

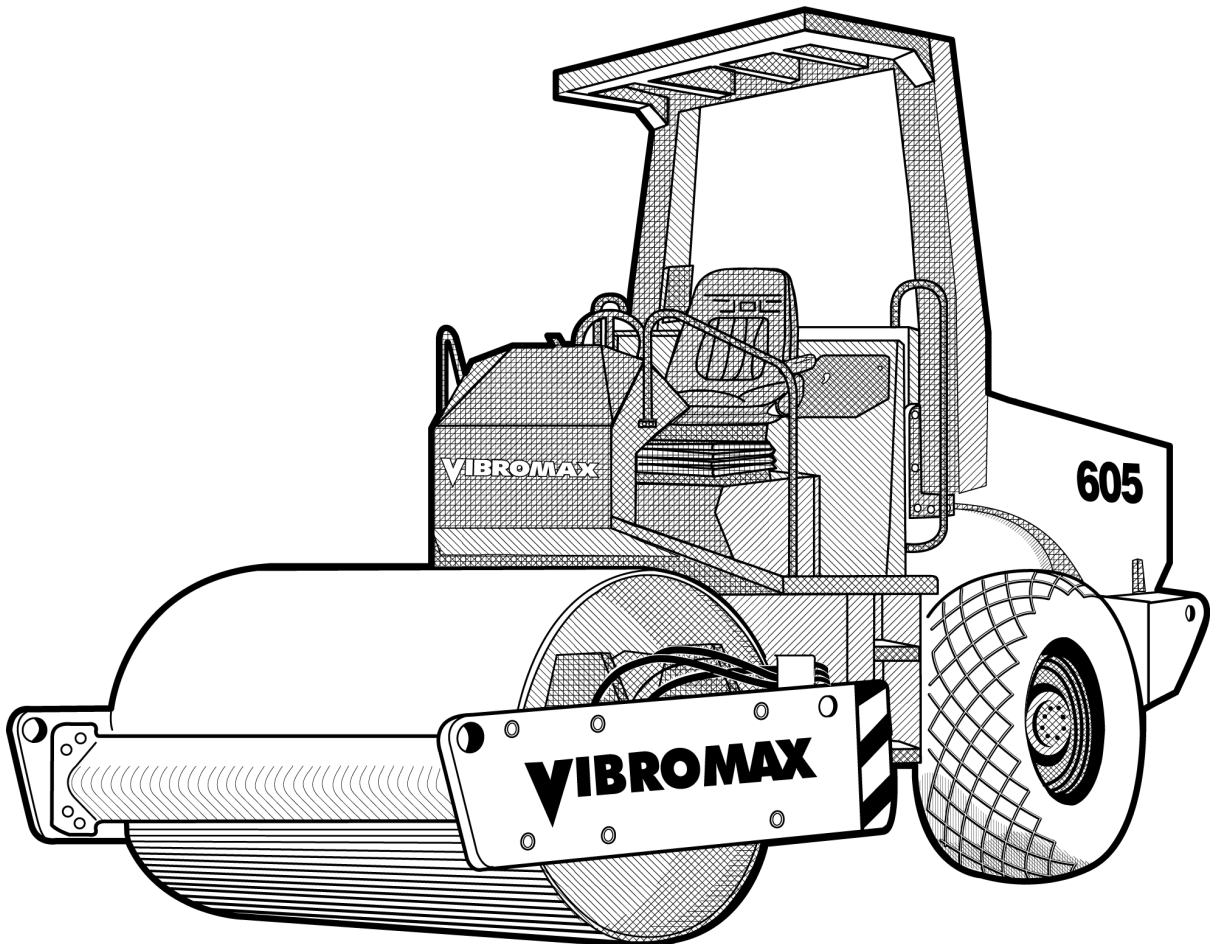
VIBROMAX

SINGLE DRUM ROLLER

SERVICE MANUAL SM85005

March 2003

Models 405, 605, 606



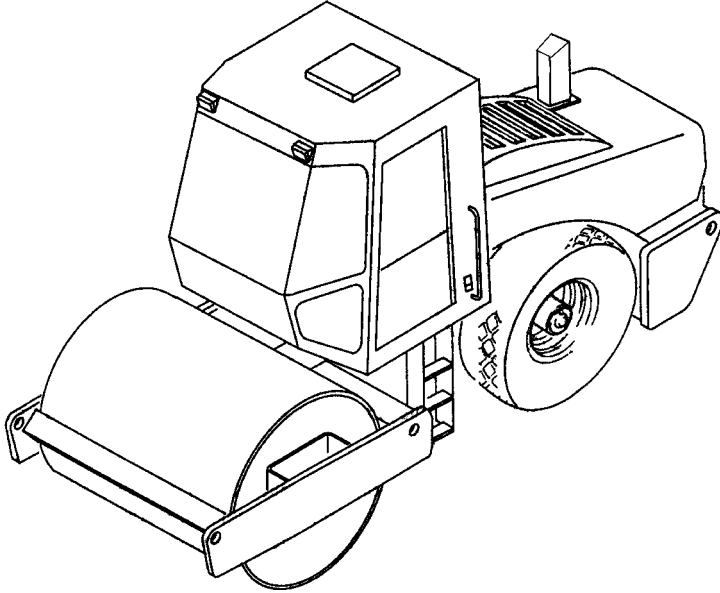
CLICK HERE TO **DOWNLOAD** THE COMPLETE MANUAL

- Thank you very much for reading the preview of the manual.
- You can download the complete manual from: www.heydownloads.com by clicking the link below



- Please note: If there is no response to CLICKING the link, please download this PDF first and then click on it.

CLICK HERE TO **DOWNLOAD** THE COMPLETE MANUAL

MACHINE DESCRIPTION

In the fall of 1998 Vibromax introduced a new series of single drum vibratory rollers. Included in the new series are the models 405, 605, and 606.

These new rollers use the Cummins 3.9 liter 4 cylinder engine. Some engines are turbocharged depending on the machine model. All of the new engines are tuned to meet the latest EPA emissions standards.

A Mannesman Rexroth variable displacement, axial piston hydrostatic pump, used for machine propulsion, is mounted to the flywheel end of the engine. It provides oil to a Rexroth 2 speed drum drive motor and a 2 speed axle drive motor in a parallel path. The Rexroth drum motor is mounted on the left side of the drum, drives through a L&S planetary gearbox and is isolated from the drum by rubber buffers. This arrangement is used in the heavy roller models with a great deal of success. The axle drive motor is attached directly to the intermediate gearbox incorporated into the rear axle.

The vibration system on the 605 & 606 use a Rexroth hydrostatic pump mounted directly behind the propulsion pump. It is similar in design to the propulsion pump. On the model 405 the vibratory pump is a Rexroth gear type pump. The vibratory pump supplies oil to a Rexroth hydrostatic motor mounted at the right side of the drum. The new 605 & 606 models operate at frequencies of 1740 or 2160 vibrations per minute on both the smooth drum and pad foot versions. The model 405 has only one vibration frequency of 2016 vibrations per minute.

Model 605

ENGINE Make/Model/Type/Displacement - cu. in. (cc) HP, SAE net (kW) @2200 rpm Air Cleaner / Fuel filter Fuel Consumption- gal/hr (l/hr) Fuel capacity - gal (ltr)	Cummins 4B3.9C, 4 cylinder diesel (water cooled), 240 cu.in. (3920cc) 76 (56) Dual replaceable elements, Spin-on cartridge 2.8 (10.7) 60.8 (230)			
	605D		605PD	
Operating weight CECE -lb (kg)	14850 (6750)		14975 (6807)	
Weight, front-lb (kg)	7482 (3400)		7607 (3457)	
Weight, rear axle - lb (kg)	7368 (3350)		7368 (3350)	
Static applied linear drum load lb/in (kg/cm)	108 (19.4)		-----	
Articulation/oscillation-degrees	35/15		35/15	
Turning radius-inside-ft (m)	9'9" (3.0)		9'9" (3.0)	
Curb clearance in. (mm)	15.5 (394)		15.5 (394)	
Drum shell thickness-in. (mm)	1.0 (25)		1.0 (25)	
Number of pad feet/height of foot - in. (mm)	-----		96/3.94 (100)	
Contact area of foot-sq. in. (cm)			17.5 sq.in.(112.9 sq. cm)	
Tire size	14.9x24 6PR diamond tread		14.9x24 6PR tractor tread	
Travel speed - 1st range mph (km/hr)	0 - 4.3 (0 - 6.9)		0 - 3.6 (0 - 5.8)	
- 2nd range mph (km/hr)	0 - 6.8 (0 - 11.0)		0 - 7.2 (0 - 11.6)	
Theoretical gradeability, forward -%	60		65	
Brakes - front drum	disc		disc	
- rear axle	disc - input shaft		disc - input shaft	
	1st Stage	2nd stage	1st Stage	2nd stage
Max compaction depth - in. (cm)	25.6 (65)		-----	
Frequency - vpm (Hz)	1740 (29)	2160 (36)	1740 (29)	2160 (36)
Amplitude - in. (mm)	.076 (1.93)	.032 (.81)	.076 (1.93)	.032 (.81)
Centrifugal force - lbf (kN)	28766 (128)	18878 (84)	28766 (128)	18878 (84)
Centrifugal force/drum width - lb/in. (N/cm)	417 (730)	274 (480)	417 (730)	274 (480)
Total applied force - lb (kN)	36248 (161)	26360 (117)	36373 (162)	26485 (118)
Total applied linear force - lb/in. (N/cm)	526 (923)	383 (672)	-----	-----



Operate the controls from the operator's seat only, and keep your hands on the controls during operation.

The following decal is located on the left side of the operator seat box. Check the decal daily. Clean or replace as needed.



Do not permit other people to ride on the machine as passengers.

Sparks from the electrical system or engine exhaust can cause a fire or explosion. Before you operate this machine in an area with flammable dust or vapors, use good ventilation to remove the flammable dust or vapors.

Engine exhaust fumes can cause injury or death. If you operate this machine in an enclosed area, use good ventilation to replace the exhaust fumes with fresh air.

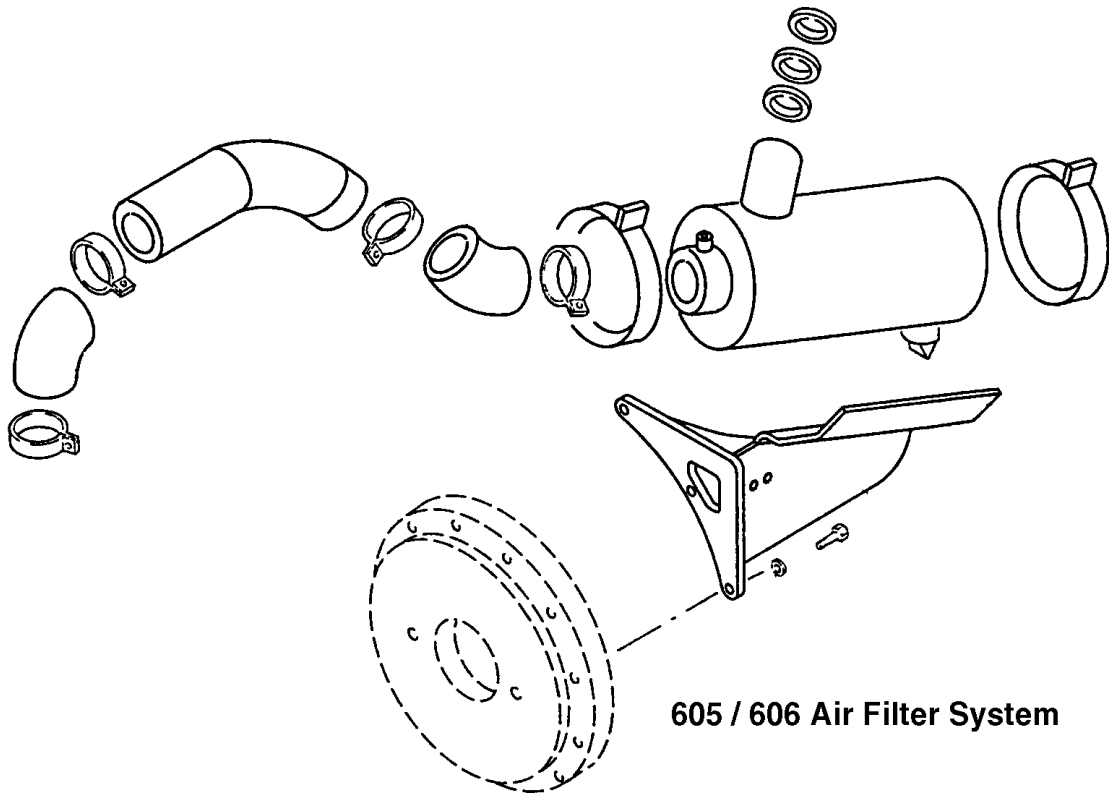
The vibrations from this machine can cause the walls of a trench or high bank to collapse. Make sure the walls of the trench or bank are braced. If you do not follow these instructions, you can cause personal injury. or death to persons working in these areas.

This machine uses an articulating joint. Keep all persons clear of this pinch area when the engine is running. Machine movement can cause personal injury.

The following decal is located in two places on each side of the machine's front and rear frames in the articulation joint area. Check the decals daily. Clean or replace as needed.



5. Remove the air intake system.



6. Disconnect, tag, cap the hoses, and plug the fittings on the three hydraulic pumps. The engine will be removed with the pumps.
7. Remove the upper and lower radiator hoses.
8. Remove the engine exhaust system.
9. Disconnect the following electrical wires:
 - Starter wires located on right side of engine
 - Alternator wires located on right side of engine
 - Oil pressure switch wire located on right side of engine
 - Temperature sensor wire located on top front of engine
 - Fuel solenoid wire located on left side of engine
 - Engine ground strap located on left side of engine
10. Disconnect the throttle cable located on the left side of the engine.
11. Disconnect the fuel supply and fuel return lines located on the left side of the engine.

D	Delay relay
E	Element (headlight, tail lights, panel lights, etc.)
F	Fuse
G	Battery, alternator
H	Indicator (panel indicator light, horn, alarm)
K	Relay
M	Motor
P	Gauges (hour meter, temperature gauge, etc.)
R	Resistor
S	Switch
V	Diode
X	Connector
Y	Solenoid control valve

An identification chart on the diagram lists each component, the component description and its location on the diagram by line number.

The layout of all Vibromax electrical diagrams is similar in regards to the location of components. The battery will always be located on line 1, starter on line 2, alternator on line 3, etc. Slight variations can be seen on different models, but the major components will be located in the same general area of the diagram. This similar layout makes locating components easier as you become more familiar with the drawings.

Other items which may help you understand the diagram:

All drawings are shown without power

All components are shown in the OFF position

All relay contact #87 are normally open contacts

All relay contact #87a are normally closed contacts

Relay terminal #30 is power to the contacts (when possible)

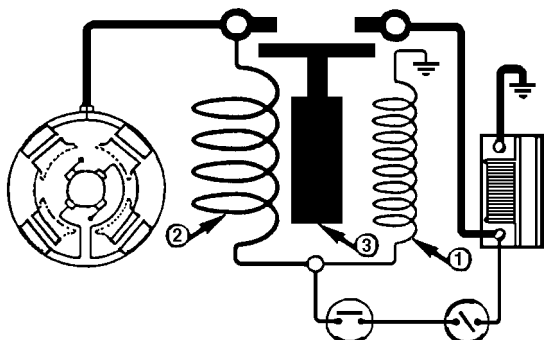
Relay terminal #87 or #87a is power from the contacts (when possible)

Power to control the relay is always terminal #86

Ground is always terminal #85

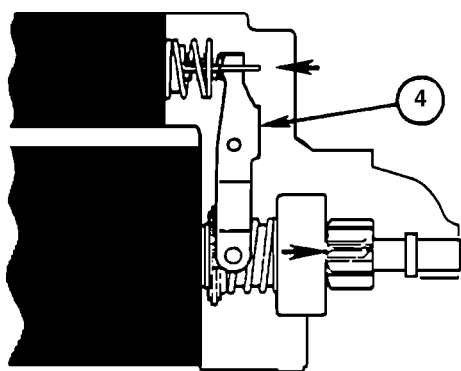
STARTER SOLENOID

A starter solenoid has two coils. They are the “hold-in coil” (1) which connects to ground, and the “closing coil” (2) which is connected to ground through the starter motor windings.

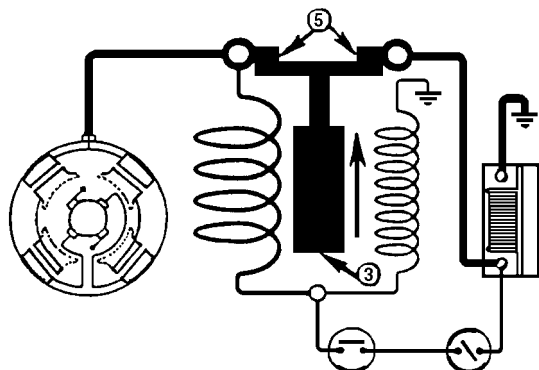


When the switch is “ON”, current passes through the hold-in coil (1), creating a magnetic field around the plunger (3). Current also passes through the closing coil (2), creating a second field.

The current that flows from the closing coil into the starter motor windings causes the motor to rotate slowly. The combined magnetic fields of the two coils causes the plunger to engage. This moves the arm (4) causing engagement of the drive pinion into the flywheel.



When the plunger (3) moves to full stroke and the drive pinion is fully engaged, the solenoid contacts (5) are closed, allowing full power to the starter motor.

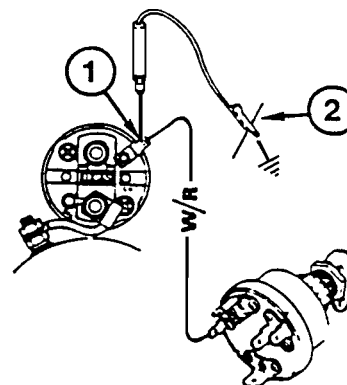


STARTER SYSTEM DIAGNOSTICS

SOLENOID CIRCUIT TEST

CAUTION: Fasten the manual shut off lever on the injection pump in the "OFF" position prior to this test.

Connect a test light or voltmeter to test point (1) and the other lead to a good ground. Turn the key switch to the start position.



The test light should illuminate or the voltmeter should indicate system voltage. If not, there is a problem in the supply of current to the solenoid.

VIBRATION CIRCUIT

The smooth drum and padfoot drum models are both equipped with a high and low frequency vibratory system.

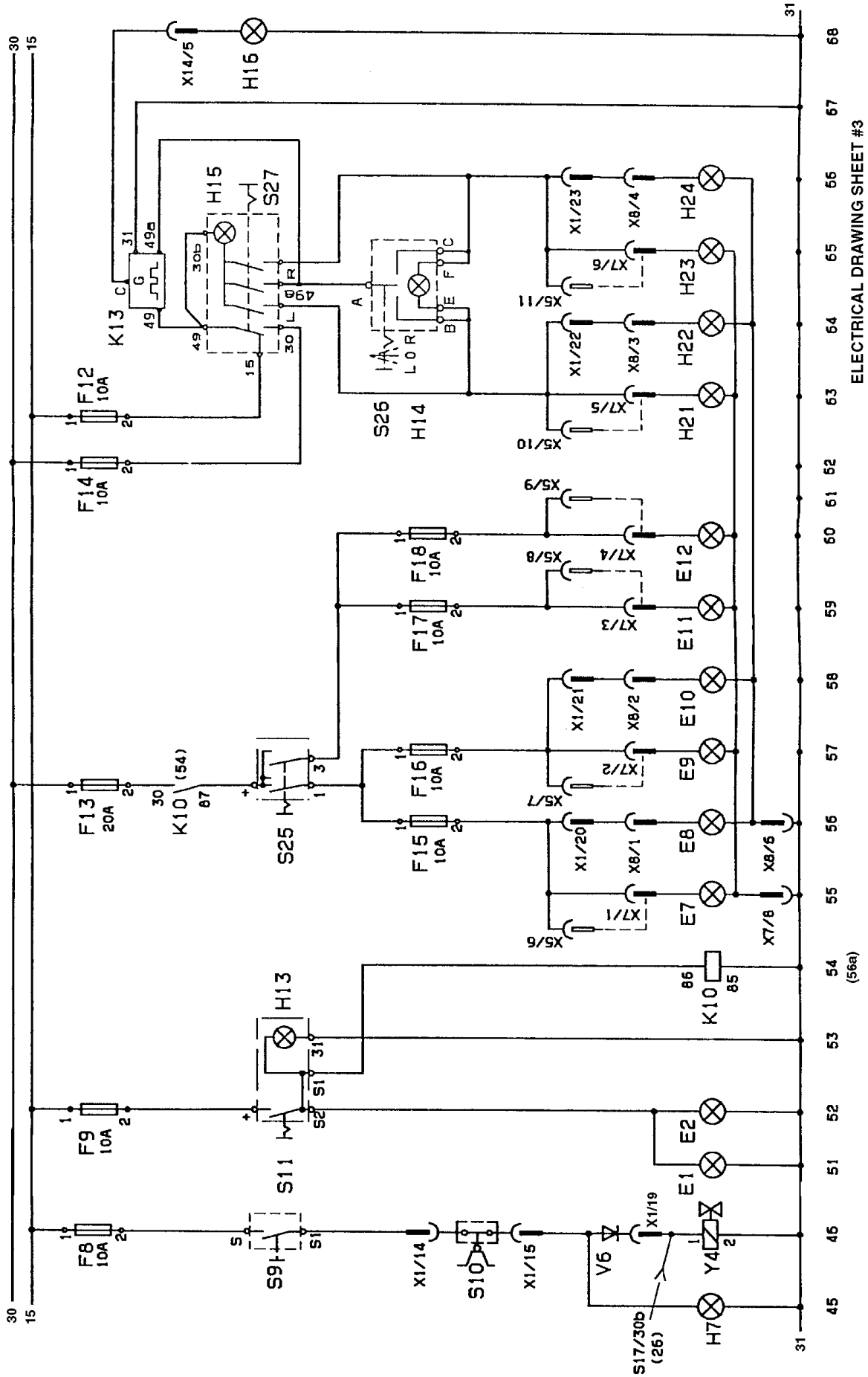
Power for the vibration control circuit is available through Fuse F4 and relay K14 [line 29] if the key is on, the emergency stop switch is not depressed, and the machine is not in high speed travel.

Starting at 405 S/N JKC9601200 and 605/606 S/N JKC9402400 the K14 relay was added to the high speed travel circuits. This relay is tied to the vibration control circuits and is intended to stop vibratory operation when the machine is traveling in HIGH range. When travel switches S8 and S8A are both actuated current flow to the K14 relay coil [line 39] is stopped. Without the coil being energized the normally open contacts of relay K14 [line 29] will open effectively shutting down the vibration system.

Power from the fuse is available at both Switch S7B and S24. In manual mode the manual/automatic selector switch S7B passes current through the manual mode contacts [S] to terminal 2 of the K6 latching relay [line 33]. When the momentary push button, switch S24 [line 33] on the forward/reverse lever, is depressed and released,

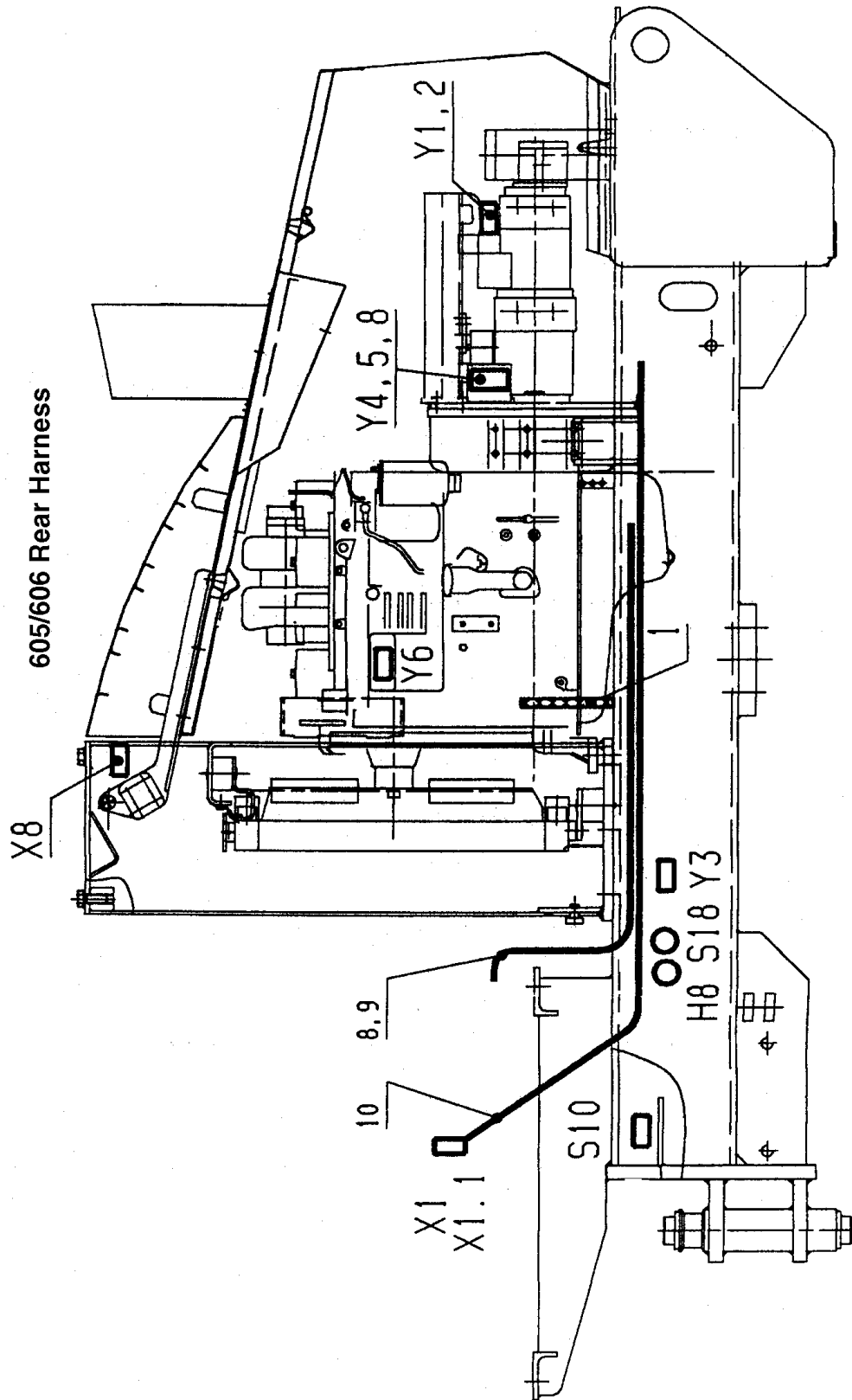
K6 latches contacts 2 and 5, allowing current to flow to the S7 (high frequency) and S7A (low frequency) vibration control switches. Activating switch S7 or S7A allows current to solenoids Y1 or Y2 on the vibration control valve. When switch S24 is depressed and released a second time K6 unlatches, removing power from terminal 5 of the K6 relay, and shuts off vibration. Switches S7 and S7A work independently once K6 relay is latched, however it is recommended that the vibration system on smooth drum machines be shut down by using S24 before changing between high and low frequency with switches S7 and S7A.

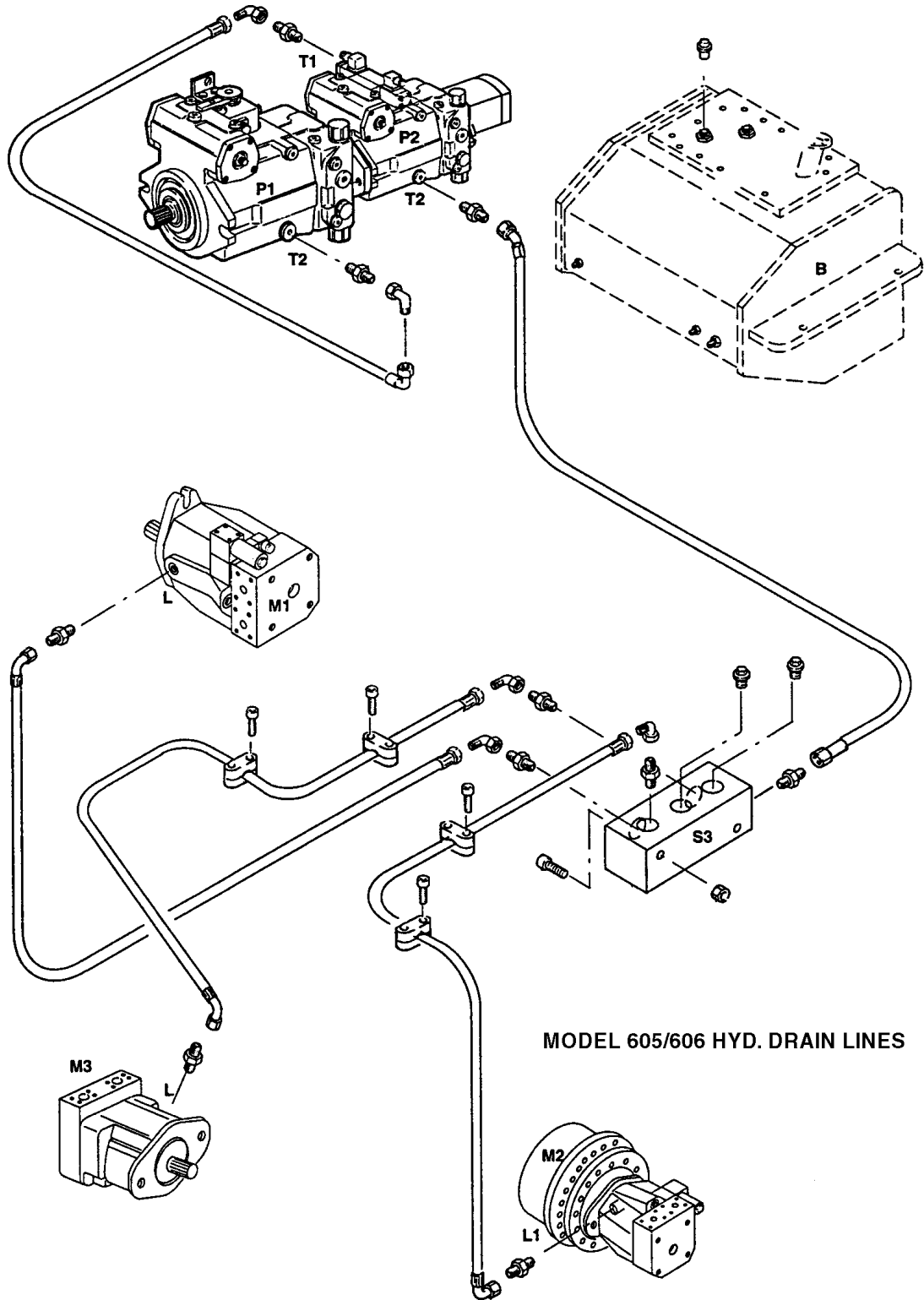
In the automatic vibration mode, current passes through switch S7B [line 29], through the contacts of relay K12 [line 29], and onto terminal 30 of switches S7 and S7A. Switch S24 and relay K6 are not part of the active circuit so the button on the forward/reverse lever has no effect on vibration operations in the automatic mode. The automatic vibration off in neutral is controlled through relay K12. The contacts of K12 open whenever the forward/reverse lever is moved into the neutral position.



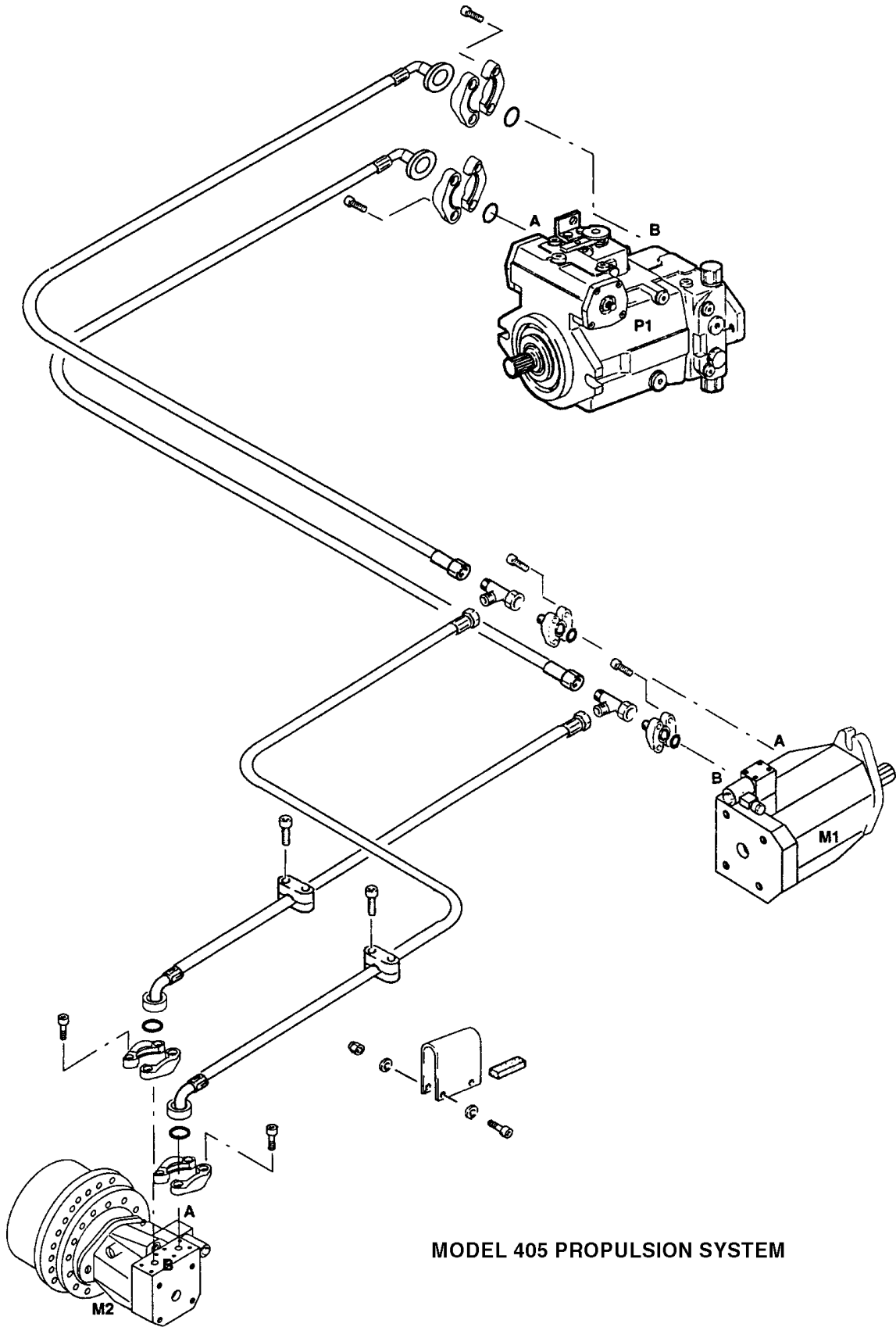
ELECTRICAL DRAWING SHEET #3

WIRE	COLOR	FROM	TO
38	red/white	diode (V1)	plug connector (X1) terminal 7
39	green/red	plug connector (X14) terminal 12	plug connector (X1) terminal 18
40	green	plug connector (X14) terminal 8	plug connector (X1) terminal 8
41	black	engine temp gauge (P2) terminal G	plug connector (X1) terminal 9
42	white	fuel gauge (P3) terminal G	plug connector (X1) terminal 10
43	black/yellow	fuse (F7) terminal 2	plug connector (X6) terminal 1
44	black/yellow	relay (K9) terminal 86	plug connector (X6) terminal 2
45	black/red	fuse (F7) terminal 1	relay (K9) terminal 30
46	black/red	relay (K9) terminal 87	fuse (F3) terminal 1
47	black/yellow	fuse (F3) terminal 2	brake switch (S17) terminal 15
48	black/yellow	brake switch (S17) terminal 15	brake switch (S17) terminal 30
49	black/yellow	brake switch (S17) terminal 49	relay (K5) terminal 87a
50	black/yellow	relay (K5) terminal 30	plug connector (X1) terminal 16
51	yellow/white	diode (V6)	brake switch (S17) terminal 30b
52	yellow/white	brake switch (S17) terminal 30b	plug connector (X1) terminal 19
56	gray	fuse (F4) terminal 2	auto vib switch (S7B) + terminal
57	gray	auto vib switch (S7B) terminal S	relay (K6) terminal 85
58	gray	high freq. vib switch (S7) terminal 30	relay (K6) terminal 87
59	gray	high freq. vib switch (S7) terminal 30	low freq. vib switch (S7A) terminal 30
60	gray/green	relay (K6) terminal 87	relay (K12) terminal 30
61	gray/green	auto vib switch (S7B) terminal S2	relay (K12) terminal 87a
62	gray/white	low freq. vib switch (S7A) terminal 15	high freq. vib switch (S7) terminal 30b
63	gray/white	low freq. vib switch (S7A) terminal 49	plug connector (X1) terminal 11
64	gray/red	low freq. vib switch (S7A) terminal 30b	high freq. vib switch (S7) terminal 15
65	gray/red	high freq. vib switch (S7) terminal 49	plug connector (X1) terminal 12
67	gray	fuse (F4) terminal 2	plug connector (X2) terminal 5
73	gray	relay (K6) terminal 30	plug connector (X2) terminal 6
77	blue/yellow	fuse (F5) terminal 2	two speed switch (S8) + terminal
78	blue/yellow	two speed switch (S8) terminal S2	plug connector (X1) terminal 13
79	yellow	fuse (F8) terminal 2	diff. lock switch (S9) terminal S
80	yellow/white	diff. lock switch (S9) terminal S1	plug connector (X1) terminal 14
81	yellow/white	plug connector (X1) terminal 15	light (H7) + terminal
82	yellow/white	light (H7) + terminal	diode (V6)
83	black/gray	fuse (F9) terminal 2	light switch (S11) + terminal
84	black/gray	light switch (S11) terminal S2	temp. gauge light (E1) + terminal
85	black/gray	temp. gauge light (E1) + terminal	fuel gauge light (E2) + terminal
86	black/gray	light switch (S11) terminal S1	relay (K10) terminal 86
87	blue/yellow	two speed switch (S8) + terminal	two speed switch (S8A) + terminal
88	blue/yellow	two speed switch (S8A) terminal S2	drive switch S20 terminal 1

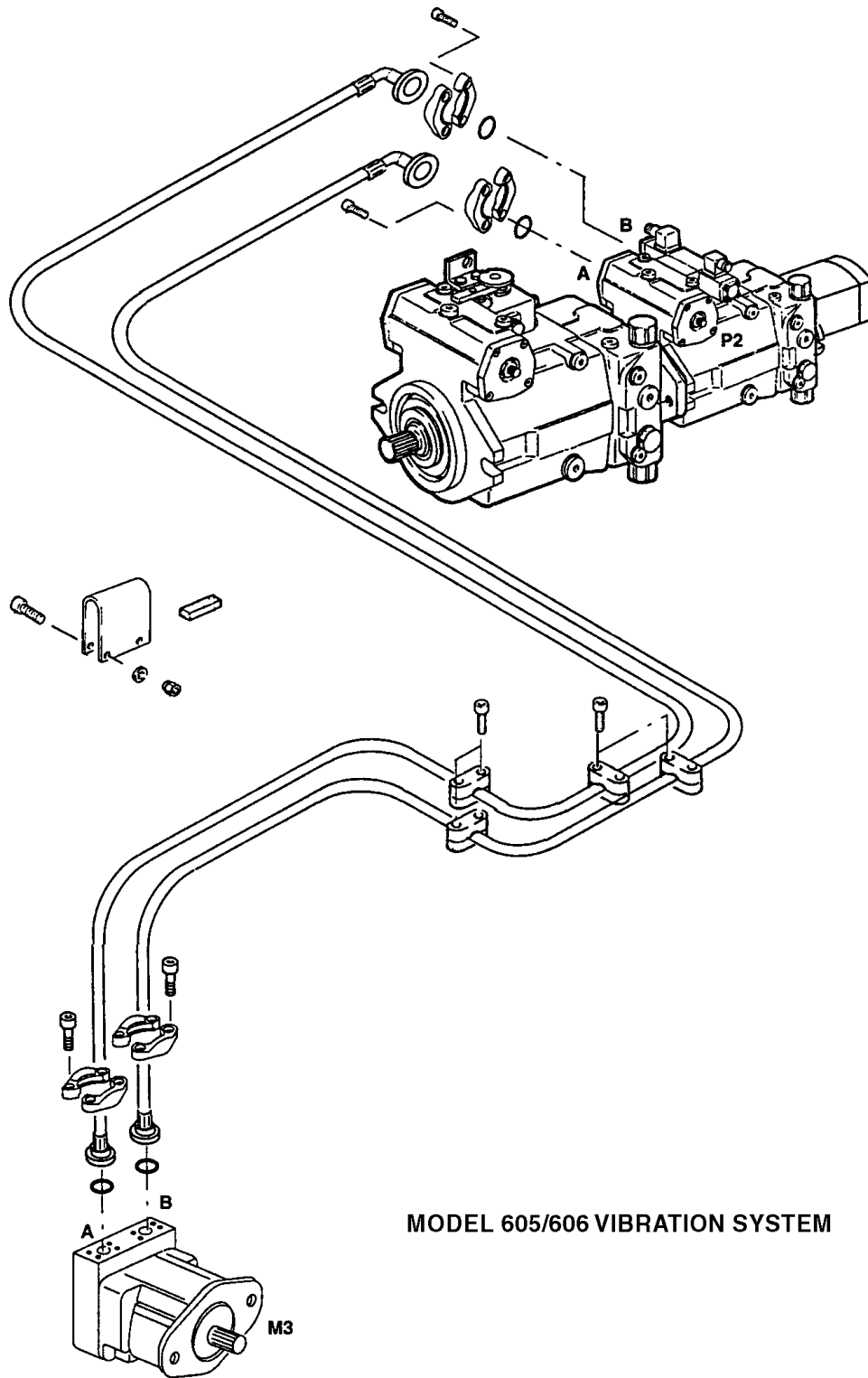




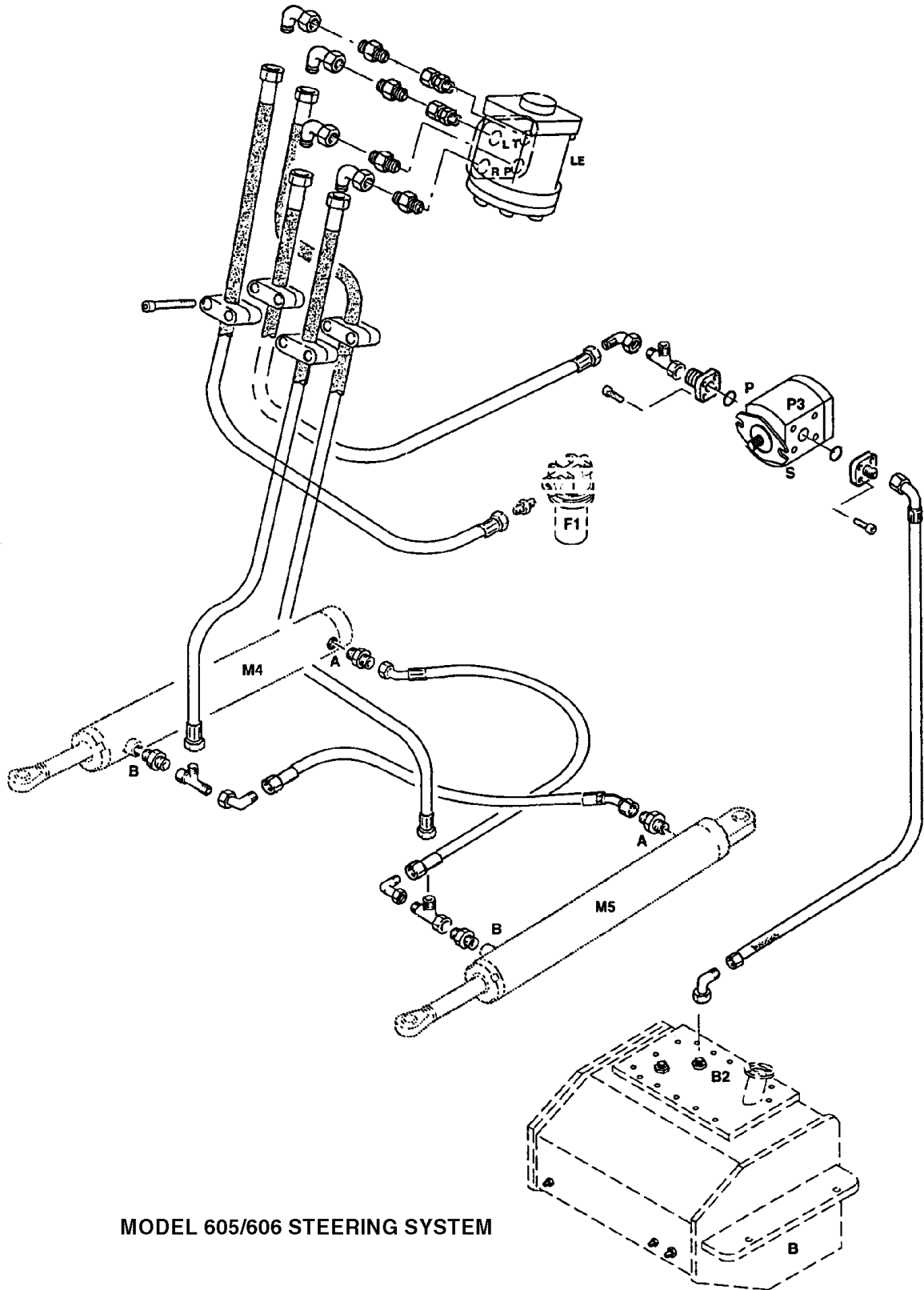
MODEL 605/606 HYD. DRAIN LINES



MODEL 405 PROPULSION SYSTEM



MODEL 605/606 VIBRATION SYSTEM



MODEL 605/606 STEERING SYSTEM

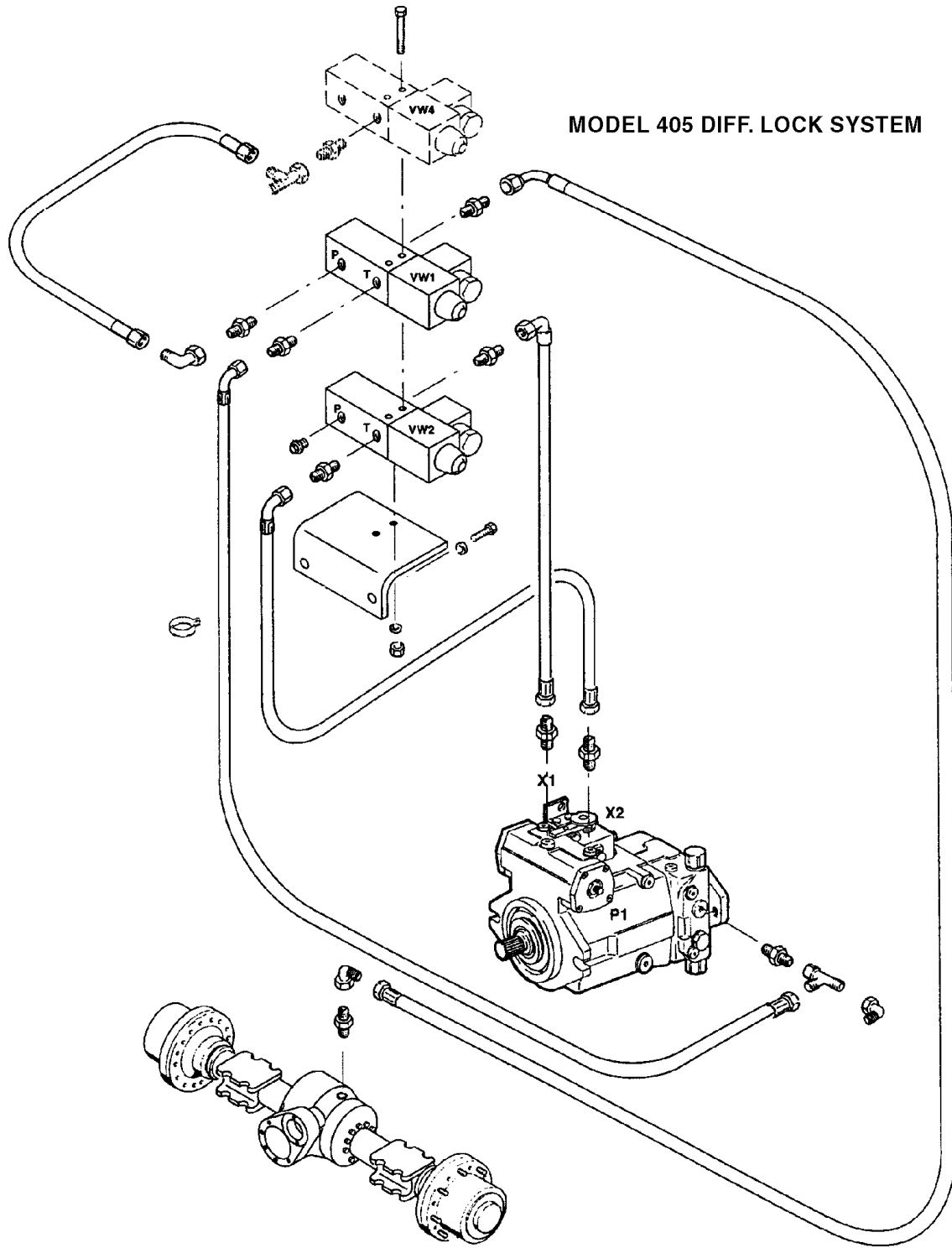
CLICK HERE TO **DOWNLOAD** THE COMPLETE MANUAL

- Thank you very much for reading the preview of the manual.
- You can download the complete manual from: www.heydownloads.com by clicking the link below



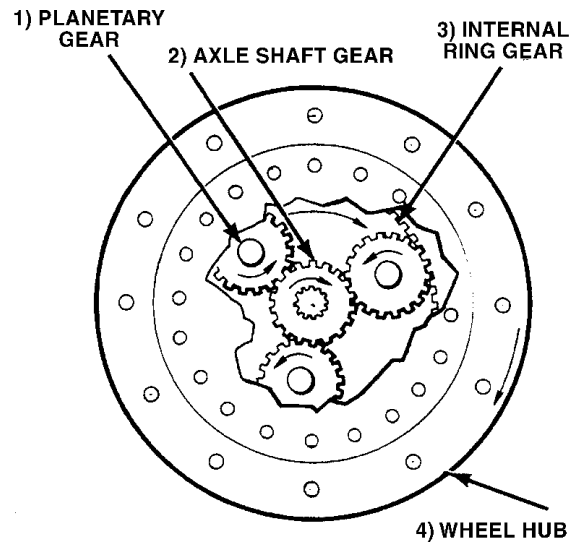
- Please note: If there is no response to CLICKING the link, please download this PDF first and then click on it.

CLICK HERE TO **DOWNLOAD** THE COMPLETE MANUAL



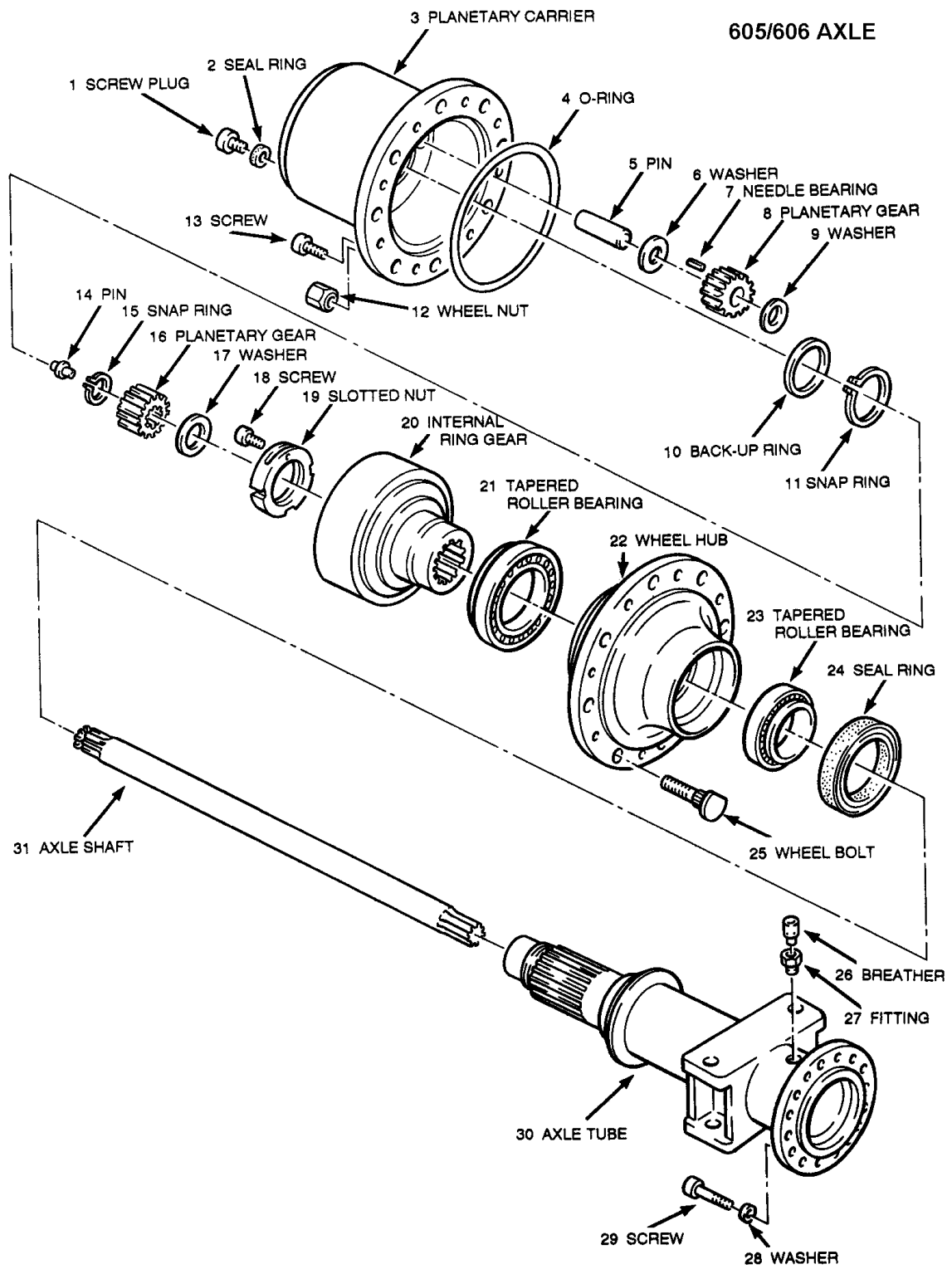
OPERATION

The axle drive motor is driven in a parallel flow path with the front drum motor. The output shaft of the axle drive motor is connected to the input shaft of the rear axle intermediate gear box. The intermediate gear box drives the differential through the differential pinion shaft. Torque is transferred via the axle shaft and axle shaft gear to the planetary gears.

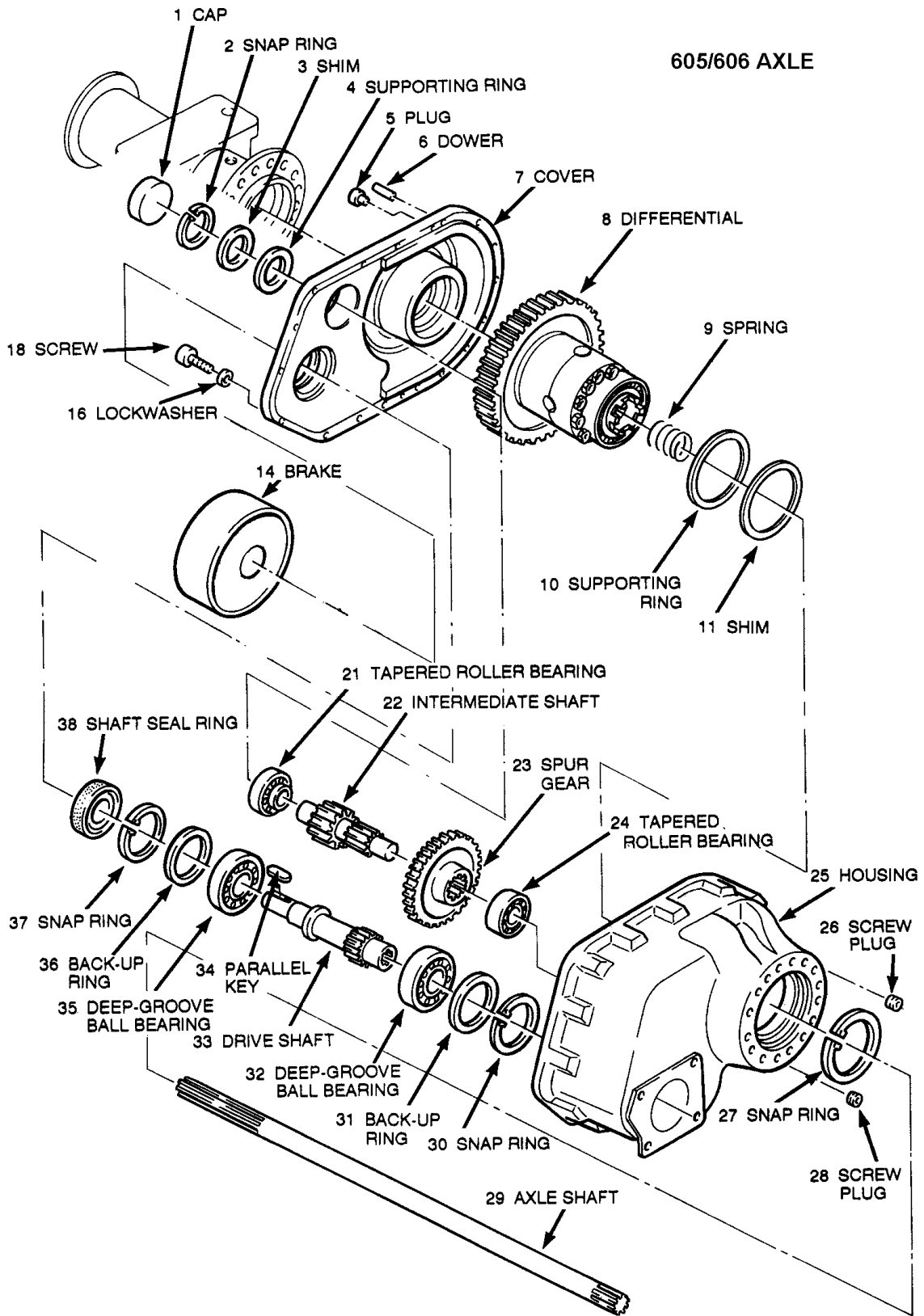


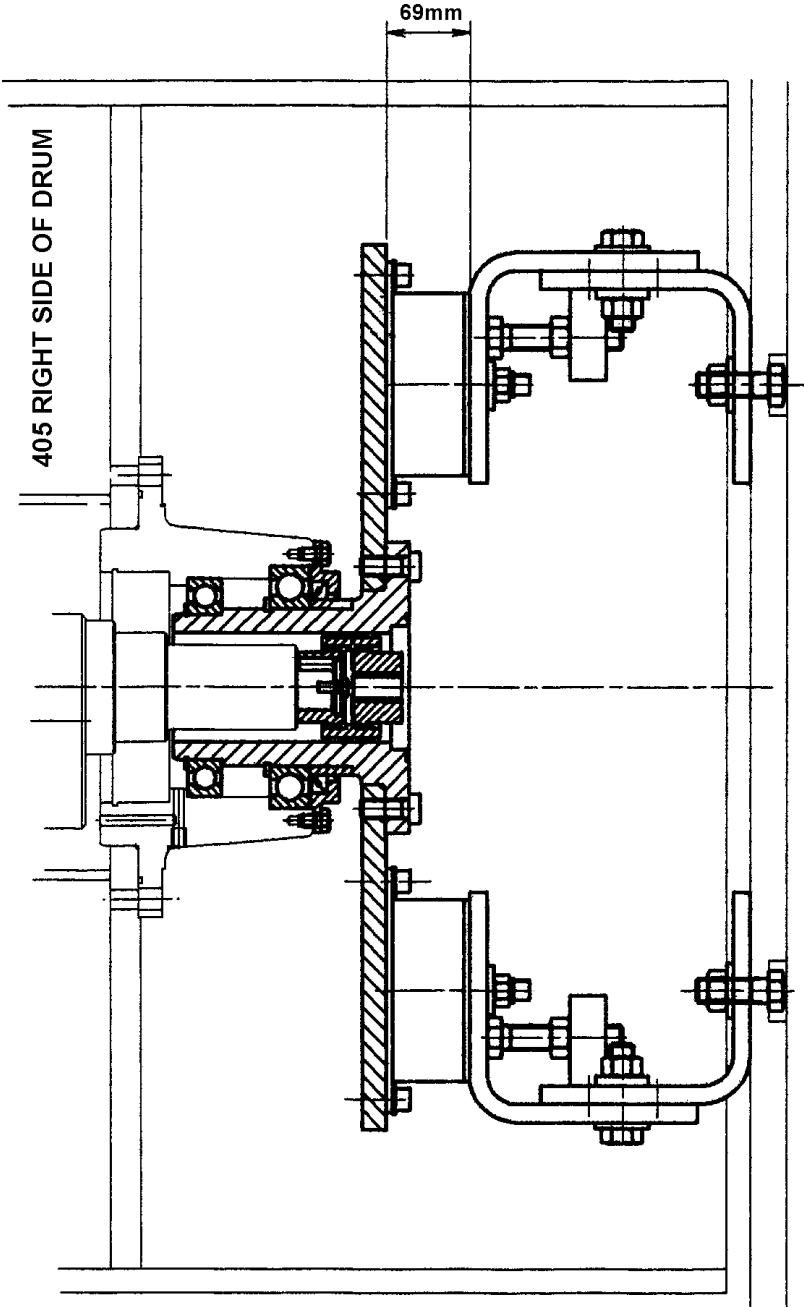
The three planetary gears turn in a fixed internal ring gear and drive the wheel hub.

The left hand axle tube is equipped with a differential lock mechanism. This mechanism is a spring applied and hydraulic pressure released device. As soon as the engine is started hydraulic charge pressure is ported to the differential lock cylinder to release the lock. The differential lock can be engaged by means of a switch on the instrument panel which shifts a valve to block the charge pressure and port the differential lock cylinder to tank. Once the hydraulic pressure is removed spring force is allowed to lock the differential. It should be noted that the differential will not lock if the machine is turning.



605/606 AXLE

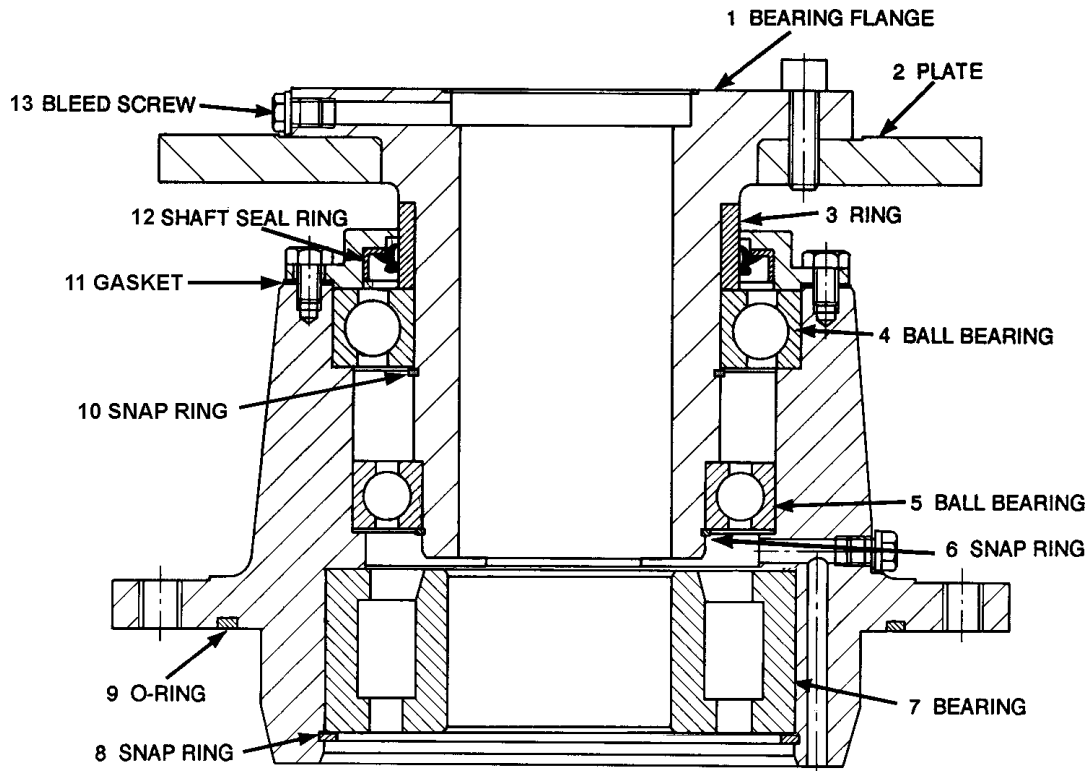




DRUM DRIVE BEARING ASSEMBLY

10. Add the proper amount of oil to the exciter housing. CLP DIN 51517/3 (Mobil Gear 627).

11. Pre-assemble the right side bearing assembly as shown in the following diagram.



12. Press the bearing (#7) into the bearing flange and install snap ring (#8).

13. Attach bearing flange (#1) to buffer plate (#2).

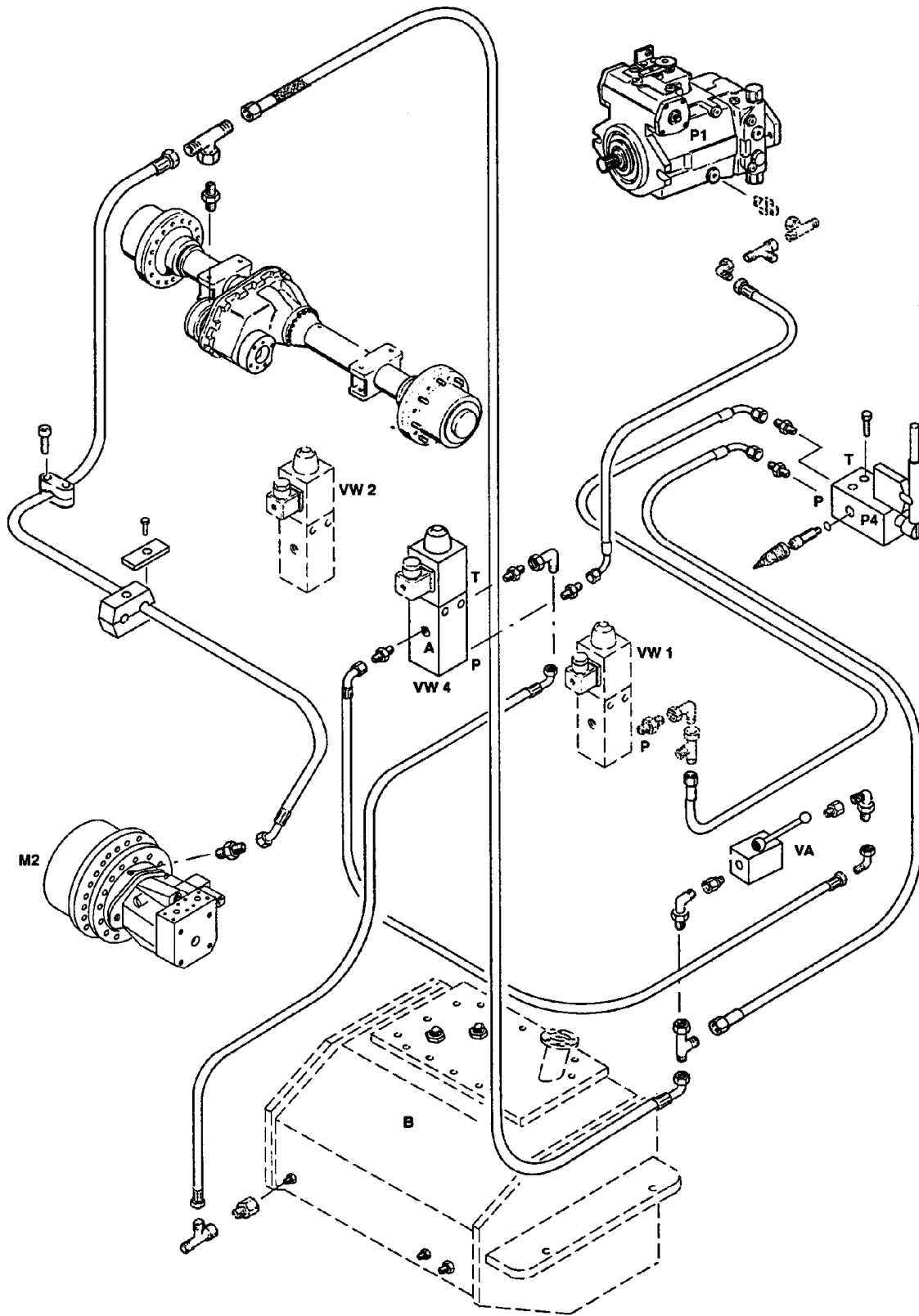
14. Install ring (#3) onto the flange shaft (#1).

15. Install shaft seal ring (#12) into the seal retainer and place the retainer over the flange shaft.

16. Press bearing (#4) onto the bearing flange shaft (#1) and install snap ring (#10).

17. Press bearing (#5) onto the bearing flange shaft (#1) and install snap ring (#6).

18. Install the assembled bearing flange shaft (#1) into the VIB. bearing housing using gasket (#11) and the six 10mm capscrews. Use Loctite 271 and torque to 32 ft.lbs. (44 Nm).

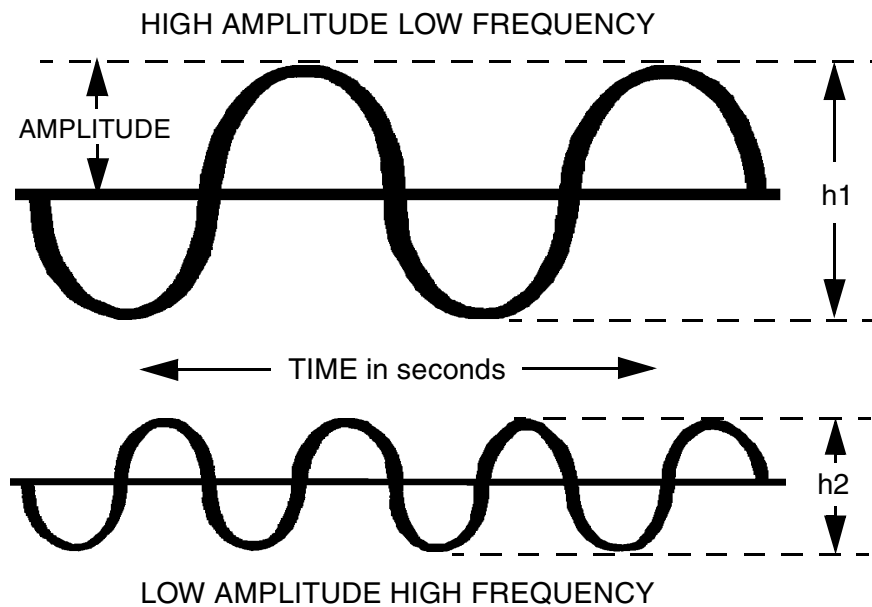


MODEL 605/606 PARKING BRAKE SYSTEM

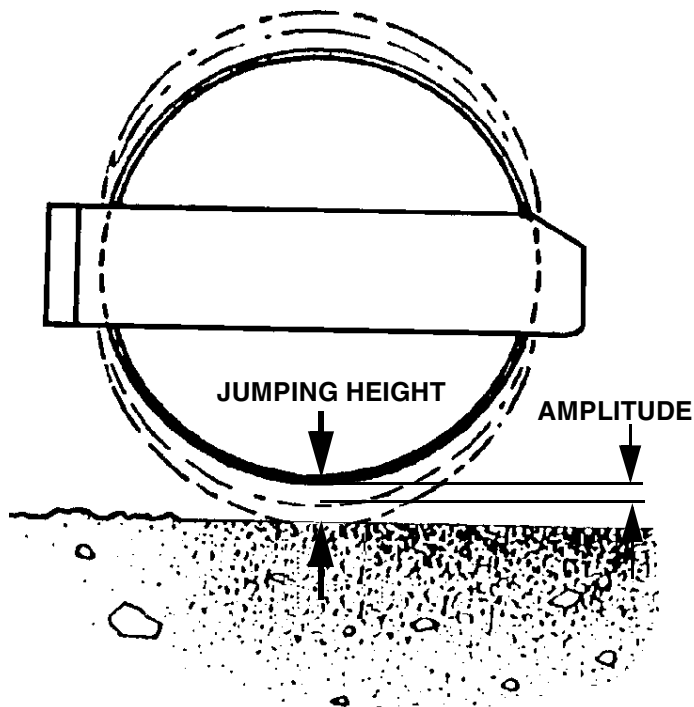
SECTION SEVEN

VIBRATION SYSTEM

VIBRATION AMPLITUDE

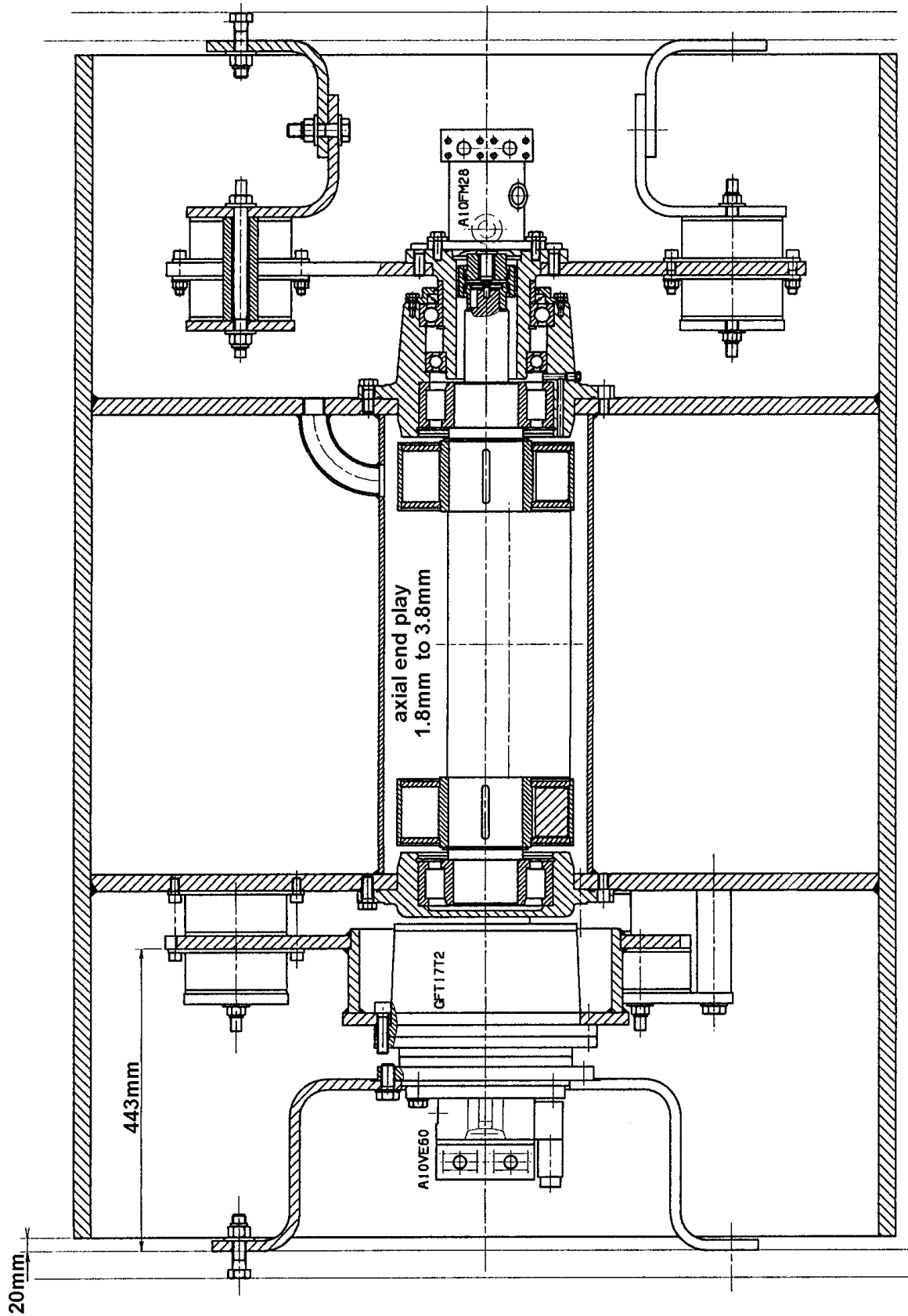


h1 and h2 above = Jumping Height
 1/2 of h1 or h2 = Amplitude

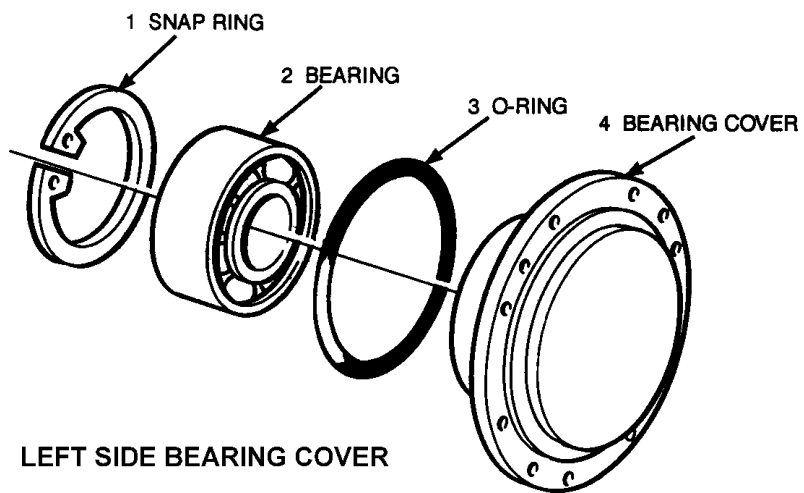
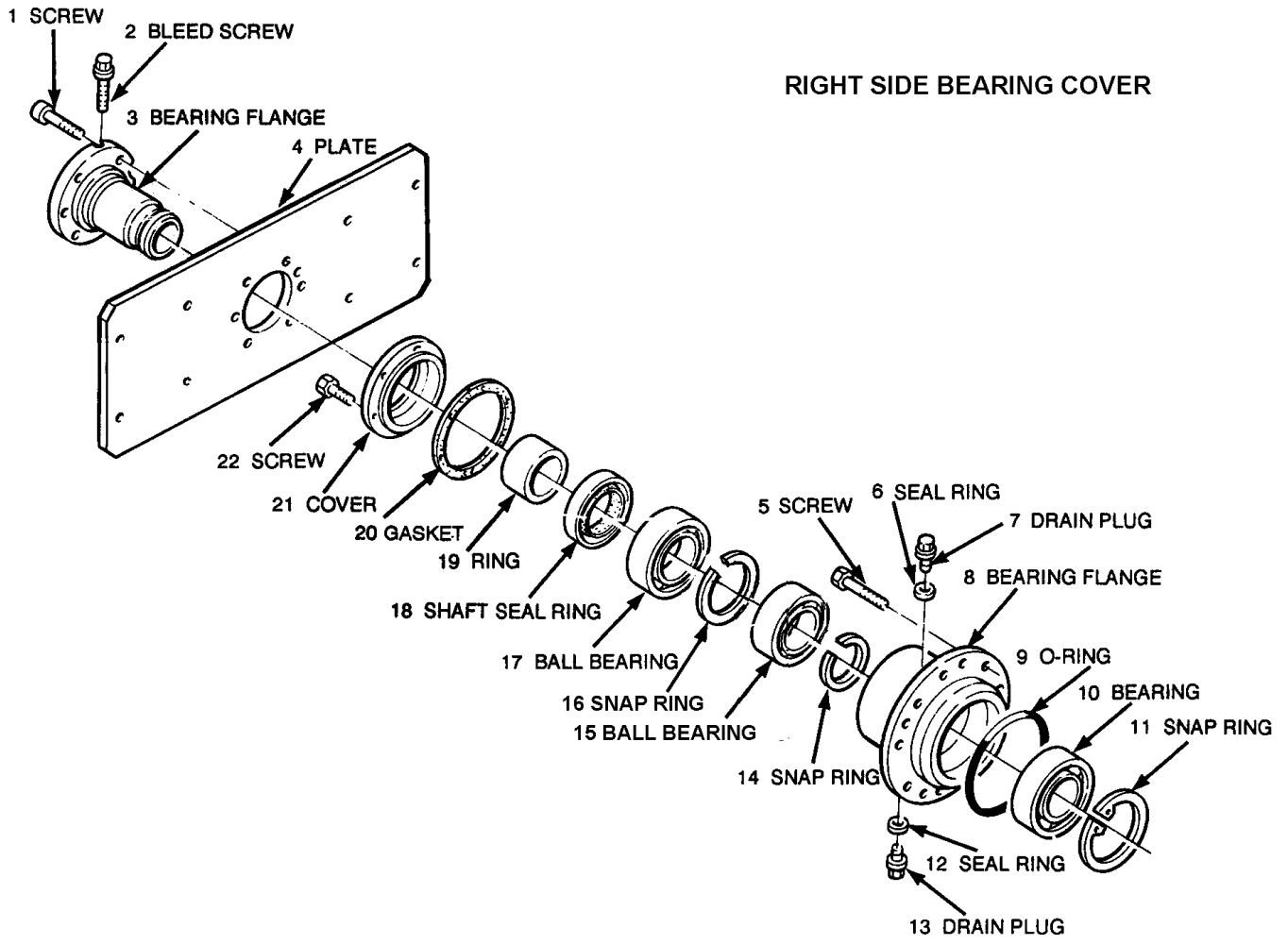


One half the vertical distance that the drum travels is called the amplitude. The amplitude for any given machine will vary depending on the soil conditions. The amplitude and the height the machine lifts itself off the ground will gradually increase as the soil becomes more dense or compacted.

605/606 DRUM DRAWING

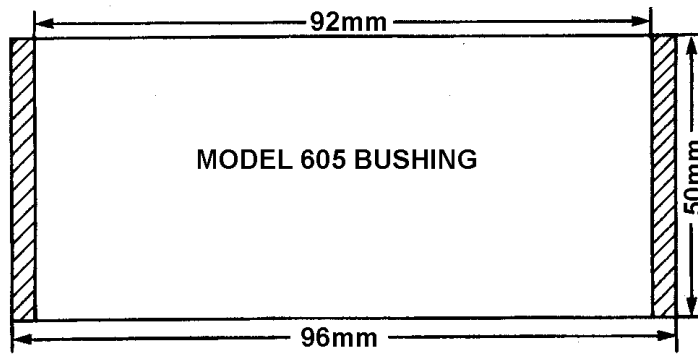
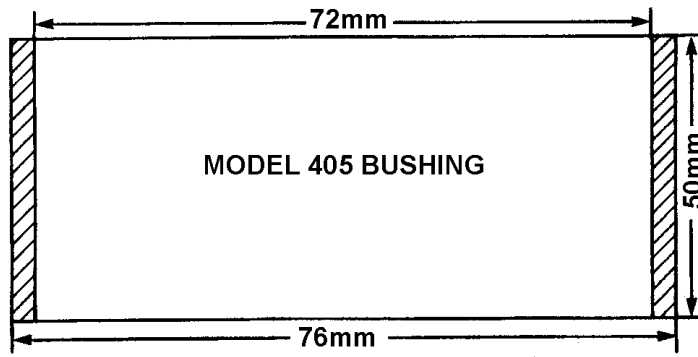


605/606 DRUM ASSEMBLY

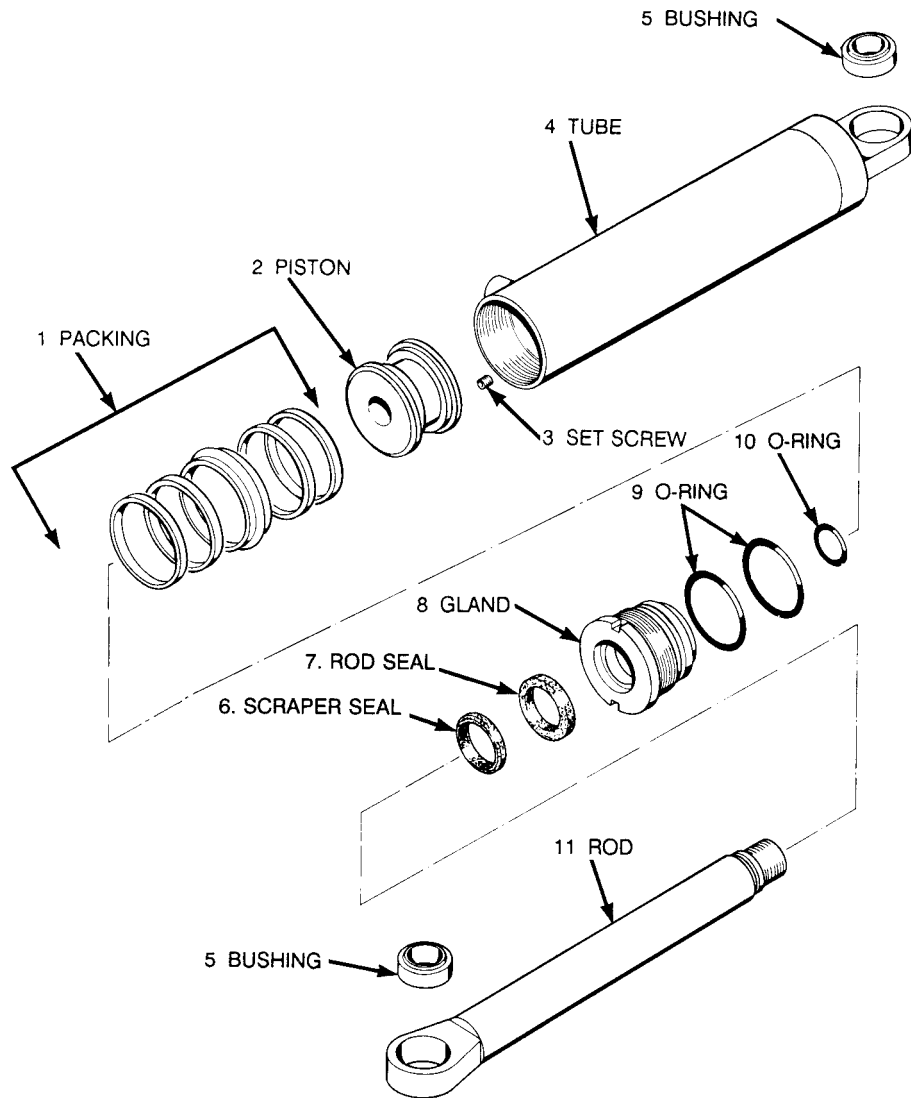


SPECIAL TOOLS

SPECIAL TOOLS
(made from mild steel)



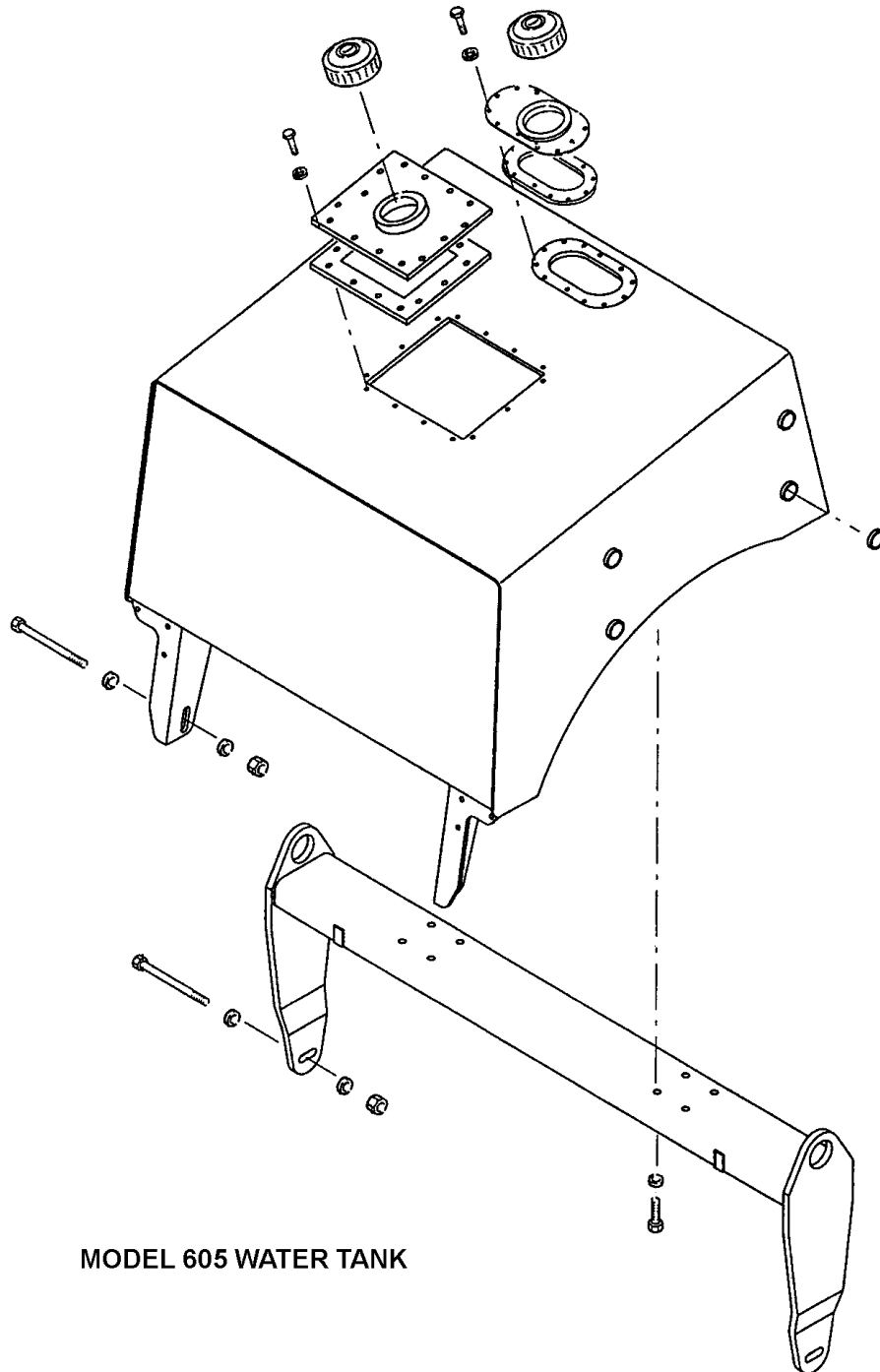
STEERING CYLINDER



SECTION TEN

ATTACHMENTS

605DA DUAL WATER TANK



MODEL 605 WATER TANK

CLICK HERE TO **DOWNLOAD** THE COMPLETE MANUAL

- Thank you very much for reading the preview of the manual.
- You can download the complete manual from: www.heydownloads.com by clicking the link below



- Please note: If there is no response to CLICKING the link, please download this PDF first and then click on it.

CLICK HERE TO **DOWNLOAD** THE COMPLETE MANUAL