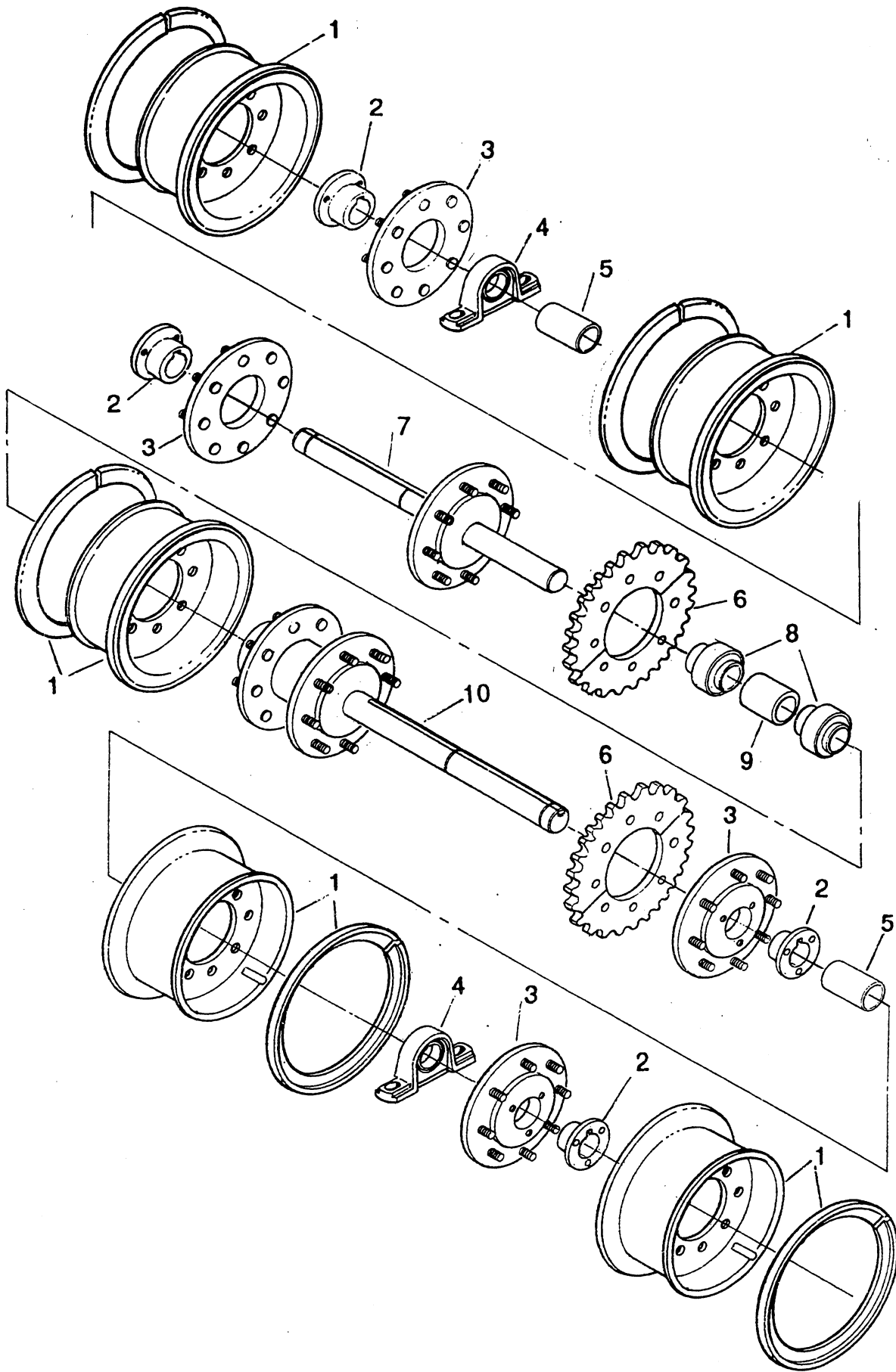
## ENGINE, HYDRAULIC OIL COOLER AND COMPONENTS

ITEM NO.	PART NO.	DESCRIPTION	QTY.
1	530010-3	Engine, Lombardini 3 cyl.	1
2	700090	Cooler, oil	1
3	530110	Deflector, air	1
4	530121	Bracket, front engine	1
5	530090	Mount, engine insulator	3
6	700370	Fuel Filter	1
7	530101-3 L.H.	Bracket, left rear engine	1
8	530101-3 R.H.	Bracket, right rear engine	1
9	530130	Gasket, exhaust	1
10	530141	Neck, air intake	1
11	700500	Clamp, hose	2
12	530150	Hose, air intake	1
13	530160	Muffler, exhaust	1
14	530170	Clamp, exhaust pipe	1
15	530180	Pipe, exhaust	1
16	530170	Adaptor, 'U'bolt alignment	1
17	530191	Bracket, 'U' bolt alignment	1
18		Bracket, muffler	1
19	700460	Housing, engine coupling	1
20	700390	Coupling, sprocket mount	1
21	700400	Coupling, sprocket spline	1
22	700410	Chain, coupling	1
23	700410-1	Link, master	1
24	700420	Ring, snap	1
25	700430	Coupling, external/internal	1
26	700440	Ring, snap	1
27	700450	Boot, rubber protector	1
28	530040	Pump, hydraulic	1
29	530050	Pump, auxiliary	1
30	500160-2	Oil Filter, engine	1



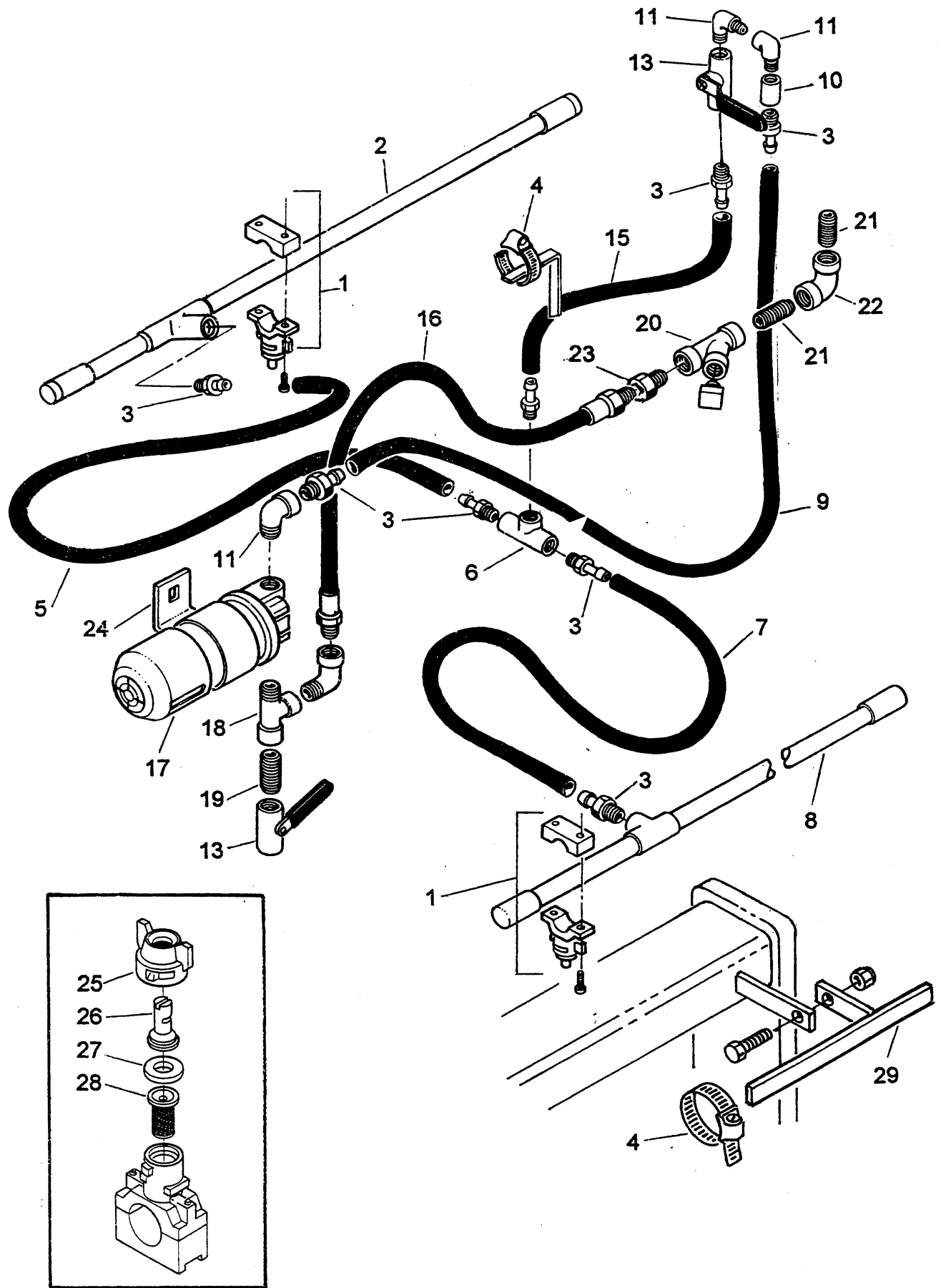
## HYDRAULIC MOTOR AND BRAKE

ITEM NO.	PART NO.	DESCRIPTION	QTY.
1	470100	Washer, retainer	1
2	470110	Sprocket, drive	1
3	470120	Chain	1
4	470132	Mount, adjustable	1
5	470140	Brake, hydraulic	1
6	470150	Plate, adapter	1
7	470160	Seal	1
8	470170	Motor, hydraulic	1



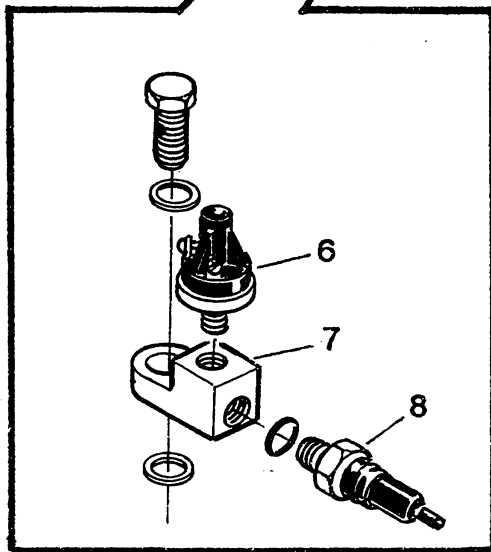
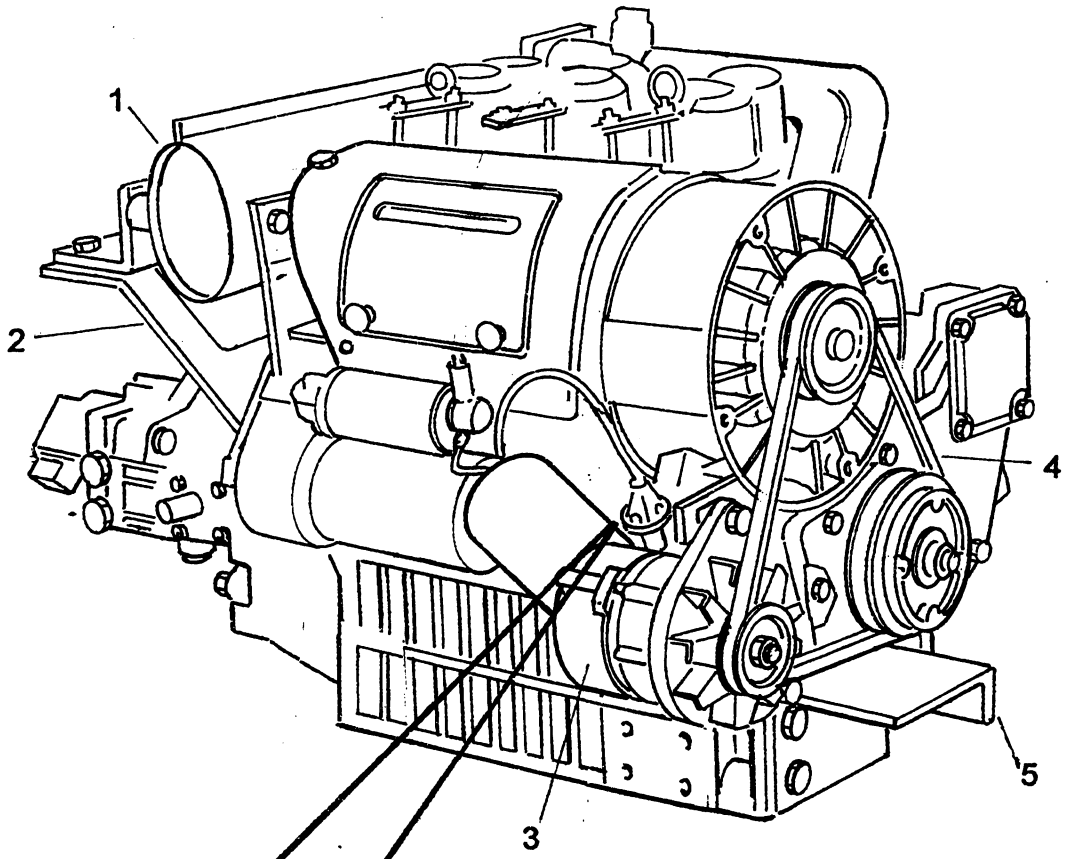
## REAR AXLE ASSEMBLY

ITEM NO.	PART NO.	DESCRIPTION	QTY.
1	430200	Rim, wheel	5
2	430210	Taper Lock Bushing	4
3	430222	Flange, wheel mounting	4
4	430230	Bearing, rear axle	2
5	430241	Spacer	2
6	430250	Sprocket, split	2
7	430263	Axle, right	1
8	520100	Bearing, roller	2
9	430271	Spacer, bearing	1
10	430283	Axle, left	1



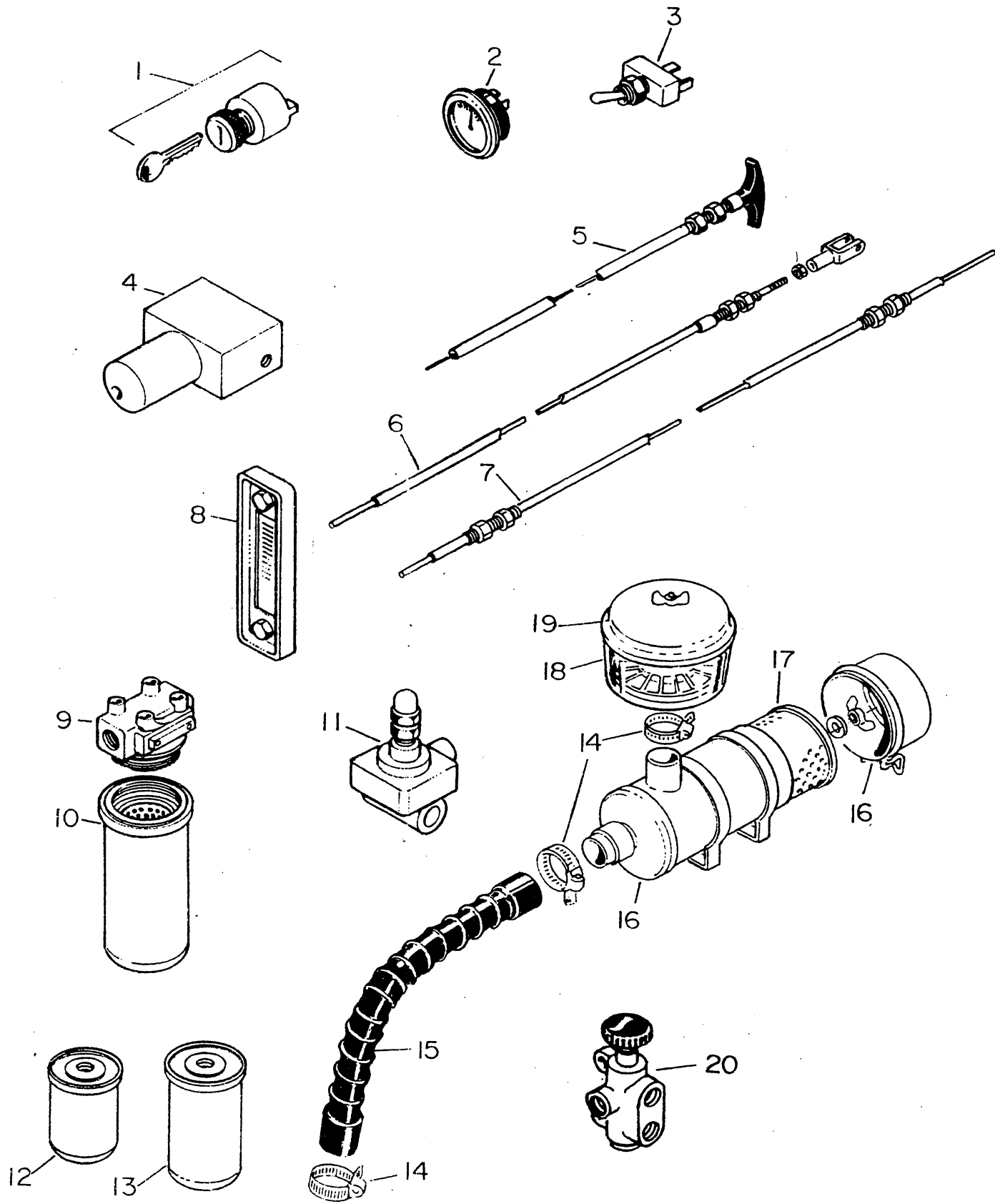
## WATER SYSTEM ASSEMBLY

ITEM NO.	PART NO.	DESCRIPTION	QTY.
1	480010	Nozzle, water spray	9
2	480262	Bar, rear spray	1
3	480030	Hose, adaptor	2
4	480200	Clamp	4
5	480040-1	Hose, rear water	1
6	480140	Tee	1
7	480150	Hose	1
8	480272	Bar, front spray	1
9	480210	Hose	1
10	480220	Nipple	1
11	480230	Elbow, 90°	1
12	480230	Elbow, 90°	1
13	480160	Valve	2
14	480175	Reducer	1
15	480240	Hose	1
16	480250	Hose	1
17	480110-1	Pump, water	1
18	480170	Tee	1
19	480120	Pipe, nipple	1
20	480080	Y-Strainer	1
21	480070	Pipe, nipple	1
22	480060	Pipe, elbow	1
23	480050	Pipe, nipple	1
24	480260	Bracket, water pump	1
25	480010-3	Cap, water spray nozzle	1
26	480010-1	Tips	1
27	480010-4	Washer, flat	1
28	480010-2	Strainer	1
29	480281	Support, spray bar	2



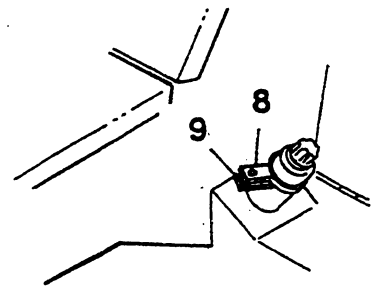
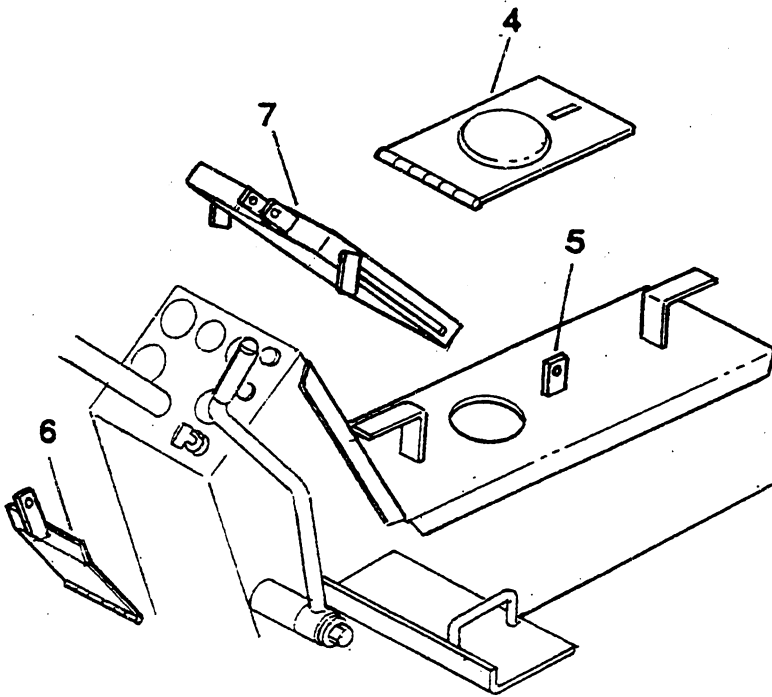
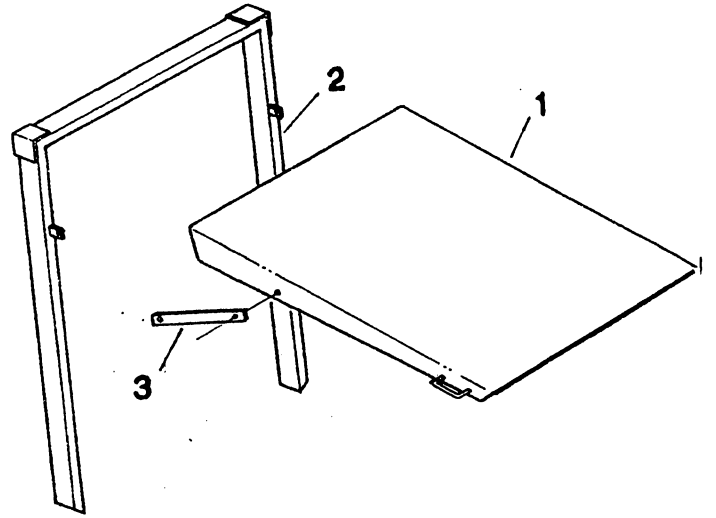
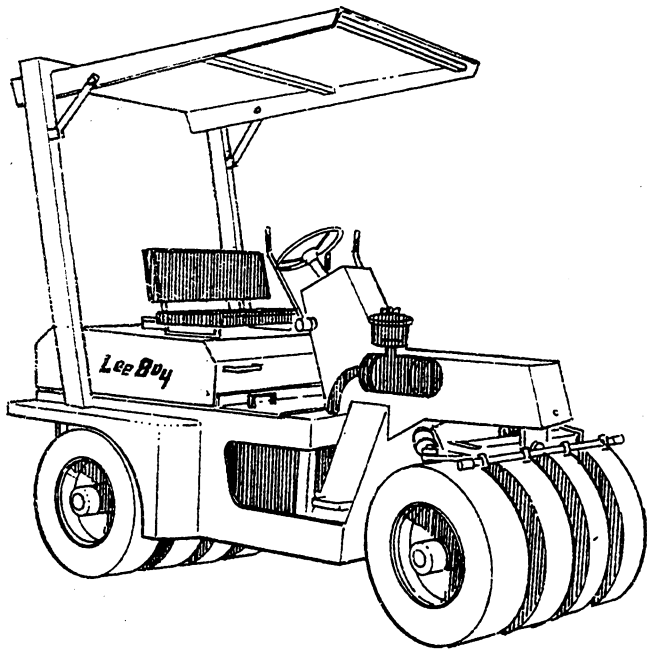
## ENGINE COMPONENTS

ITEM NO.	PART NO.	DESCRIPTION	QTY.
1	530160	Muffler	1
2	530202	Support, muffler	1
3	530280	Alternator	1
4	530270	Belt, pan and alternator	1
5	530121	Mount, front engine	1
6	00021Q	Switch, oil pressure	1
7	000PIE	Adapter, hobbs switch (external alternator)	1
8	530210	Switch, oil pressure	1

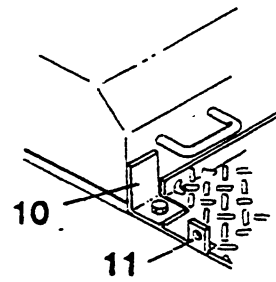


## GAUGE, CABLES, FILTER, AIR CLEANER AND VALVES

ITEM NO.	PART NO.	DESCRIPTION	QTY.
1	500010	Key, ignition switch	1
2	500030	Gauge, hour meter	1
3	500040	Switch, toggle	2
4	500090	Valve, solenoid	1
5	350040	Cable, engine shut-off	1
6	500050B	Cable, throttle	1
7	500770	Cable, forward & reverse	1
8	500070	Gauge, hydraulic oil level & temp.	1
9	290010	Head, charge filter	1
10	290030	Element, charge filter from #400-104	1
11	500080	Valve, relief, 2000 p.s.i.	1
12	500150-2	Filter, fuel (diesel)	1
13	500160-2	Filter, oil (diesel)	1
14	700500	Clamp, hose	2
15	530210	Hose, air	1
16	500260	Air Cleaner Assembly	1
17	500520	Element, air cleaner	1
18	310020	Bowl, dust pre-cleaner	1
19	310010	Cover, dust bowl	1
20	500140	Switch, vibrator actuator	1
21	910080	Valve, emergency stop	1



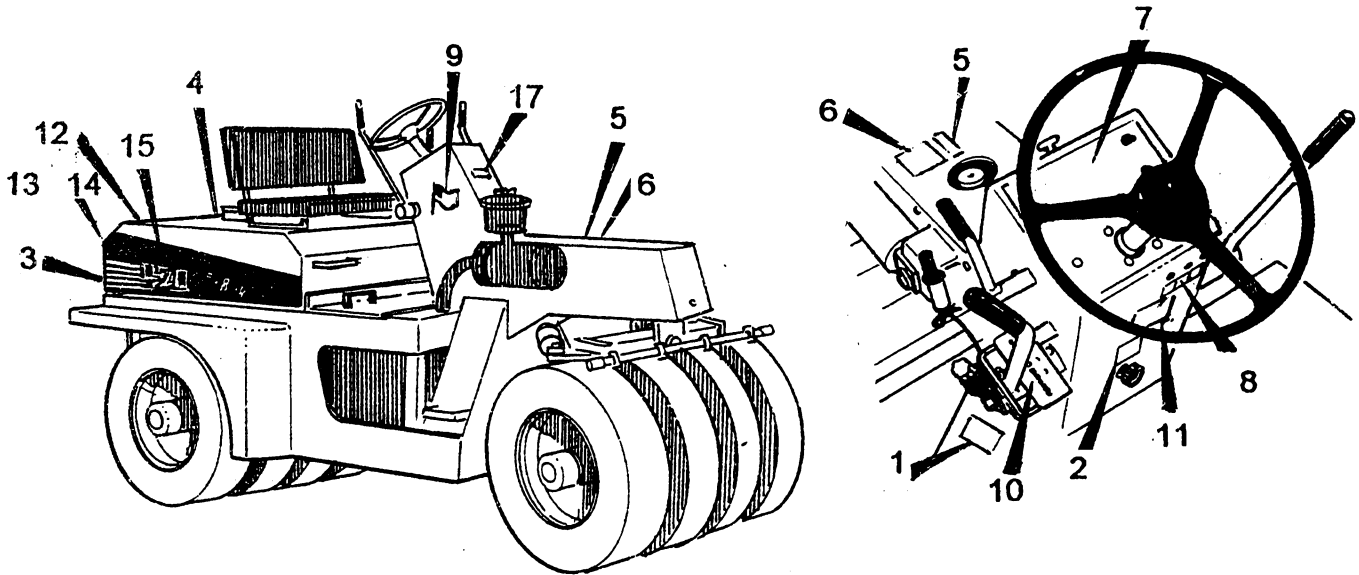
**VIEW IN DIRECTION OF ARROW 'A'**



**VIEW IN DIRECTION OF ARROW 'B'**

## ROPS BAR, CANOPY AND VANDALISM KIT

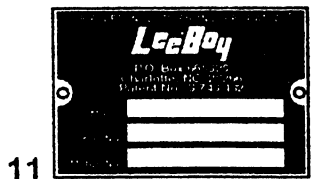
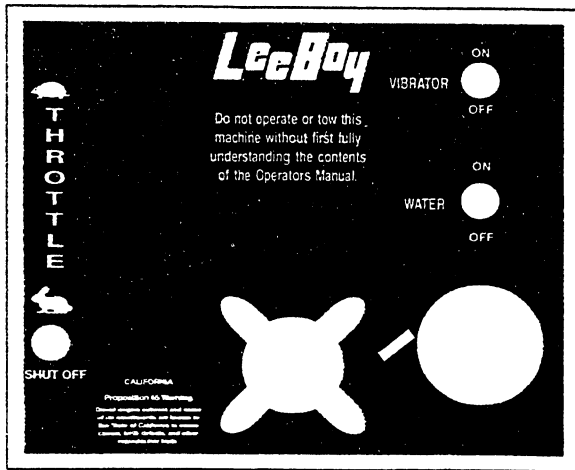
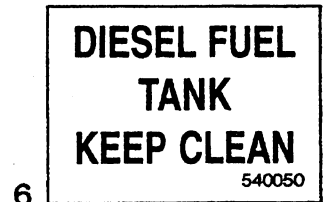
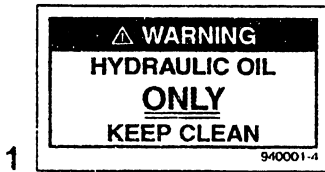
ITEM NO.	PART NO.	DESCRIPTION	QTY.
1	410144	Canopy	1
2	410154	Bar, roll (canopy support)	1
3	410161	Brace, roll bar to canopy	2
		VANDALISM PARTS	
4	410171	Door, fuel access	1
5	410182	Bracket, access door lock	1
6	410191	Shield, warning light	1
7	410201	Panel, instrument security	1
8	410211	Latch, hydraulic oil cap	1
9	410221	Latch, fuel neck	1
10	410231	Latch, engine access water tank	1
11	410241	Latch, engine access floor panel	1



**! IMPORTANT ! ! IMPORTANT !**

It is the responsibility of the owner to maintain a complete set of decals and make sure they are in the proper place.

If the maintainer has been repainted, it is extremely important that all the decals referring to cautions, warnings and dangers be replaced in their proper locations. The illustration on this page will aid you in determining the proper locations. For additional help refer to the parts listing in the parts section of this manual and note the description column. Under this column a description on location is provided for each decal. Contact your dealer if you need additional, more explicit instructions.



## DECALS

ITEM NO.	PART NO.	DESCRIPTION	QTY.
		Decal Kit, (Includes items 1 -17)	
1	540040	On hydraulic tank above filler neck	1
2	9854	On console above emergency brake knob	1
3	9788	On the rear cross member both sides	1
4	540100	On water tank centered and to the rear of filler neck	1
5	540020	On top of access cover centered to fuel filler neck	1
6	540050	On top of access cover- centered to fuel filler neck close to flammable decal	1
7	10631	On top of console	1
8	540130	On console below indicator lights	1
9	151090	On both sides of console as shown	1
10	540080	On plate adjacent to forward/reverse lever	1
11	940040	On console as shown	1
12	151090	On both sides of water tank	1
13	10628-1	On water tank right side	1
14	10628-2	On water tank left side	1
15		Over number 400 on 10628-1 decal	1
16		Over number 400 on 10628-2 decal	1
17	151050	On front of console and centered	1

