

PARTS AND OPERATION MANUAL



VR- 36HA VIBRATORY ROLLER

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MULTIQUIP INC.

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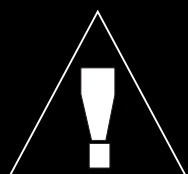
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PARTS DEPARTMENT:

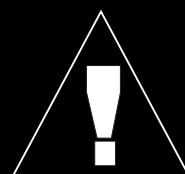
800-427-1244
FAX: 800-672-7877

SERVICE DEPARTMENT/TECHNICAL ASSISTANCE:

800-478-1244
FAX: 310-631-5032



WARNING



CALIFORNIA — Proposition 65 Warning

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

HERE'S HOW TO GET HELP

*PLEASE HAVE THE MODEL AND SERIAL NUMBER
ON-HAND WHEN CALLING*

PARTS DEPARTMENT

800-427-1244 or 310-537-3700

FAX: 800-672-7877 or 310-637-3284

SERVICE DEPARTMENT/TECHNICAL ASSISTANCE

800-478-1244 or 310-537-3700

FAX: 310- 537-4259

WARRANTY DEPARTMENT

888-661-4279, or 310-661-4279

FAX: 310- 537-1173

MAIN

800-421-1244 or 310-537-3700

FAX: 310-537-3927

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NOTE: Specification and part number
are subject to change without notice.

PARTS ORDERING PROCEDURES

- Dealer account number
- Dealer name and address
- Shipping address (if different than billing address)
- Return fax number
- Applicable model number
- Quantity, part number and description of each part
- Specify preferred method of shipment:
 - UPS Ground
 - UPS Second Day or Third Day*
 - UPS Next Day*
 - Federal Express Priority One (please provide us with your Federal Express account number)*
 - Airborne Express*
 - Truck or parcel post

**Normally shipped the same day the order is received, if prior to 2PM west coast time.*

Earn Extra Discounts when you order by FAX!

All parts orders which include complete part numbers and are received by fax qualify for the following extra discounts:

<u>Number of line items ordered</u>	<u>Additional Discount</u>
1-9 items	3%
10+ items**	5%

Get special freight allowances when you order 10 or more line items via FAX!**

- UPS Ground Service at no charge for freight
- PS Third Day Service at one-half of actual freight cost

No other allowances on freight shipped by any other carrier.

**Common nuts, bolts and washers (all items under \$1.00 list price) do not count towards the 10+ line items.

DISCOUNTS ARE SUBJECT TO CHANGE

Fax order discount and UPS special programs revised June 1, 1995

**Extra Fax Discount
for Domestic USA
Dealers Only**

**Up to 5%
extra savings!**

**UPS
Special**
For faxed orders only

**Now! Direct TOLL-FREE access
to our Parts Department!**

Toll-free nationwide:

800-421-1244

Toll-free FAX:

800/6-PARTS-7 • 800-672-7877

RULES FOR SAFETY OPERATION

Read and understand this manual before attempting to operate the machine.

The VR-36H roller has been designed for asphalt application and compaction of granular soils used in site preparation. Use the machine only for the purpose intended and by experienced personnel who understand this operating manual and all safety decals.

Keep this manual with the machine and refer to it frequently.



DANGER! Indicates extreme care should be taken to prevent personal injury during operation, inspection, maintenance and service.

CAUTION! Indicates when special observation is needed during operation and maintenance of this machine.

SAFETY RULES

- Completely familiarize yourself with the operation and safety of this machine **BEFORE USE.**
- DO NOT remove or modify any parts of the machine. Doing so may result in the warranty becoming invalid.
- DO NOT use the machine for any purpose other than that which it is intended.
- Always wear proper safety equipment:
 - hard hat
 - safety glasses
 - work clothes
 - safety shoes
 - protective gloves
 - respirator in dusty environments



DANGER! Stay Clear of turning points of machine. This is a pinch point. Never place yourself or allow anyone else to stand near the unit while the engine is running.

- Start the unit only when seated in the operator's position. (see starting instructions)

- Whenever possible, always stop the unit on a stable, level and hard surface. If the machine must be stopped on an incline; before leaving the operator's seat, secure the parking brake and stop the engine; **then chock both the front and rear drums securely.** Always remove the ignition key to prevent unauthorized personnel from operating the machine.



DANGER! Exhaust gasses are extremely dangerous and cause death. Operate the machine only in well ventilated areas.

- If malfunction occurs in the travel lever mechanism, speed and direction will be impossible to control. Immediately stop the
- In the event of hydraulic hose or pipe failure, promptly return the travel lever to the "neutral" position, stop the engine and set the parking brake.
- If the steering system operates improperly, immediately stop the engine and apply the parking brake.
- When malfunctions occur, always remove the ignition key and place a "DO NOT OPERATE" sign in the operator's seat.

INSPECTION PRIOR TO STARTING



DANGER! Perform inspections only with the machine parked on a stable, level and hard surface. Never inspect the unit with the engine running. Inspections should only be performed by trained and qualified personnel.

CAUTION! Perform the following checks before each operation of the machine and only with the engine STOPPED!

- Check hydraulic oil, engine oil, and fuel levels and for leakage.
- Check all hydraulic components and fittings for wear.
- Insure smooth movement of the travel lever, throttle and parking brake.
- Check all fasteners (bolts & nuts) for tightness.

RULES FOR SAFETY OPERATION

STARTING THE ENGINE



DANGER! Always keep the operator's area clean and free from debris, dirt, oil, grease, mud, asphalt or anything else that may become a hazard to free movement of the operator.

- Make sure no unauthorized personnel are near the machine before attempting to start the unit.



DANGER! Start and operate the unit only from the operator's position.

- Always use seat belts when provided.
- Adjust the seat to obtain the most comfortable position.
- Place the travel lever in the "neutral" position **BEFORE** attempting to start the unit.
- Make sure that the "vibrator" switch is in the "OFF" position.
- Pull the "choke" knob to full choke (see engine operating manual).
- Turn the key to the start position to the right of the "ON" position. (The ignition switch is spring loaded to prevent the starter from being constantly engaged.)
- As soon as the engine has started, release the ignition key.
- Adjust the choke as required until the engine runs smoothly.

CAUTION! Do not operate the starter switch when the engine running.

INSPECTION (After Start-Up)

- Run the engine at an idle 3 to 5 minutes. In colder climates, longer warm periods may be necessary. Sufficiently warming the engine allows all lubricants to reach the proper operating temperature.

CAUTION! Do not leave the operator's position while the engine is running.

Test the steering for proper operation - left to right.



DANGER! Do not attempt to check the steering function if anyone is near the unit or in the way of the front or rear drums.

- While seated in the operator's seat and with the engine running, check that the hydraulic oil level indicator registers in the "operation" zone.
- Check for abnormal noise, odor, exhaust color or other sign that may be out of the ordinary.



ROPS — Roll Over Protection System

It is strongly suggested that ROPS and seat belts be installed on this machine to protect the operator against the unlikely event of a roll-over.

The ROPS are sold as a optional accessory item and may be ordered by calling:

Multiquip Sales • 800-421-1244 - P/N VR36ROPS

The following is a few examples of hazardous conditions of when ROPS must be used:

- 1) When working on slopes or near open trenches
- 2) Hollow spaces or rocks that might be below the surface.
- 3) Sharp steering movements.
- 4) Surfaces that may be slippery or objects in the roller path.

OPERATION

By moving the travel lever forward or backward, the machine will travel in either forward or reverse. The speed in which movement of this lever is made is directly related to the amount of pressure that is applied to the travel lever in each direction. Travel speed is infinitely variable from 0 to 4.8 mph.

DANGER! Before operating the roller, make sure that personnel and obstacles are free from the roller's path. Serious injury or death can result!

CAUTION! Allow the roller to come to a complete stop before changing the direction of travel. Changing directions before the roller comes to a complete stop will result in excessive force being applied to the transmission and drive system which will reduce overall service life.

COMPACTION

In order to apply vibration to the surface, the vibrator switch must be in the "ON" position. If the vibration appears to be weak or slow, allow the machine to warm-up thoroughly, and check the hydraulic oil level. Add hydraulic oil if necessary.

CAUTION! Do not allow the roller to operate on cured concrete or other hard surface while the vibrator is "ON".

WATER SYSTEM

The built-in water sprinkling system is designed to apply sufficient quantities of water to the surface of the rollers. This method prevents fresh asphalt from sticking to the drums while the rolling operation is taking place.

The water system is fully adjustable from the operator's position by adjusting the two water valves. The front valve controls the water supply to the front drum, and the rear valve controls water to the rear drum.

Each roller is equipped with drum scrapers that are lined with cocoa mats. These mats must be wetted before operation either by the water supply system or other water source.

REFUELING

DANGER! Do not attempt to refuel the engine while running! Spilled gasoline can cause fire or explosion and can cause serious injury or even death! Do not smoke or allow sparks or open flame near the machine at any time - especially when refueling. Clean the engine of any spilled fuel BEFORE re-starting.

PARKING BRAKE

CAUTION! Always apply the parking brake when the roller is stopped. Do not operate the machine with the parking brake in the "SET" position. Severe brake wear can result.

ENGINE SHUT-DOWN

DANGER! Do not leave the operator's seat while the engine is running.

CAUTION! Should stopping the unit be unavoidable on a slope or grade, stop the engine, set the parking brake and place chocks in the front and rear of each drum.

- Place the travel lever in the "neutral" position.
- Return the throttle lever to the idle position.
- Turn the vibration switch to the "OFF" position.
- Set the parking brake
- Allow the engine to idle for 3 to 5 minutes prior to stopping to allow proper cool-down period.
- Stop the engine and remove the ignition key.

LOADING AND TRANSPORTING

DANGER! ALWAYS LOAD AND UNLOAD THE ROLLER ON LEVEL, HARD GROUND OR PAVEMENT. Serious injury or death can result from improper loading, lifting or unloading. Use caution!

- When driving the roller onto a transporting vehicle or trailer
- Use ramps or other suitable material of sufficient strength to support the roller.
- Remove mud, oil, ice, snow or any other slippery materials from the ramps and bed of the vehicle to avoid accidents.
- After loading, apply the parking brake, lock the frame with the locking bar that is provided.
- Use chain and binders or other suitable means to firmly secure the load before attempting to move the vehicle.
- Lifting the roller onto a transporting vehicle or trailer
- Only use the lifting points for the roller that are clearly marked as "lifting point".

DANGER! Do not allow personnel under or near any suspended machine. Serious injury or death may result.

- Remove mud, oil, ice, snow or any other slippery materials from the ramps and bed of the vehicle to avoid accidents.
- After loading, apply the parking brake, lock the frame with the locking bar that is provided.
- Use chain and binders or other suitable means to firmly secure the load before attempting to move the vehicle.

BATTERY INFORMATION

DANGER! Lead acid batteries contain sulfuric acid which will damage eyes, skin and clothing upon contact. Always wear proper safety eye protection, rubber gloves and other safety clothing. Should acid contact the eyes, flush immediately with clean water and get prompt medical attention. If acid comes in contact with skin, wash immediately with clean water and get prompt medical attention.

DANGER! Avoid fire and open flame near batteries. Battery acids are extremely flammable and explosion can result.

- Clean and inspect battery terminals regularly.
- Non-use of machine will result in reduced battery charge level and will damage the plates which reduces the battery life.
- Keep battery caps tightly fastened at all times.
- Add distilled water as needed
- Proper sequence must be observed during installation and removal of batteries:
- Removal - Disconnect the negative (ground) terminal first, then the positive terminal.
- Installation - Install the Positive terminal first, then the negative (ground) terminal.

DANGER! Never allow the negative and positive cables to come in contact with each other. Serious injury could result.

SERVICE AND INSPECTION

Performing all periodic inspections and service work on a timely basis will result in increased performance, productivity and reduced maintenance costs.

When the roller is used in severe, unusually dusty or dirty, or extremely humid or hot environments, it will be necessary to perform routine service and inspections more frequently.

DANGER! Always operate the machine in a well ventilated area. Exhaust gasses are dangerous and cause injury or death. Never operate this or any other machine within an enclosed space.

SERVICE INSTRUCTIONS CHART

Engine Speed	3500 RPM
Exciter Speed	3900 VPM
Exciter Lubrication	Type SAE 30 16 oz. (475 ml) Every 1100 hours
Grease	Type Alvania #2 or equiv. Articulated joint (4 fittings) Static drum bearing (1 fitting) Every 75 hours
Hydraulic Oil	Type ISO46 (Anti-Wear) 5.7 gallons (21.6 liters) Every 1100 hours
Hydraulic Filter	Change every 500 hours
Engine Lubrication/Service	Refer to Engine Owners Manual

CAUTION! Running the machine without sufficient hydraulic oil will result in extreme damage to the unit's hydraulic system.

VR-36HA — EXPLANATION OF CODE IN REMARKS COLUMN

How to read the marks and remarks used in this parts book.

Section 1: Items Found In the “Remarks” Column

Serial Numbers-Where indicated, this indicates a serial number range (inclusive) where a particular part is used.

Model Number-Where indicated, this shows that the corresponding part is utilized only with this specific model number or model number variant.

Section 2: Items Found In the “Remarks” Column

Serial Numbers-Where indicated, this indicates a serial number range (inclusive) where a particular part is used.

Model Number-Where indicated, this shows that the corresponding part is utilized only with this specific model number or model number variant.

Section 3: Items Found In the “Items Number” Column

All parts with same symbol in the number column, *, #, +, %, or ■, belong to the same assembly or kit.

Note: If more than one of the same reference number is listed, the last one listed indicates newest (or latest) part available.

NOTE

If more than one of the same reference number is listed, the last one listed indicates newest (or latest) part available.

NOTE

The contents of this catalog are subject to change without notice.

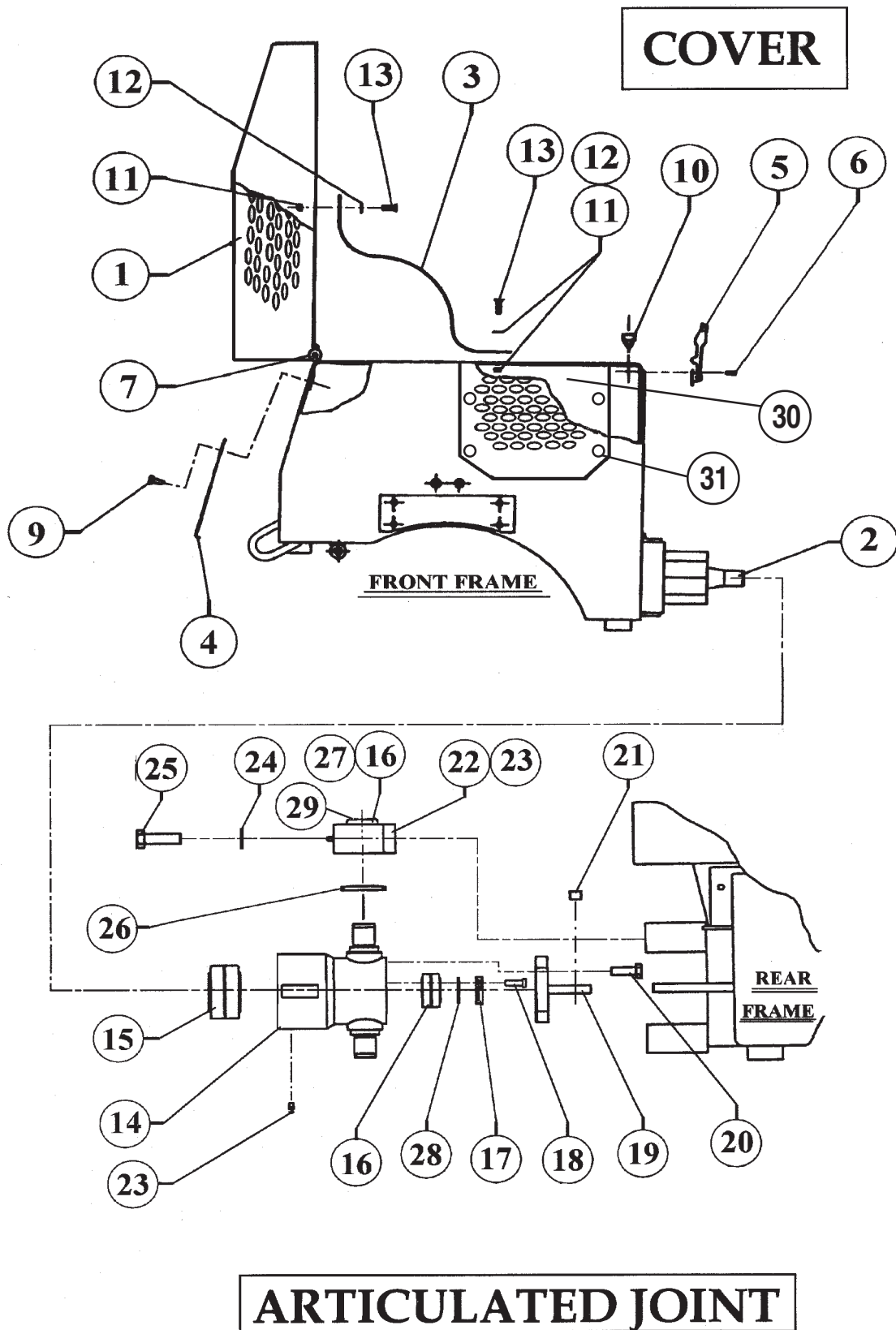
VR36HA

1 Unit

Qty.	P/N	Description
2	508667	HYDRAULIC FILTER CART.
3	506141	RUBBER SHOCK MOUNTS
6	508433	RUBBER SHOCK MOUNTS
1	506097	FWD./REV. CABLE
1	510229	ENG THROTTLE CABLE
1	506239	ENGINE CHOKE CABLE
2	503735	FLANGE BEARING
4	352431090	INLINE FUEL FILTER
1	9807956846	SPARK PLUG
1	17010ZJ1000	ELEMENT SET
1	506267K	KEY

NOTE

Part numbers on this Suggested Spare Parts List may supercede/replace the P/N shown in the text pages of this book.



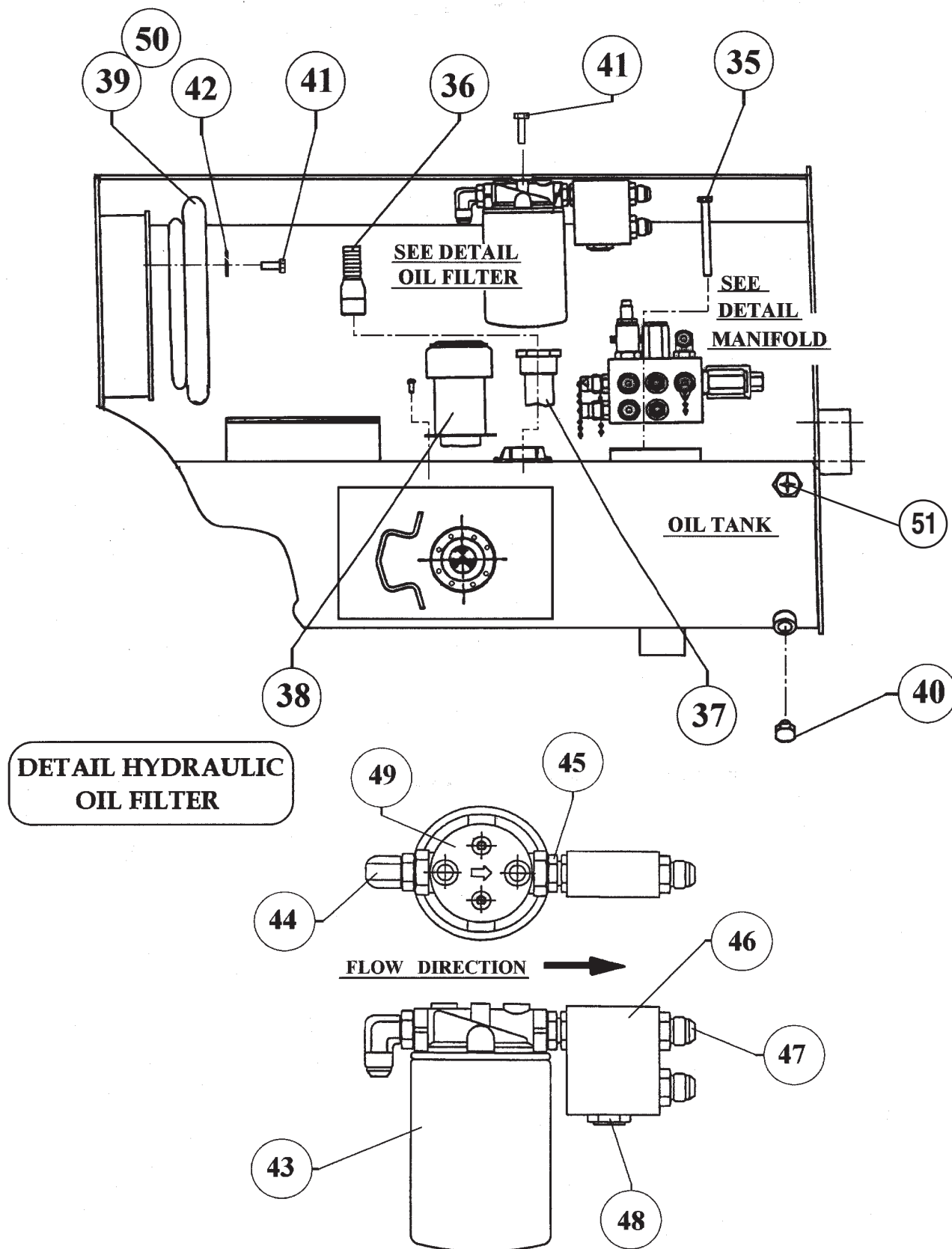
VR-36HA — ENGINE COVER & ARTICULATED JOINT

MODEL VR-36H
ENGINE COVER & ARTICULATED JOINT

<u>NO</u>	<u>PART NO</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>SERIAL NO.</u>
1	506100	COVER	1	S/N 960601 TO 970630
1	510074	COVER	1	S/N 970701 & UP
2	506103	ARTICULATED SHAFT	1	
3	506095	CABLE	1	
4	506101	FRONT COVER	1	
5	504544	LATCH ASSEMBLY	2	
7	491687	KING PIN	2	
9	506158	HEX. HEAD SCREWS 5/16" NC x 3/4" G5	7	
10	490937	RUBBER BUMPER	2	
11	492582	LOCK NUT 5/16" NC	2	
12	492597	FLAT WASHER 5/16"	2	
13	506176	FLAT HEAD SOCKET S. 5/16 NC x 1" G5	2	
14	506102	ARTICULATED BODY	1	
15	506164	BEARING	1	
16	506165	BEARING	3	
17	506104	RETAINER	1	
18	492269	SOCKET HEAD SCREW 5/16" NF x 3/4" G5	3	
19	506105	PIVOT	1	
20	506172	HEX. HEAD SCREW 1/2" NC x 1, 3/8" G5	4	
21	506124	BUSHING	2	
22	506107	PILLOW BLOCK	2	
23	491705	GREASE FITTING 1/4" NF	4	
24	506109	FLAT WASHER	4	
25	503982	HEX. HEAD SCREW 5/8" NC x 2" G5	4	
26	506160	SHAFT SEAL	2	
27	506110	PLUG	2	
28	506166	SHIM	3	
29	506110	DUST CAP	2	
30	510292	ACCESS COVER	1	S/N 970701 & UP
31	506176	BOLTS	4	S/N 970701 & UP

WHEN ORDERING PARTS, ALWAYS GIVE MODEL NUMBER AND SERIAL NUMBER OF UNIT.

VR-36HA — HYDRAULIC OIL FILTERS



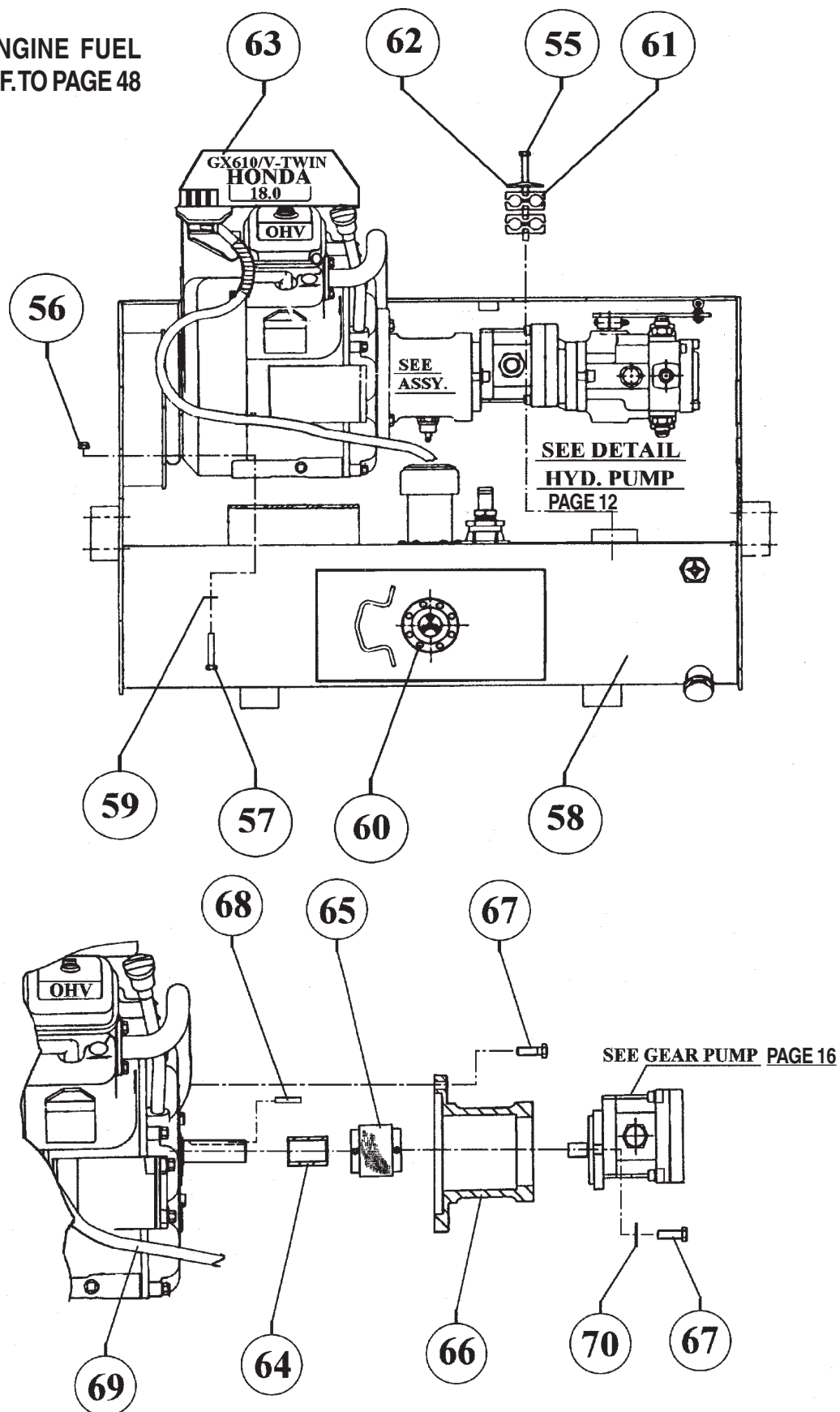
VR-36HA — HYDRAULIC OIL FILTERS

MODEL VR-36H
HYDRAULIC OIL FILTER

<u>NO</u>	<u>PART NO</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>SERIAL NO.</u>
35	508814	HEX. HEAD SCREW 5/16" NC x 3, 1/4" G5	2	
36	506218	FITTING INLET	1	
37	506221	SUCTION FILTER	1	
38	507278	CAP	1	
39	508287	SEAL - AIR INTAKE	1	
40	506205	PLUG W/O-RING	1	
41	492356	HEX. HEAD SCREW 1/4" NC x 3/4" G5	5	
42	492622	LOCK WASHER	3	
43	508667	OIL FILTER, HYDRAULIC	1	
44	506199	FITTING ELBOW	1	
45	506204	FITTING	1	
46	506244	MANIFOLD BLOCK	1	
47	506193	ADAPTER	2	
48	508670	CHECK VALVE	1	
49	508664	FILTER ADAPTOR	1	
50	508287	SEAL INSIDE BODY	1	
51	490181	SIGHT GLASS	1	

WHEN ORDERING PARTS, ALWAYS GIVE MODEL NUMBER AND SERIAL NUMBER OF UNIT.

NOTE: ENGINE FUEL
PUMP, REF. TO PAGE 48

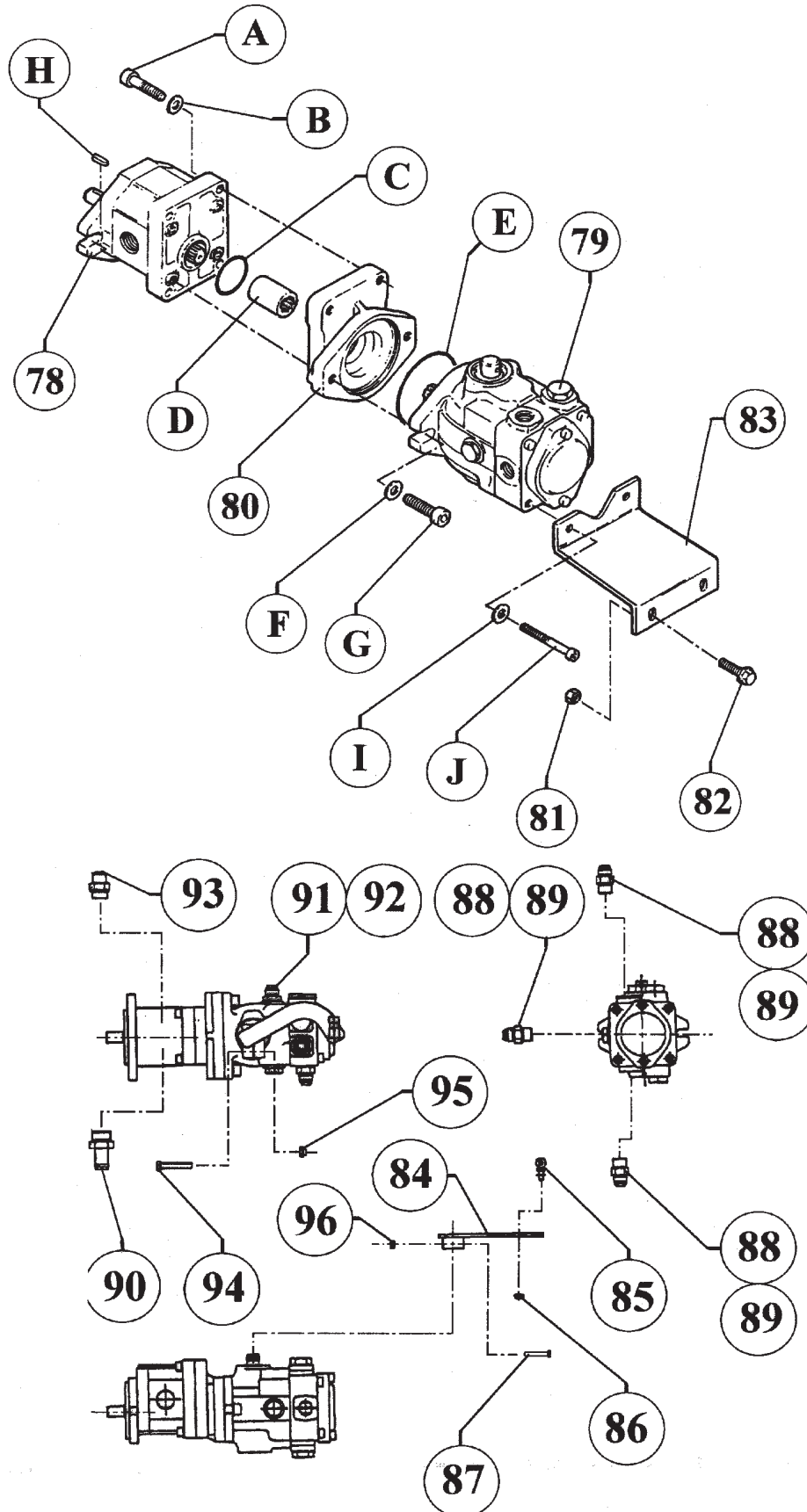


VR-36HA — ENGINE COUPLER

MODEL VR-36H ENGINE COUPLER

<u>NO</u>	<u>PART NO</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>SERIAL NO.</u>
55	492371	HEX. HEAD SCREW 5/16" NC x 3" G5	1	
56	492583	LOCK NUT 3/8" NC	4	
57	492379	HEX. HEAD SCREW 3/8" NC x 2" G5	4	
58	505891	FRONT FRAME	1	
59	492598	FLAT WASHER	8	
60	506159	SOCKET HEAD SCREWS 1/2" NC x 1-3/8" G	8	
61	505976	HOSE RETAINER	2	
62	506185	SUPPORT PLATE	1	
63	508350	ENGINE HONDA 18 HP. GX610 QZB	1	
64	506234	SPACER	1	
65	506235	COUPLING	1	
66	506236	ADAPTER	1	
67	492376	HEX. HEAD SCREW 3/8" NC x 1-1/4" G5	6	
68	500569	SQUARE KEY 1/4" x 1 1/4"	1	
69	506240	FUEL HOSE	3	
70	508346	LOCK WASHER SPECIAL	2	

WHEN ORDERING PARTS, ALWAYS GIVE MODEL NUMBER AND SERIAL NUMBER OF UNIT.



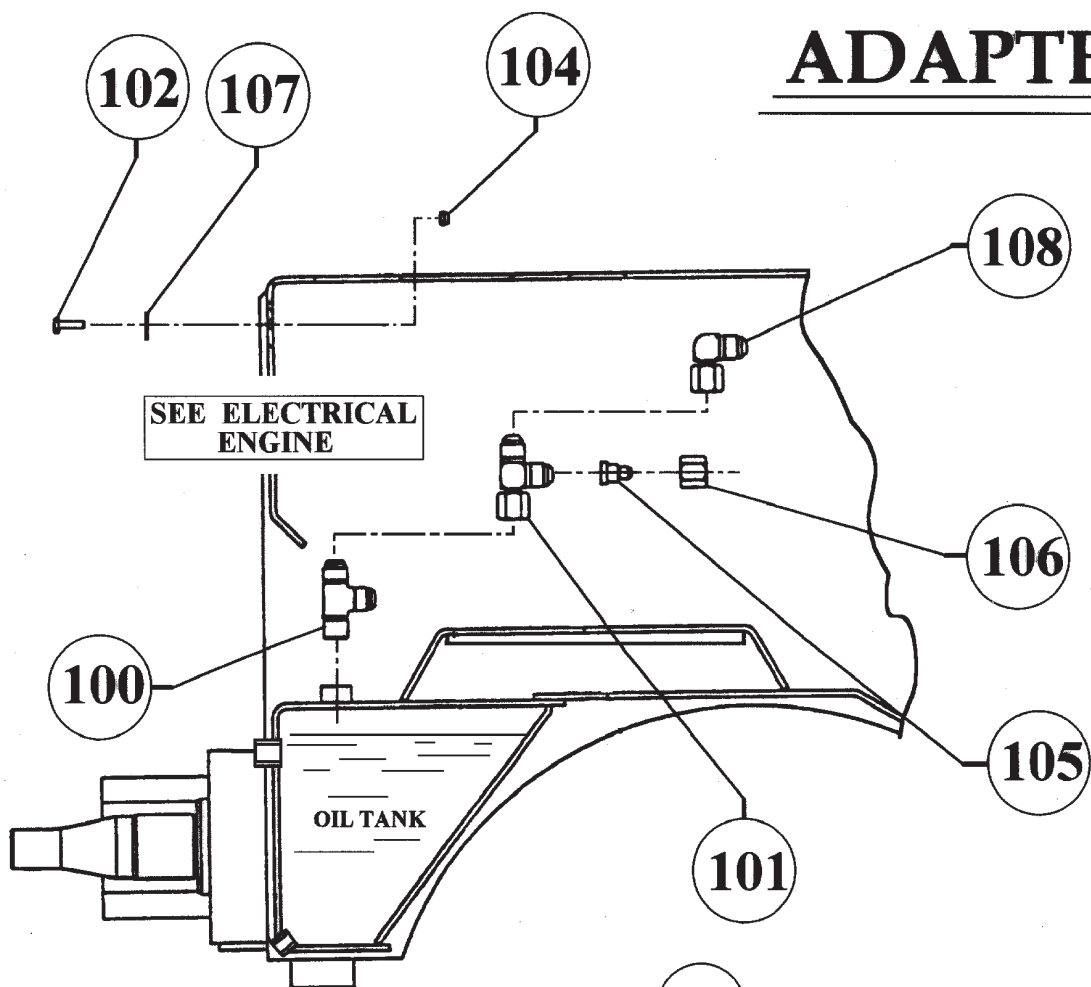
VR-36HA — HYDRAULIC DRIVE PUMPS

MODEL VR-36H HYDRAULIC DRIVE PUMPS

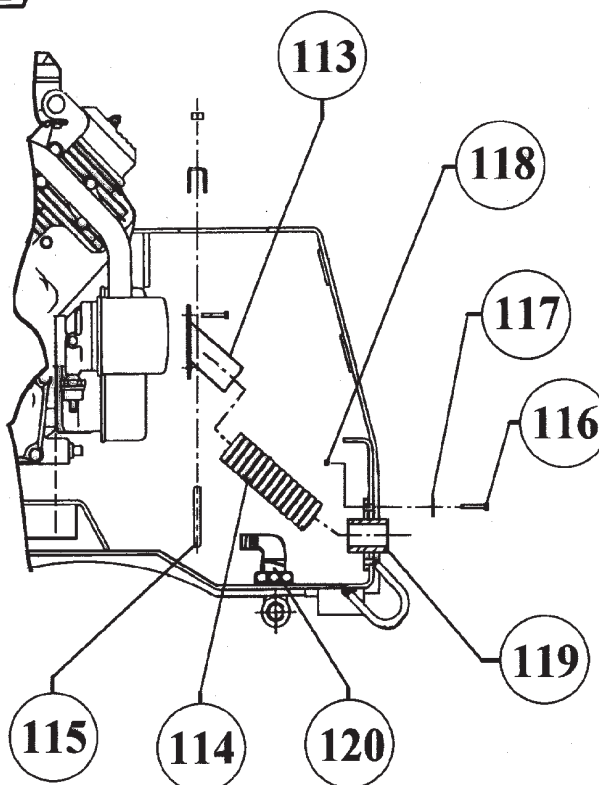
<u>NO</u>	<u>PART NO</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>SERIAL NO.</u>
78	507845	GEAR PUMP (INCL. A, B, C, D, E, F, G, H.)	1	
79	506187	PISTON PUMP (INCL. I, J.)	1	
80	507860	FLANGE SUNDSTRAND	1	
81	492582	LOCK NUT 5/16" NC	2	
82	506158	HEX. HEAD SCREW 5/16" NC x ¾" G5	2	
83	506225	PUMP SUPPORT	1	
84	506243	LEVER – FORWARD/REVERSE	1	
85	506098	BALL JOINT	1	
86	508451	LOCK NUT ¼" – 28 NF	1	
87	506227	HEX. HEAD SCREW 3/16" 24 NS x 1 ½"	1	
88	508343	FITTING	3	
89	508427	FLAT WASHER 21/30 (COPPER)	3	
90	506217	FITTING	1	
91	506219	FITTING	1	
92	508428	FLAT WASHER SPECIAL (COPPER)	1	
93	506203	FITTING	1	
94	492367	HEX. HEAD SCREW 5/16" NC x 1 ¾" G5	1	
95	492582	LOCK NUT 5/16" NC	1	
96	503119	LOCK NUT 3/16" 24 NS	1	

WHEN ORDERING PARTS, ALWAYS GIVE MODEL NUMBER AND SERIAL NUMBER OF UNIT.

ADAPTERS



ENGINE EXHAUST SYSTEM

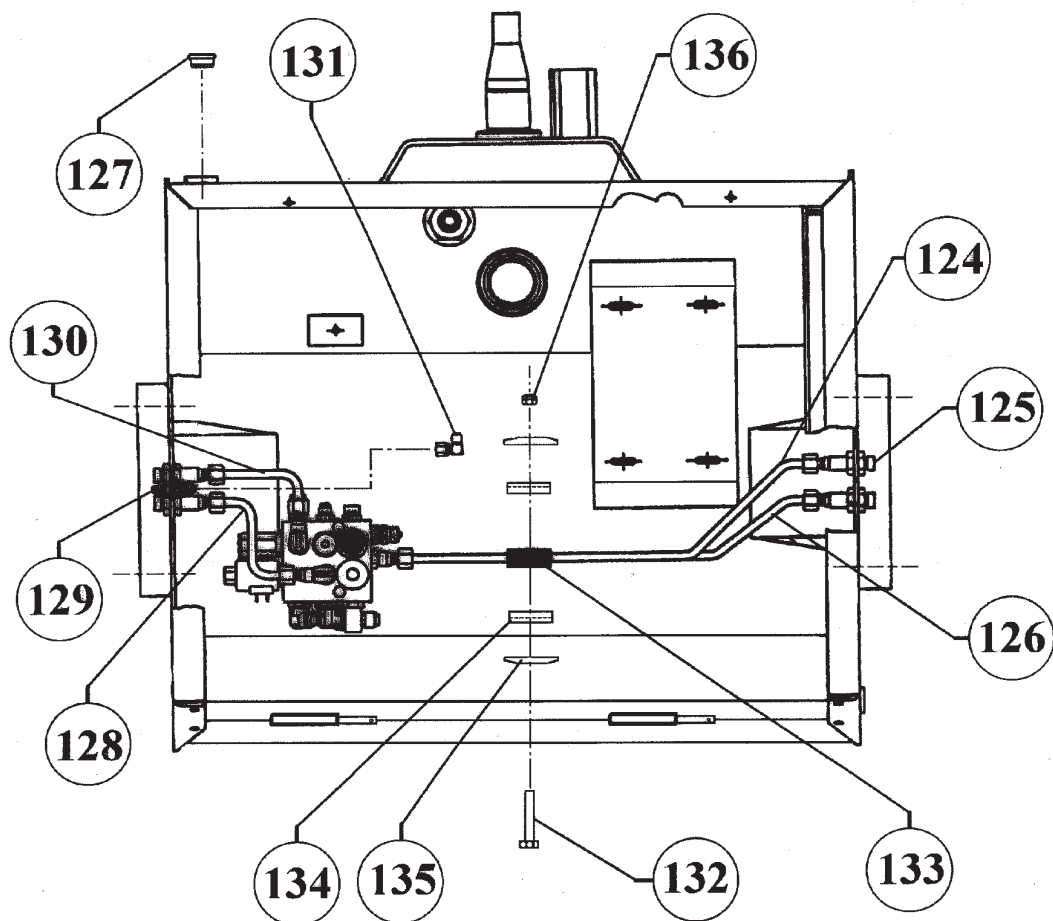


VR-36HA — HYDRAULIC FITTING & EXHAUST SYSTEMS

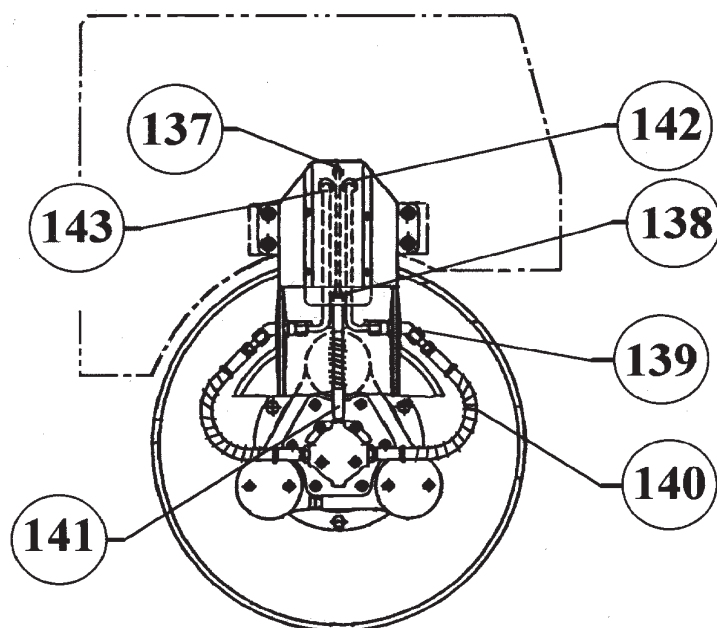
MODEL VR-36H HYDRAULIC FITTING & EXHAUST SYSTEMS

<u>NO</u>	<u>PART NO</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>SERIAL NO.</u>
100	506201	TEE	1	
101	506202	ELBOW	1	
102	492356	HEX. HEAD SCREW ¼" NC x ¾" G5	2	
104	492581	LOCK NUT ¼" NC	2	
105	506206	REDUCER	1	
106	508472	NUT 06B-08	1	
107	492596	FLAT WASHER ¼"	2	
108	506195	ELBOW	1	
113	506254	MOUNT – EXHAUST PIPE	1	
114	506258	EXHAUST PIPE	1	
115	506257	U-BOLT	2	
116	492363	HEX. HEAD SCREW 5/16" NC x ¾" G5	2	
117	492597	FLAT WASHER 5/16"	2	
118	492582	LOCK NUT 5/16" NC	2	
119	508337	EXHAUST FLANGE	1	
120	506071	ELBOW	1	

WHEN ORDERING PARTS, ALWAYS GIVE MODEL NUMBER AND SERIAL NUMBER OF UNIT.



ADAPTERS, TUBES AND HOSES

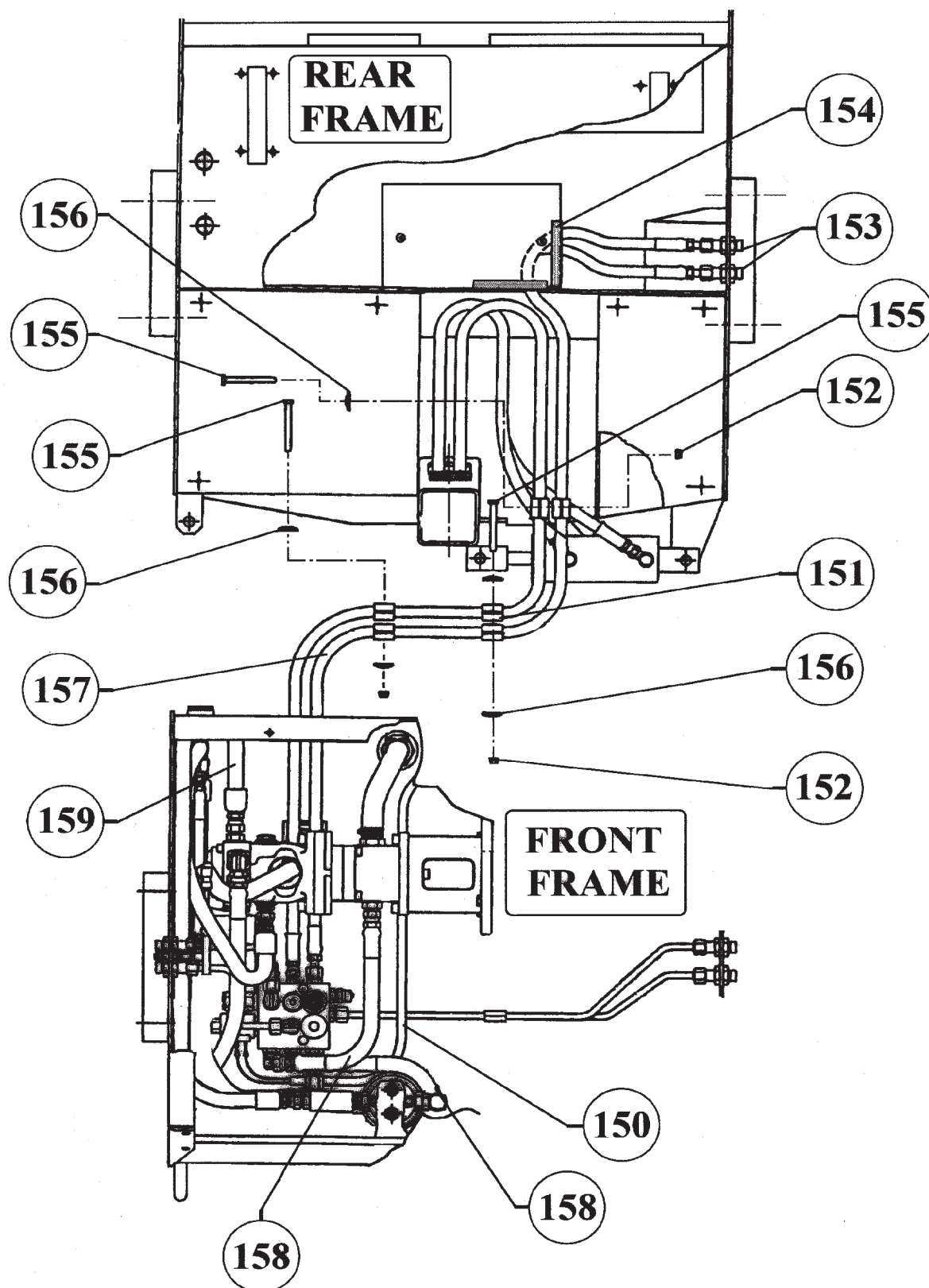


VR-36HA — ADAPTERS, STEEL LINES & HOSES

MODEL VR-36H
ADAPTERS, STEEL LINES & HOSES

<u>NO</u>	<u>PART NO</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>SERIAL NO.</u>
124	505967	STEEL LINE	1	
125	505952	FITTING	4	
126	505968	STEEL LINE	1	
127	490181	SIGHT GLASS	1	
128	505970	STEEL LINE	1	
129	505953	FITTING	1	
130	505971	TUBE	1	
131	506194	ELBOW	1	
132	492368	HEX. HEAD SCREW 5/16" NC x 2" G5	1	
133	508620	TUBE RETAINER	2	
134	505976	SET TUBE CLAMP	2	
135	506185	SUPPORT PLATE	2	
136	492582	LOCK NUT 5/16" NC	1	
137	505969	STEEL LINE	1	
138	506208	CLAMP	1	
139	506189	ELBOW	2	
140	505957	HOSE	2	
141	505958	HOSE	1	
142	505972	STEEL LINE	1	
143	505973	STEEL LINE	1	

WHEN ORDERING PARTS, ALWAYS GIVE MODEL NUMBER AND SERIAL NUMBER OF UNIT.

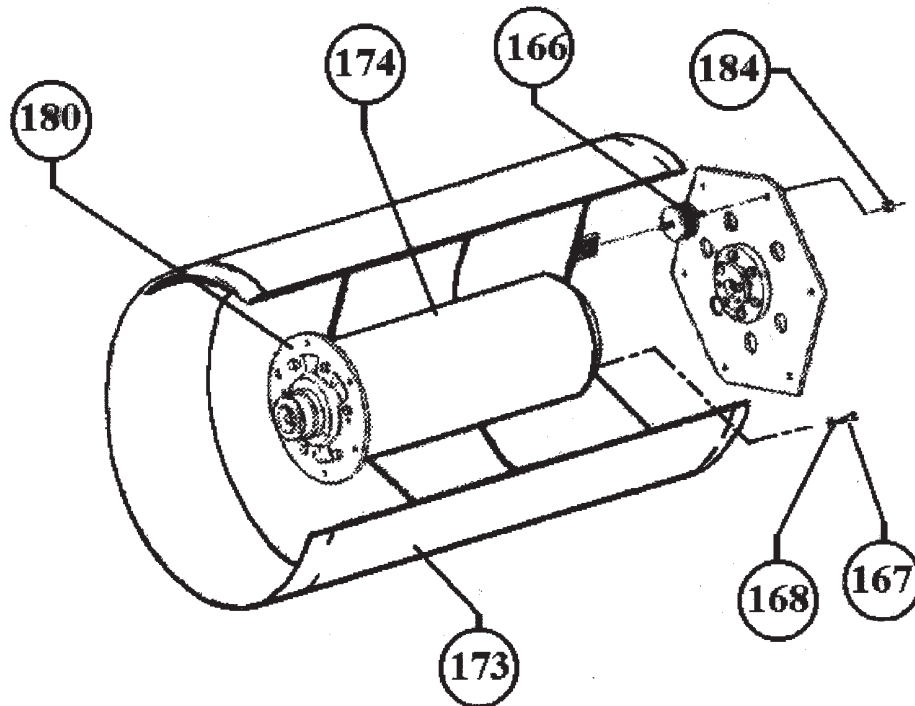


VR-36HA — ADAPTERS, STEEL LINES & HOSES

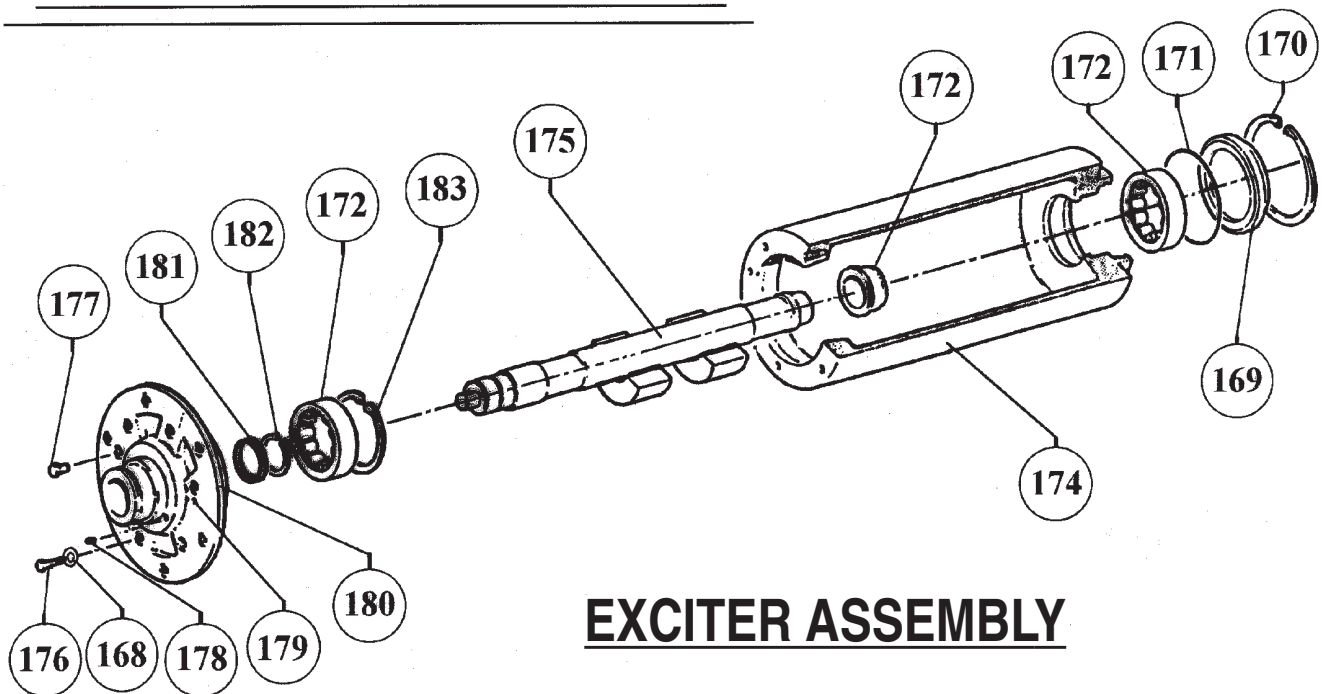
MODEL VR-36H
ADAPTERS, STEEL LINES & HOSES

<u>NO</u>	<u>PART NO</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>SERIAL NO.</u>
150	508229	WIRING HARNESS	1	
151	505976	HOSE RETAINER	5	
152	492582	LOCKNUT 5/16" NC	3	
153	505952	FITTING	2	
154	506238	PROTECTION	5	
155	492371	HEX. HEAD SCREW 5/16" NC x 3" G5	3	
156	506185	SUPPORT PLATE	5	
157	505954	HOSE	2	
158	505959	HOSE	2	
159	505962	HOSE	1	

WHEN ORDERING PARTS, ALWAYS GIVE MODEL NUMBER AND SERIAL NUMBER OF UNIT.



FRONT DRUM



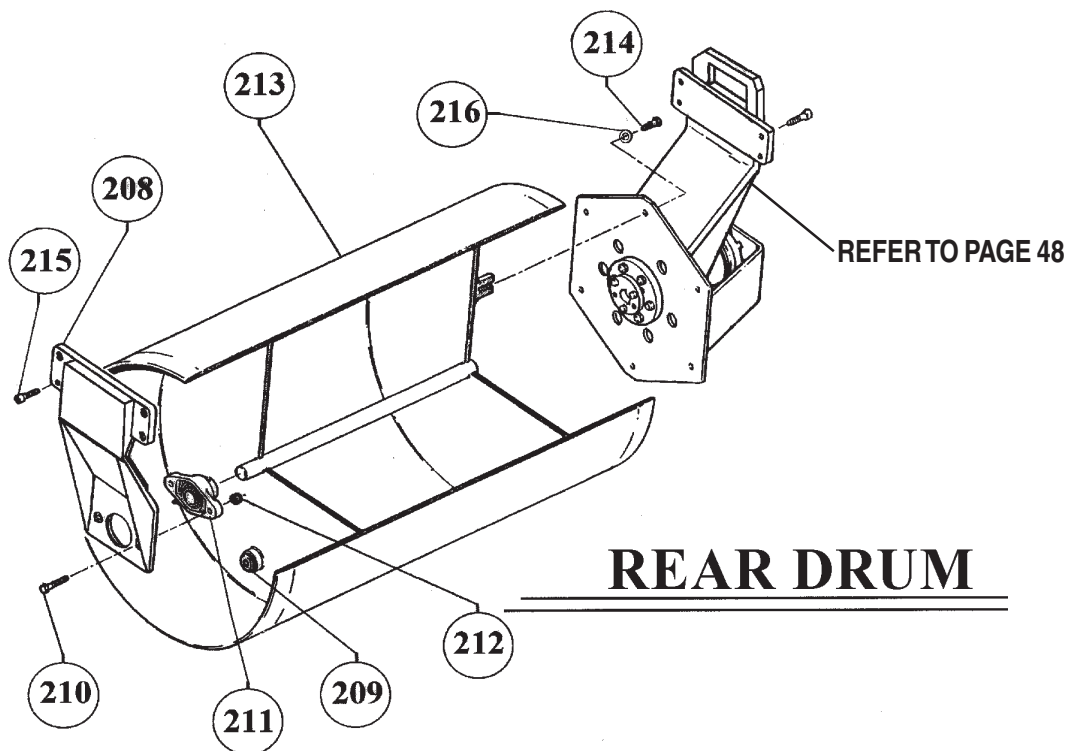
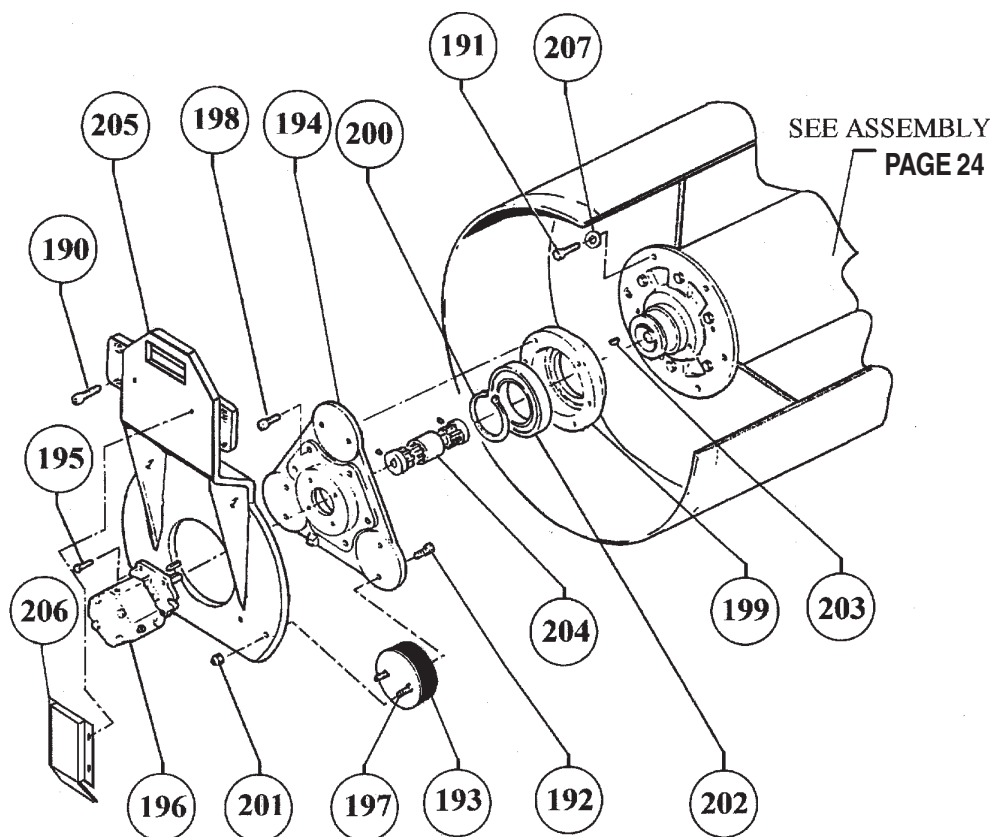
EXCITER ASSEMBLY

VR-36HA — FRONT DRUM & EXCITER

MODEL VR-36H
FRONT DRUM & EXCITER

<u>NO</u>	<u>PART NO</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>SERIAL NO.</u>
166	505985	SHOCK MOUNT	6	
167	492375	HEX. HEAD SCREW 3/8" NC x 1" G5	6	
168	508346	LOCK WASHER	12	
169	506133	COVER	1	
170	506134	RETAINING RING	1	
171	506132	O – RING	1	
172	506131	BEARING	2	
173	506126	FRONT DRUM	1	S/N 980601 TO 980630
173	510280	FRONT DRUM	1	S/N 980701 & UP
174	506127	HOUSING	1	S/N 980601 TO 980630
174	510191	HOUSING	1	S/N 980701 & UP
175	506129	ECCENTRIC SHAFT	1	S/N 980601 TO 980630
175	510278	ECCENTRIC SHAFT	1	S/N 980701 & UP
177	506205	PLUG	1	
178	492467	SET SCREW 5/16" NC x 3/8"	2	
179	492472	SET SCREW 3/8" NC x 3/4"	2	
180	506137	BEARING HOUSING	1	
181	506144	SEAL	1	
182	490964	RETAINING RING	1	
183	506135	RETAINING RING	1	
184	506864	LOCK NUT M10	6	

WHEN ORDERING PARTS, ALWAYS GIVE MODEL NUMBER AND SERIAL NUMBER OF UNIT.

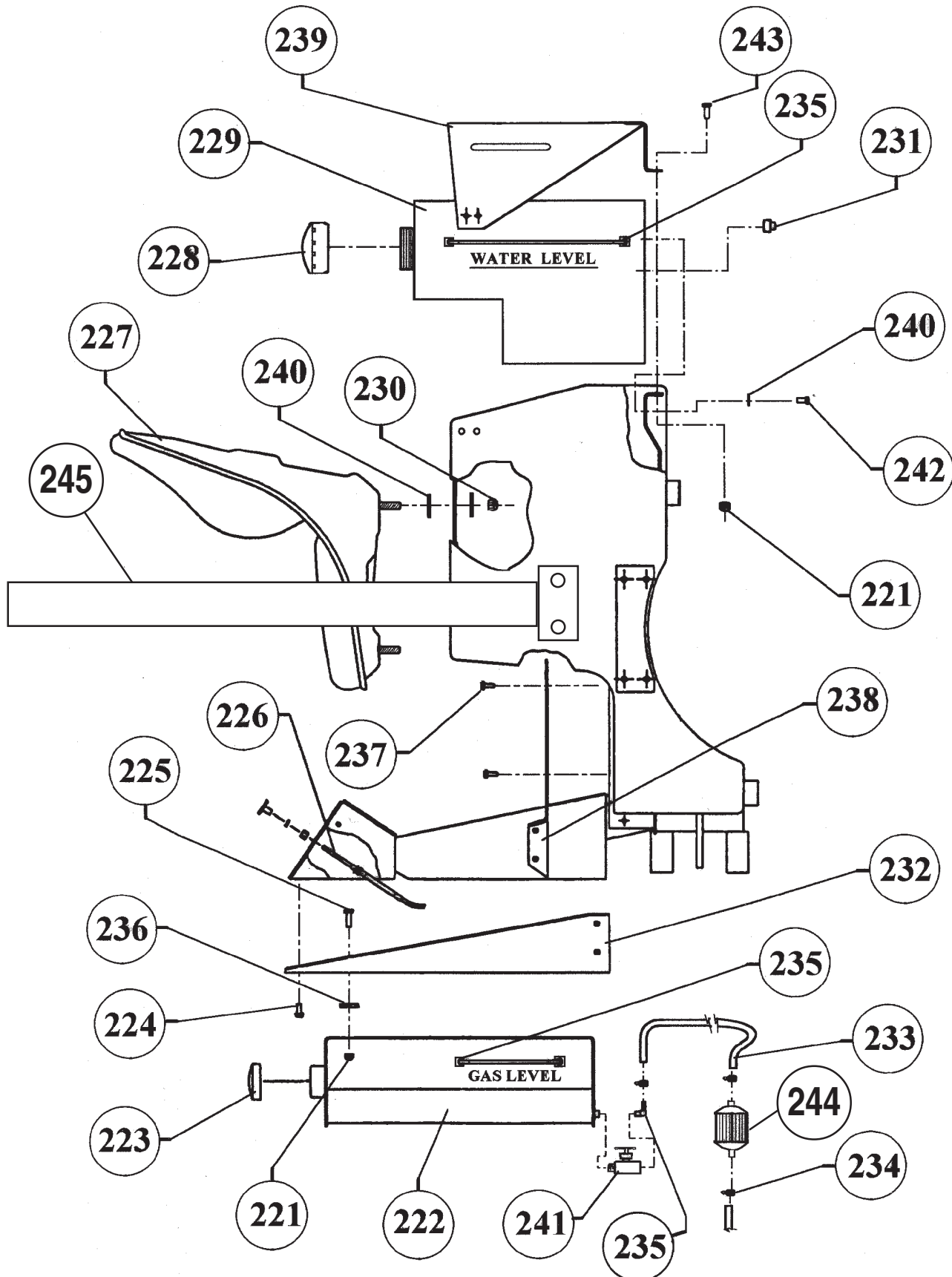


REAR DRUM

MODEL VR-36H REAR DRUM

<u>NO</u>	<u>PART NO</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>SERIAL NO.</u>
190	505989	SOCKET HEAD SCREW ½" NC x 1 ¼"	4	
191	492375	HEX. HEAD SCREW 3/8" NC x 1" G5	6	
192	508342	HEX. HEAD SCREW M8 x 25	6	
193	506141	SHOCK MOUNT	3	
194	506142	MOUNT, VIBRATION MOTOR	1	
195	492362	HEX. HEAD SCREW 5/16" NC x 5/8" G5	4	
196	506220	VIBRATION MOTOR	1	
197	508340	STUD M8 x 40	6	
198	492264	SOCKET HEAD SCREW 3/8" NC x 1"	6	
199	506145	BEARING HOUSING	1	
200	506136	RETAINING RING	1	
201	508341	LOCK NUT M8	6	
202	506147	BEARING	1	
203	506250	KEY	1	
204	508665	FLEX COUPLING	1	
205	508181	SUPPORT	1	
206	508192	TUBE GUARD	1	
207	508346	LOCK WASHER	6	
208	508171	FLANGE DRUM SUPPORT	1	
209	505988	PLUG	1	
210	492395	HEX. HEAD SCREW ½" NC x 1 ¾" G5	2	
211	503735	FLANGE BEARING	1	
212	492584	LOCK NUT ½" NC	2	
213	505893	REAR DRUM	1	S/N 960601 TO 980630
213	510279	REAR DRUM	1	S/N 980701 & UP
214	492375	HEX. HEAD SCREW 3/8" NC x 1" G5	6	
215	505989	SOCKET HEAD SCREW ½" NC x 1 ¼"	12	
216	508346	LOCK WASHER	6	

WHEN ORDERING PARTS, ALWAYS GIVE MODEL NUMBER AND SERIAL NUMBER OF UNIT.



VR-36HA — SHEET METAL, FUEL & WATER TANKS, SEAT

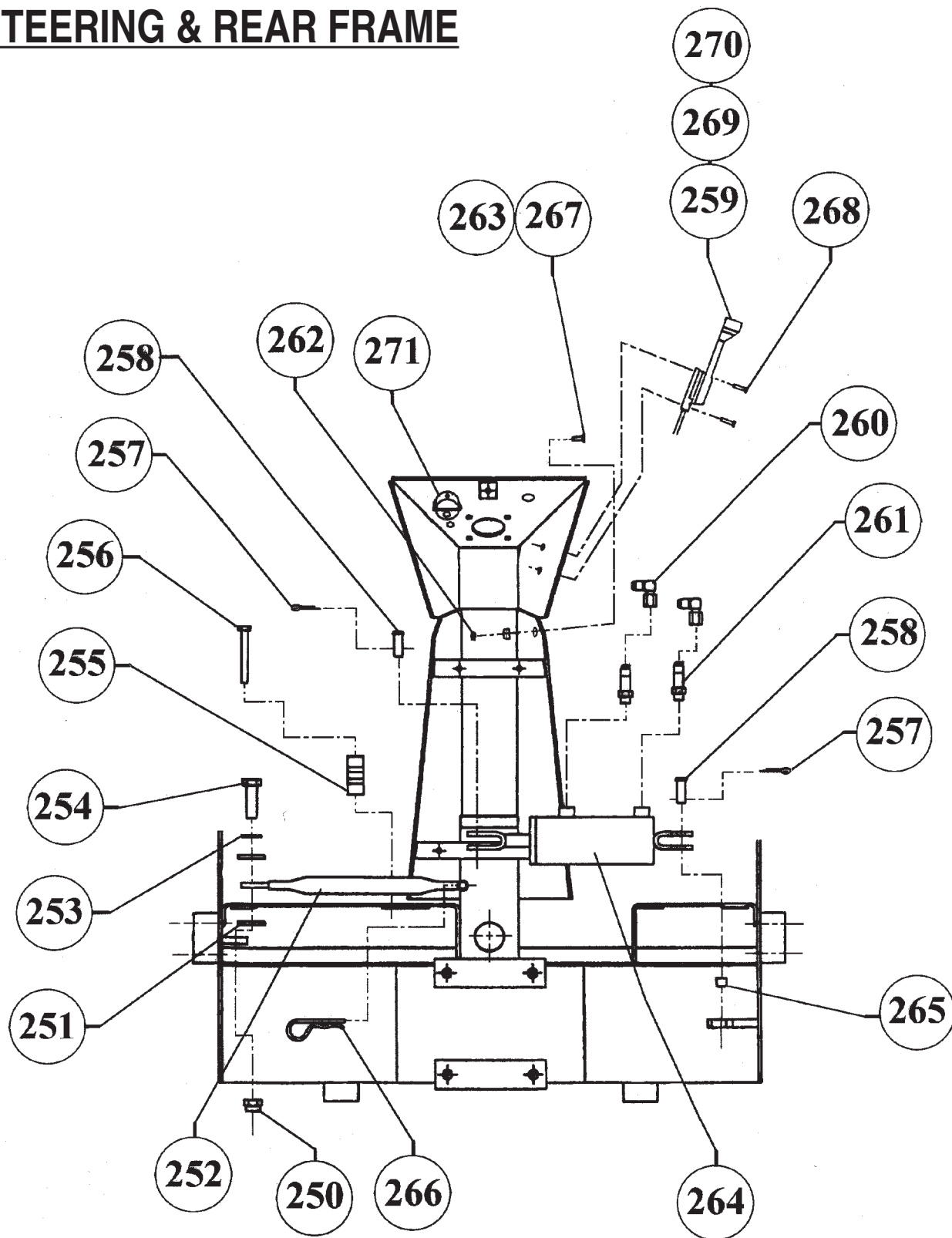
MODEL VR-36H
SHEET METAL FUEL, WATER TANK & SEAT

<u>NO</u>	<u>PART NO</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>SERIAL NO.</u>
221	492583	LOCK NUT 3/8" NC	9	
222	508186	FUEL TANK	1	
223	168038	CAP	1	
224	506158	HEX. GLANGE SCREW 5/16" NC x 3/4" G8	1	
225	492376	HEX. HEAD SCREW 3/8" NC x 1 1/4" G5	6	
226	506239	CHOKE CABLE	1	
227	507888	SEAT	1	
228	508187	CAP, WATER	1	
229	508184	WATER TANK	1	
230	492582	LOCK NUT 5/16" NC	4	
231	491212	PLUG	2	
232	505890	SHIELD	1	
233	506240	HOSE, FUEL	1	
234	506208	CLAMP, FUEL	3	
235	20426	ELBOW	5	
236	506253	WASHER, SPECIAL	6	
237	508674	HEX. FLANGE SCREW 5/16" NC x 1" G8	7	
238	506111	FLOOR PLATE	1	
239	506083	GUARD	1	S/N 960601 TO 980630
239	510113	GUARD	1	S/N 980701 & UP
241	20421	FUEL SHUT OFF VALVE	1	S/N 960601 & UP
242	492363	HEX. HEAD SCREW 5/16" NC x 3/4" G5	4	
243	505992	HEX. FLANGE SCREW 3/8" NC x 1" G8	3	
244	352431090	FUEL FILTER	1	
245	VR36ROPS	*ROLL OVER PROTECTION	1	

*INCLUDES SEAT BELTS P/N 34478

WHEN ORDERING PARTS, ALWAYS GIVE MODEL NUMBER AND SERIAL NUMBER OF UNIT.

STEERING & REAR FRAME



VR-36HA — STEERING CYLINDER, REAR FRAME COMPONENTS & THROTTLE CONTROL

MODEL VR-36H

STEERING CYLINDER, REAR FRAME COMPONENTS & THROTTLE CONTROL

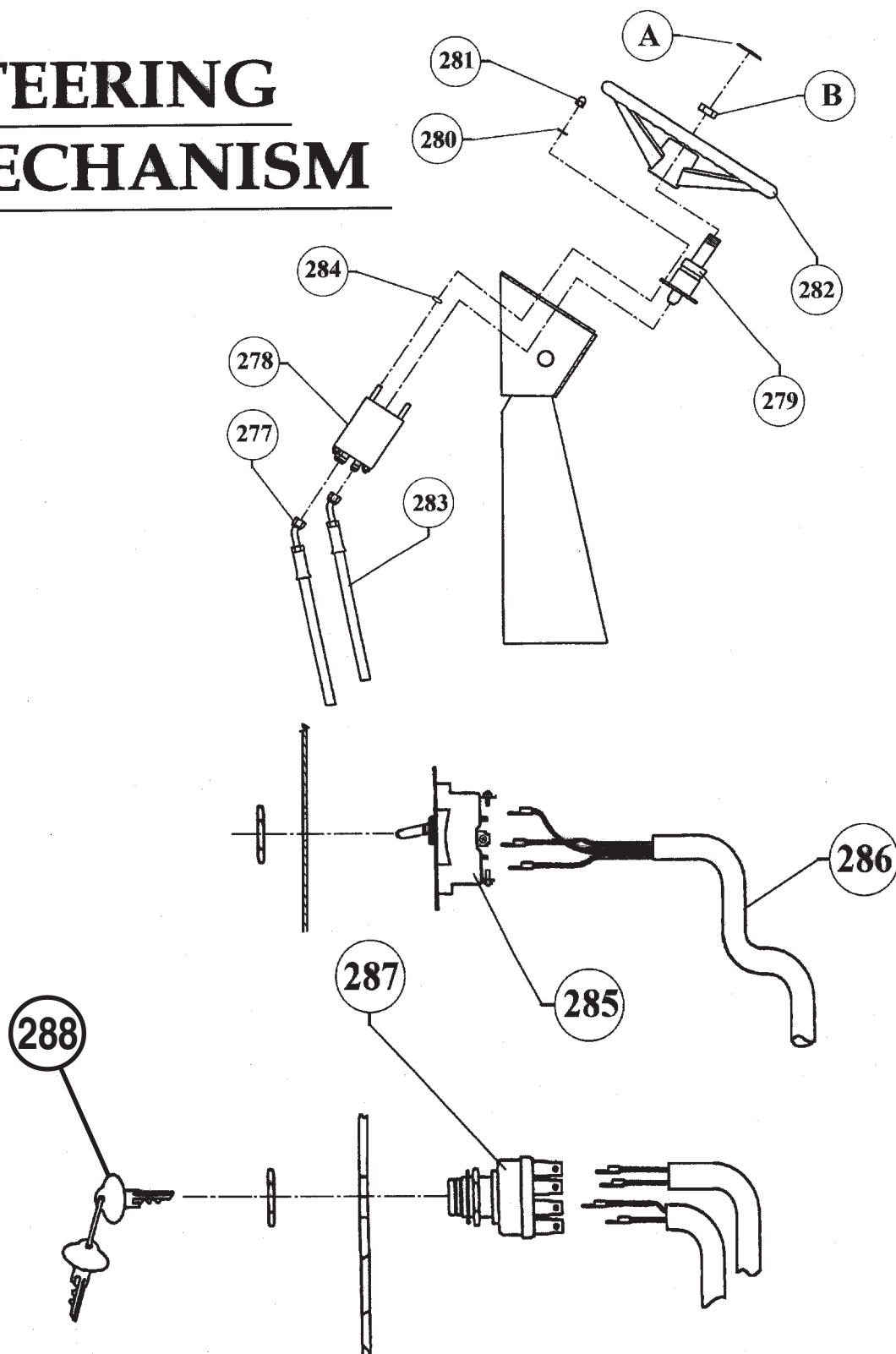
<u>NO</u>	<u>PART NO</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>SERIAL NO.</u>
250	492586	LOCK NUT 5/8" NC	1	
251	506167	PLASTIC WASHER	2	
252	506154	SAFETY LOCKOUT BAR	1	
253	506109	WASHER 5/8"	1	
254	503982	HEX. HEAD SCREW 5/8" NC x 2" G5	1	
255	506233	RUBBER LOCK	1	
256	492388	HEX. HEAD SCREW 3/8" NC x 3 1/4" G5	1	
257	491687	COTTER PIN	2	
258	506255	CLEVIS PIN	2	
259	510229	*ENGINE THROTTLE CONTROL	1	
260	506196	ELBOW	2	
261	506215	FITTING	2	
262	492561	HEXAGONAL NUT 1/4" NC	1	
263	505389	CLAMP	1	
264	507863	HYDRAULIC CYLINDER	1	
265	506124	SLEEVE BEARING	1	
266	925191	HAIRPIN COTTER	1	
267	503958	HEX. HEAD SCREW 1/4" NC x 5/8" G5	1	
268	492280	ROUND HEAD SCREW 3/16" 24 NS x 3/4"	3	
269		CABLE	1	
270		CASING	1	
271	506222	HOUR METER	1	

***NEW UPDATED THROTTLE CONTROL (LOCATED NEXT TO FORWARD/REVERSE LEVER. STARTING S/N 980601**

NOTE: OLD THROTTLE CONTROL NO LONGER AVAILABLE

WHEN ORDERING PARTS, ALWAYS GIVE MODEL NUMBER AND SERIAL NUMBER OF UNIT.

STEERING MECHANISM



IGNITION & VIBRATORY SWITCH

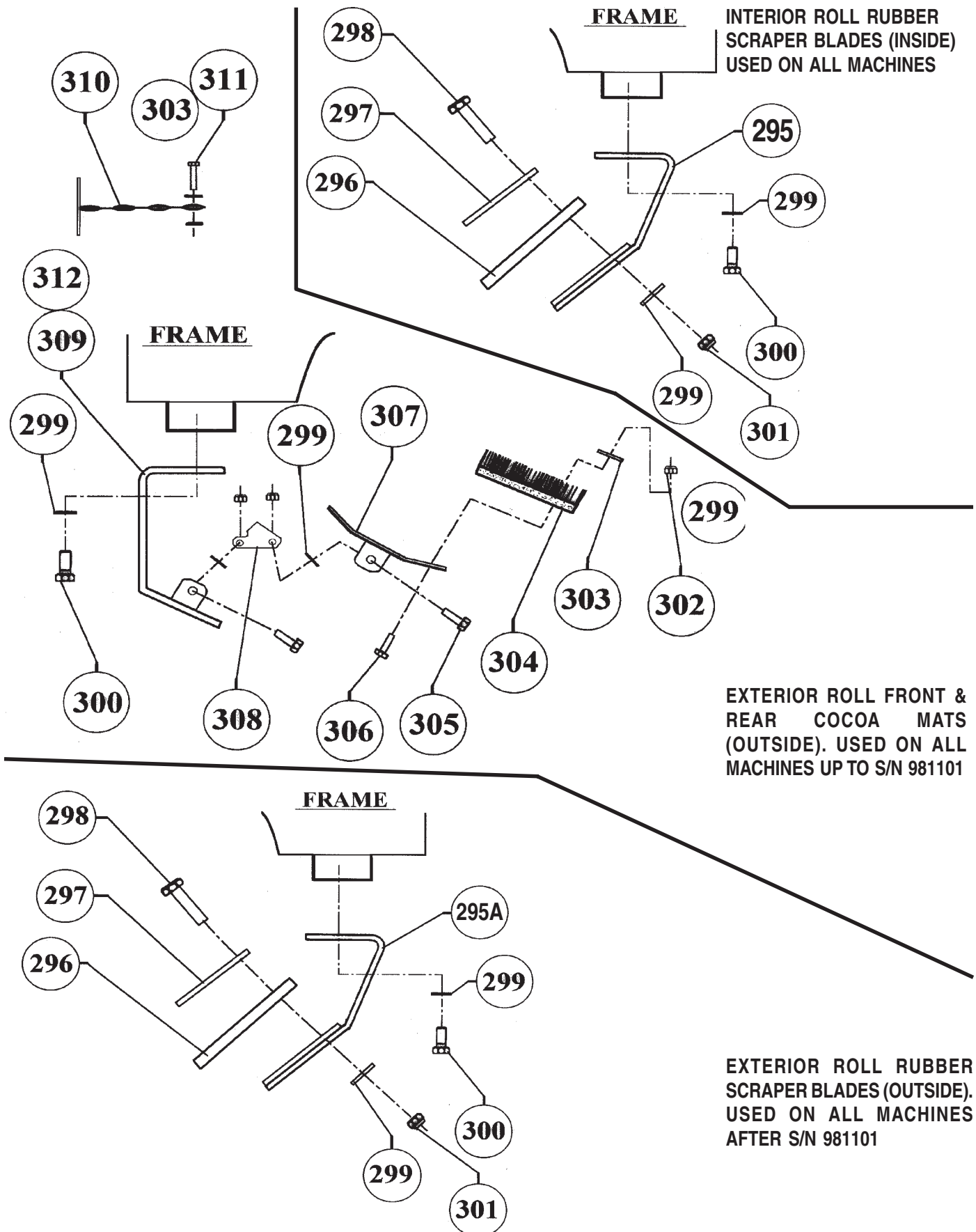
VR-36HA — STEERING COLUMN & SWITCHES

MODEL VR-36H
STEERING COLUMN & SWITCH

<u>NO</u>	<u>PART NO</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>SERIAL NO.</u>
277	505956	HOSE	2	
278	506186	STEERING VALVE	1	
279	507862	STEERING COLUMN	1	
280	508344	FLAT WASHER	4	
281	506265	CAP NUT 5/16" – 24 NF	4	
282	493128	STEERING WHEEL (INCL. A, B.)	1	
283	505955	HOSE	2	
284	508335	HEX. NUT 5/16" – 24 NF	4	
285	506268	VIBRATORY SWITCH	1	
286	506272	WIRING HARNESS	1	
287	506267	IGNITION SWITCH	1	
288	506267K	IGNITION KEY	1	

WHEN ORDERING PARTS, ALWAYS GIVE MODEL NUMBER AND SERIAL NUMBER OF UNIT.

VR-36HA — SCRAPERS



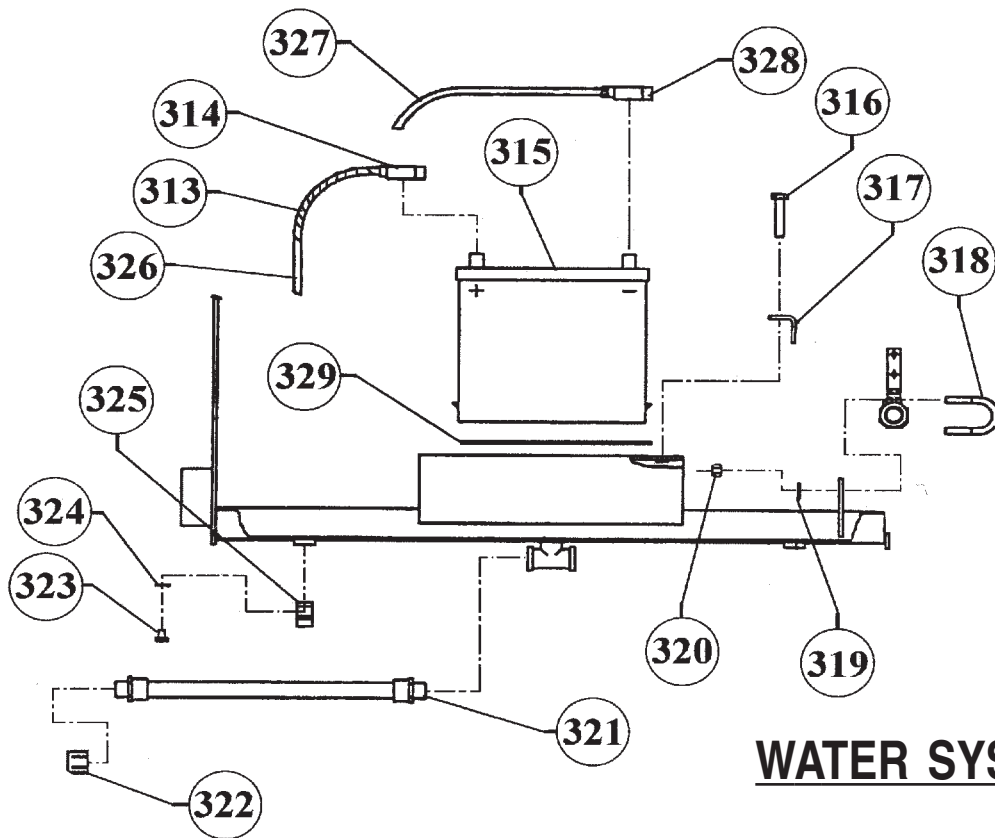
MODEL VR-36H SCRAPERS

<u>NO</u>	<u>PART NO</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>SERIAL NO.</u>
295	507477	MOUNT	2	
295A	510654	FRONT & REAR EXTERIOR ROLL MOUNT	2	
296	508433	RUBBER SCRAPER	4	
297	508434	BACKING PLATE	4	
298	492313	HEX. HEAD SCREW 3/8" NC x 1 1/2" G5	24	
299	492598	FLAT WASHER 3/8"	32	
300	492376	HEX. HEAD SCREW 3/8" NC x 1 1/4" G5	8	
301	492583	LOCK NUT 3/8" NC	24	
302	492581	LOCK NUT 1/4" NC	30	*USED UP TO S/N 981101
303	492596	FLAT WASHER 1/4"	34	*USED UP TO S/N 981101
304	507494	COCOA MAT	2	*USED UP TO S/N 981101
305	492375	HEX. HEAD SCREW 3/8" NC x 1" G5	8	*USED UP TO S/N 981101
306	492356	HEX. HEAD SCREW 1/4" NC x 3/4" G5	28	*USED UP TO S/N 981101
307	507480	BACKING PLATE	2	*USED UP TO S/N 981101
308	505140	COCOA MAT ARM	4	*USED UP TO S/N 981101
309	507482	MOUNT, RIGHT	2	*USED UP TO S/N 981101
310	505375	LIFTING CHAIN, COCOA MAT	2	*USED UP TO S/N 981101
311	492358	HEX. HEAD SCREW 1/4" NC x 1 1/4" G5	2	*USED UP TO S/N 981101
312	507489	MOUNT, LEFT	2	*USED UP TO S/N 981101

*NOTE: COCOA MATS DISCONTINUED AFTER S/N 981101. REPLACED WITH RUBBER SCRAPER BLADES

WHEN ORDERING PARTS, ALWAYS GIVE MODEL NUMBER AND SERIAL NUMBER OF UNIT.

BATTERY



WATER SYSTEM

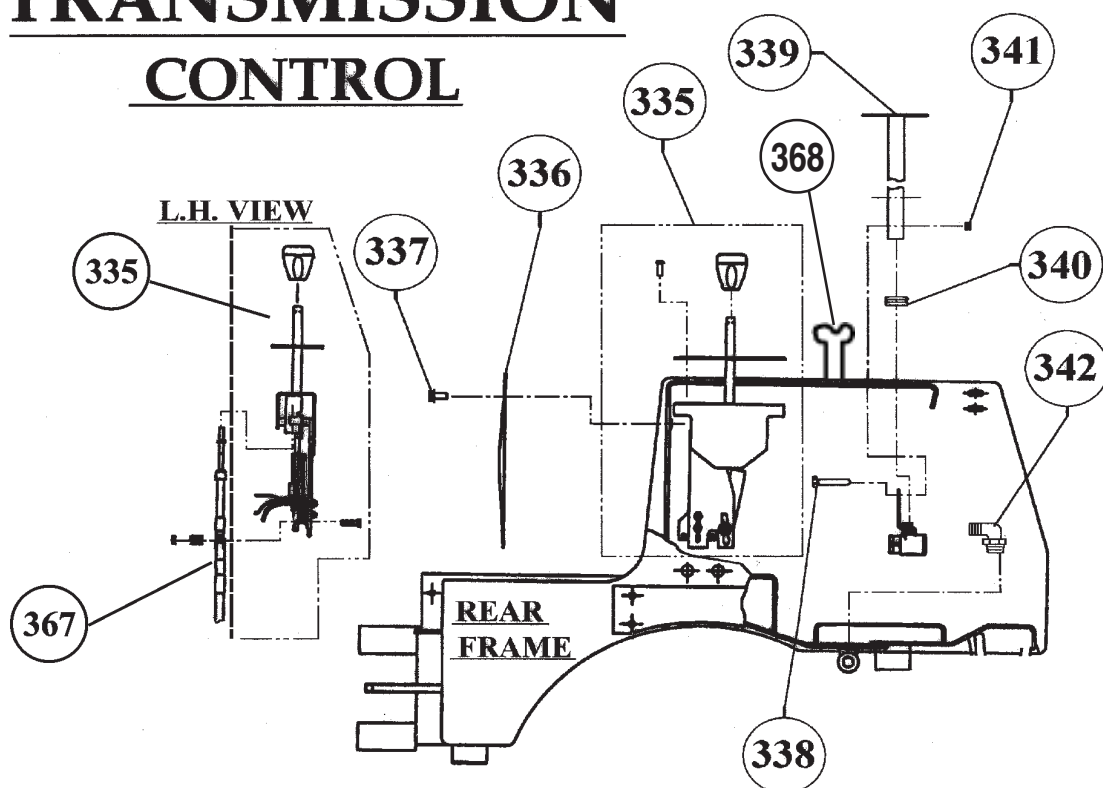
VR-36HA — BATTERY, REAR WATER PIPES

MODEL VR-36H
BATTERY, REAR WATER PIPES

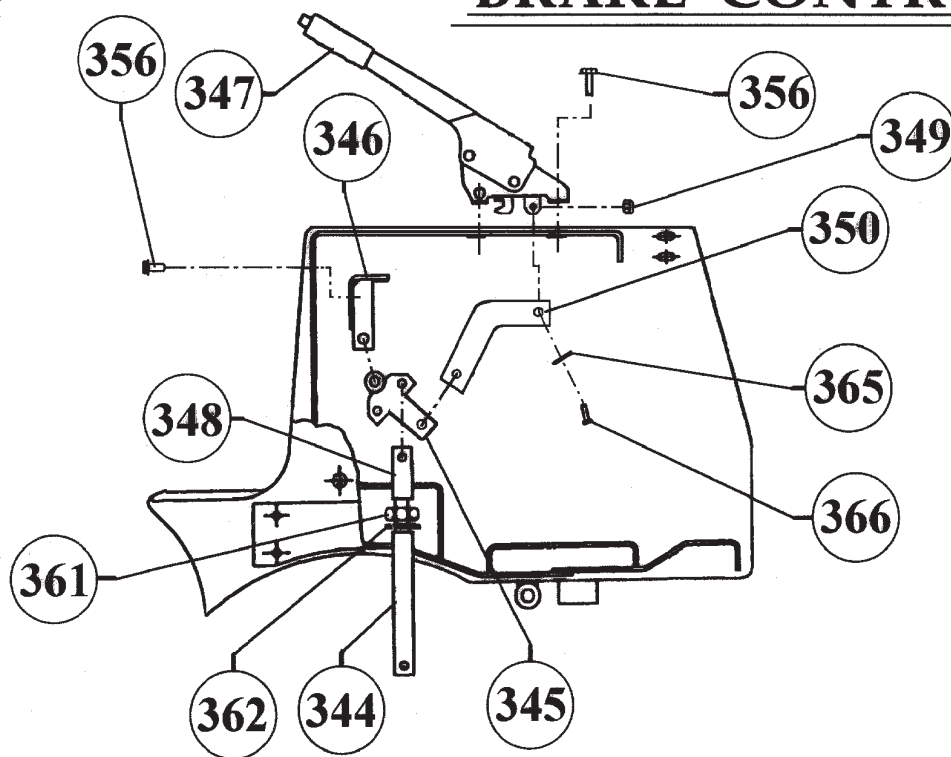
<u>NO</u>	<u>PART NO</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>SERIAL NO.</u>
313	506152	SPIRAL WRAPPING	1	
314	506266	TERMINAL BOOT (RED)	1	
315	507590	BATTERY	1	
316	492379	HEX. HEAD SCREW 3/8" NC x 2" G5	2	
317	506151	CLAMP	2	
318	506086	U-BOLT	4	
319	492598	FLAT WASHER 3/8"	8	
320	508435	LOCK NUT 3/8" NF	8	
321	506066	SPRAY BAR LESS END CAP	4	
322	506075	END CAP	4	
323	492299	HEX. HEAD SCREW 5/16" NC x 1/2" G5	4	
324	492597	FLAT WASHER 5/16"	4	
325	506084	CLAMP	4	
326	506090	BATTERY CABLE (RED)	1	
327	506091	BATTERY CABLE (BLACK)	1	
328	505624	TERMINAL BOOT (BLACK)	1	
329	508480	NEOPRENE RUBBER	1	

WHEN ORDERING PARTS, ALWAYS GIVE MODEL NUMBER AND SERIAL NUMBER OF UNIT.

TRANSMISSION CONTROL



BRAKE CONTROL



VR-36HA — TRANSMISSION & BRAKE CONTROL

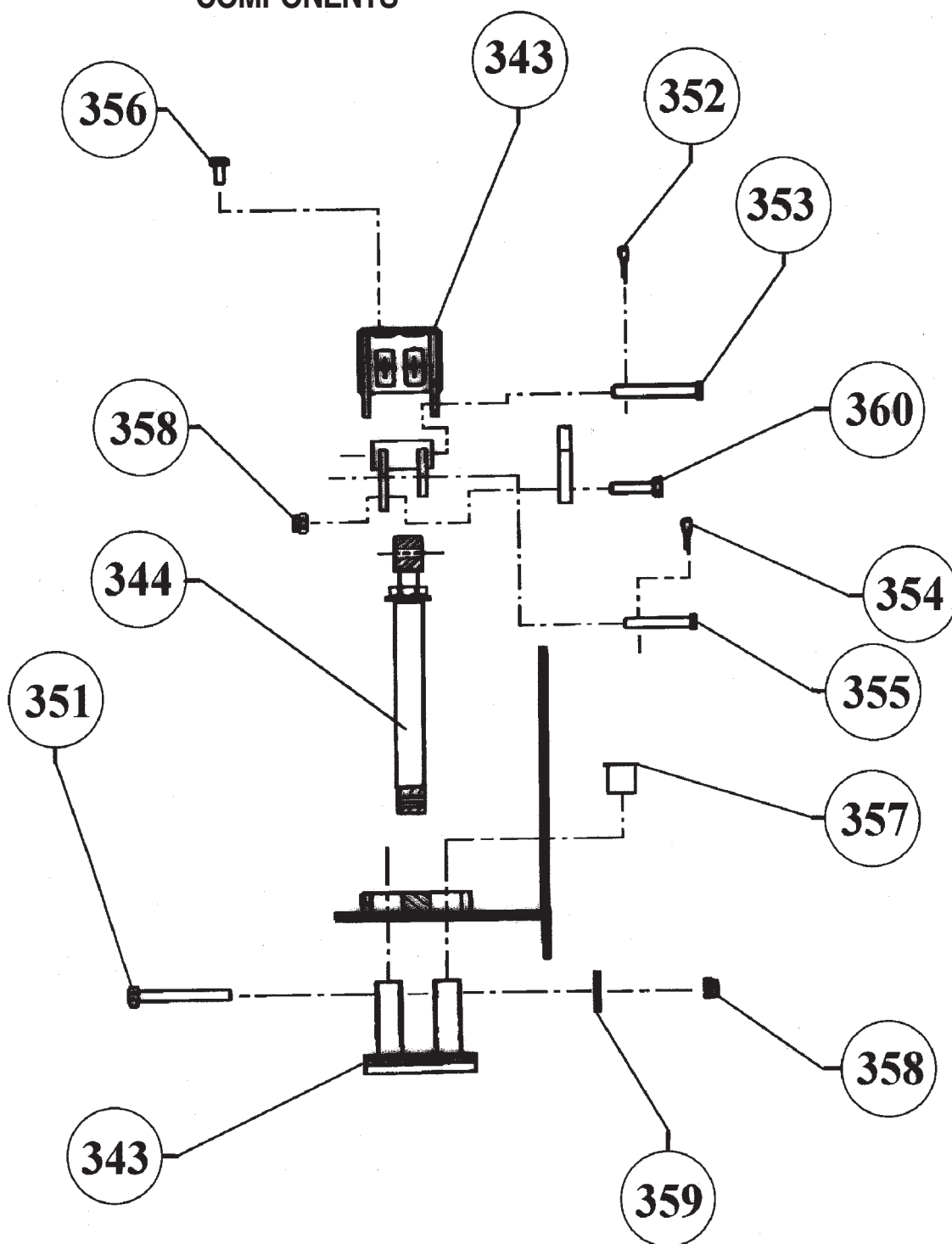
MODEL VR-36H
TRANSMISSION & BRAKE CONTROL

<u>NO</u>	<u>PART NO</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>SERIAL NO.</u>
335	506096	TRANSMISSION CONTROL ASSEMBLY	1	
336	505889	COVER	1	
337	506158	HEX. FLANGE SCREW 5/16" NC x 3/4" G8	4	
338	492358	HEX. HEAD SCREW 1/4" NC x 1 1/4" G5	4	
339	506076	HANDLE, WATER CONTROL VALVE	2	
340	506085	GROMMET	2	
341	492581	LOCK NUT 1/4" NC	4	
342	506071	ELBOW	1	
344	508449	BRAKE ROD LOWER	1	
345	505999	BELL CRANK	1	
346	506000	BRACKET	1	
347	506046	BRAKE LEVER ASSEMBLY	1	
348	508450	BRAKE ROD UPPER	1	
349	492582	LOCK NUT 5/16" NC	1	
350	506057	BRAKE LINK	1	
361	492570	HEX. NUT 5/8" – 18 NF G2	1	
362	492627	LOCK WASHER 5/8"	1	
365	492597	FLAT WASHER 5/16"	2	
366	492365	HEX. HEAD SCREW 5/16" NC x 1 1/4" G5	1	
367	506097	FORWARD/REVERSE CABLE	1	
368	510229	THROTTLE CONTROL	1	AFTER S/N 980601

WHEN ORDERING PARTS, ALWAYS GIVE MODEL NUMBER AND SERIAL NUMBER OF UNIT.

BRAKE CONTROL

COMPONENTS



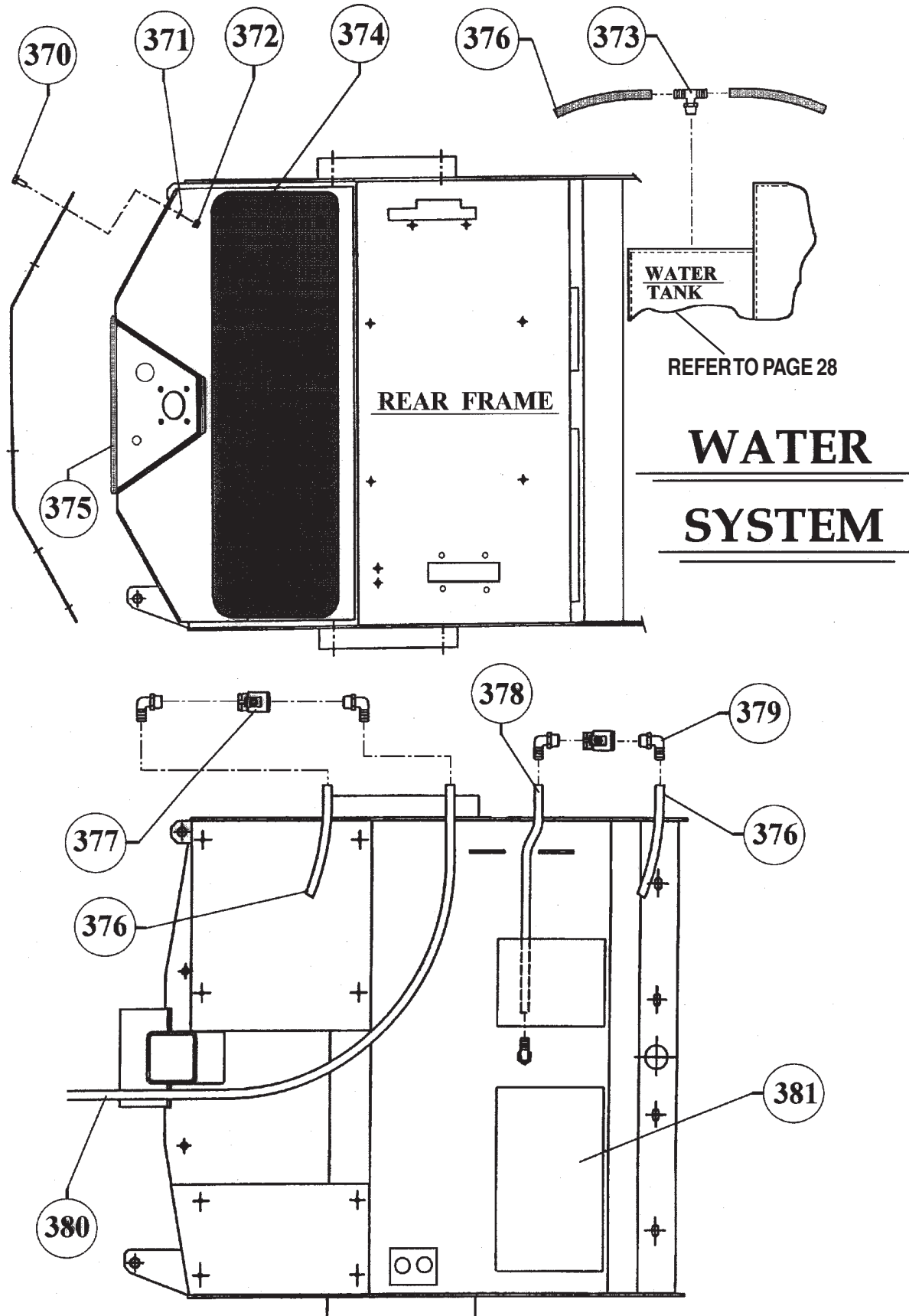
NOTE: REFERTO PREVIOUS
PAGE FOR BRAKE LEVER

VR-36HA — BRAKE CONTROL COMPONENTS

MODEL VR-36H BRAKE CONTROL COMPONENTS

<u>NO</u>	<u>PART NO</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>SERIAL NO.</u>
343	505994	BRAKE PAD ASSEMBLY	1	
344	508449	BRAKE ROD LOWER	1	
351	508619	HEX. HEAD SCREW 3/8" NC x 4" G5	1	
352	506044	COTTER PIN	1	
353	506042	CLEVIS PIN	1	
354	491687	COTTER PIN	1	
355	506043	CLEVIS PIN	1	
356	508674	HEX. FLANGE SCREW 5/16" NC x 1" G8	8	
357	506001	PLASTIC BUSHING	2	
358	492583	LOCK NUT 3/8" NC	2	
359	492598	FLAT WASHER 3/8"	1	
360	492313	HEX. HEAD SCREW 3/8" NC x 1 1/2" G5	1	

WHEN ORDERING PARTS, ALWAYS GIVE MODEL NUMBER AND SERIAL NUMBER OF UNIT.

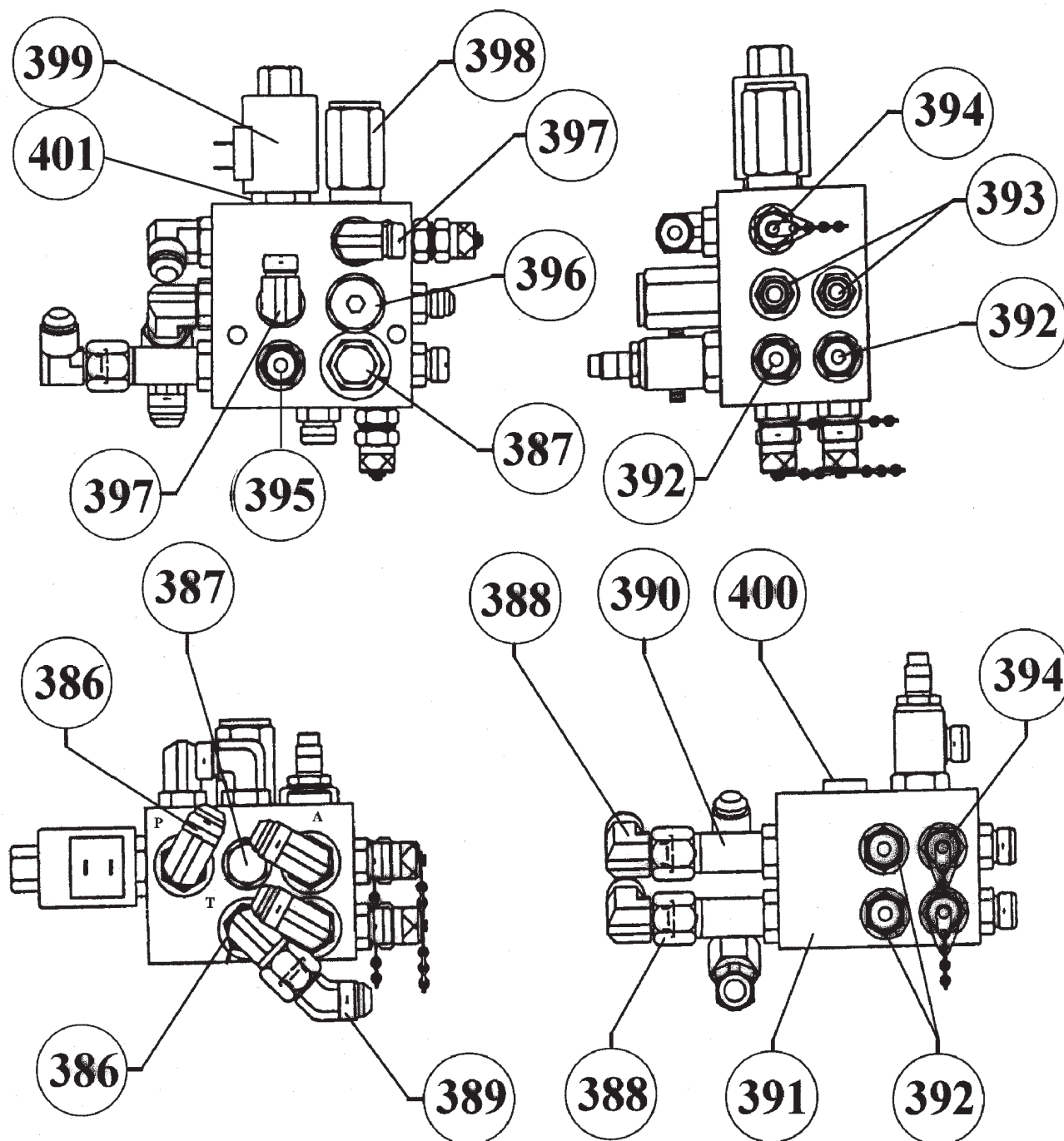


MODEL VR-36H
WATER SYSTEM

<u>NO</u>	<u>PART NO</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>SERIAL NO.</u>
370	506158	HEX. FLANGE SCREW 5/16" NC x 3/4" G8	8	
371	492597	FLAT WASHER	4	
372	492582	LOCK NUT 5/16" NC	4	
373	506067	TEE	1	
374	506112	FLOOR PLATE	1	
375	508621	TRIM	1	
376	506068	HOSE	2	
377	506093	BALL VALVE, WATER	2	
378	506069	HOSE	1	
379	506071	ELBOW	5	
380	506070	TUBE	1	
381	505892	REAR FRAME	1	

WHEN ORDERING PARTS, ALWAYS GIVE MODEL NUMBER AND SERIAL NUMBER OF UNIT.

MANIFOLD



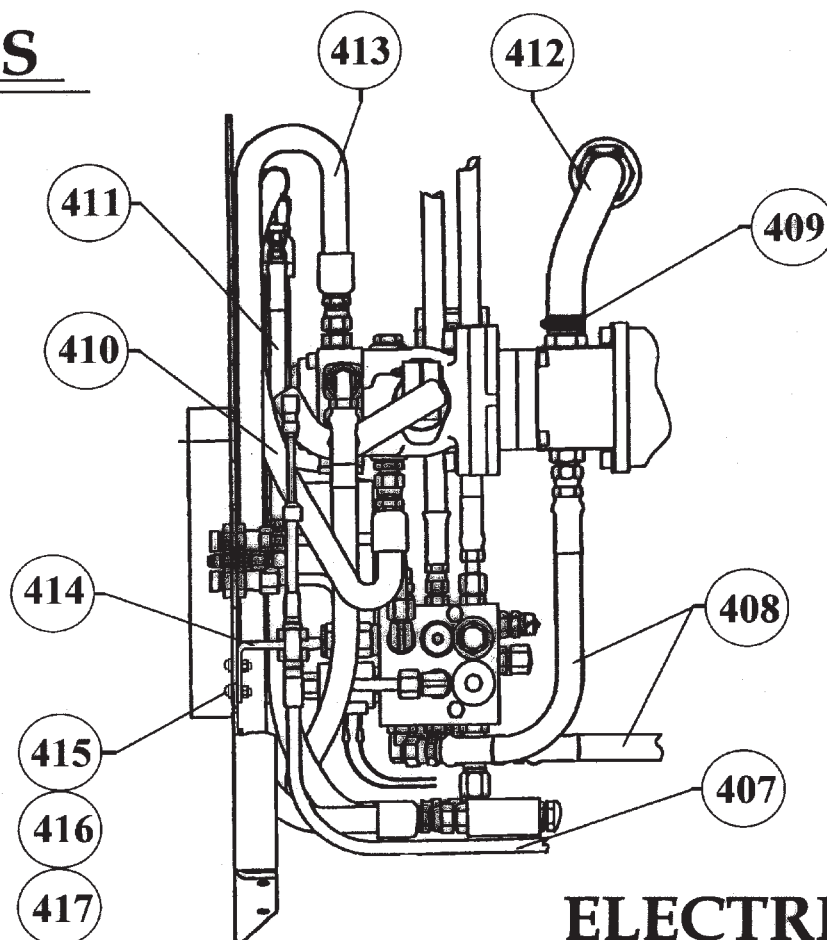
VR-36HA — HYDRAULIC MANIFOLD

MODEL VR-36H HYDRAULIC MANIFOLD

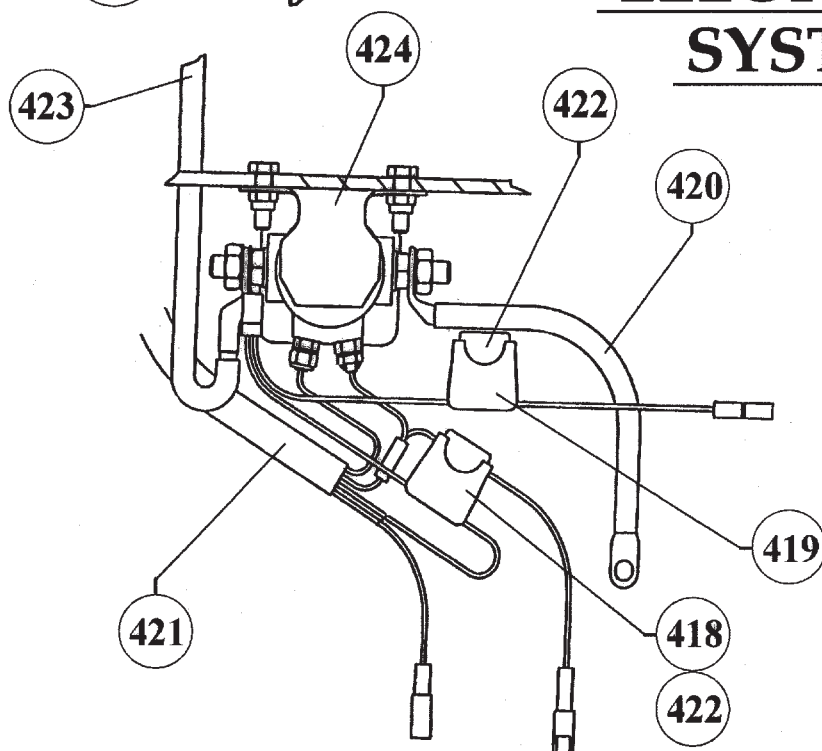
<u>NO</u>	<u>PART NO</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>SERIAL NO.</u>
386	506199	ELBOW	2	
387	506205	PLUG	1	
388	506195	FITTING	2	
389	506200	ELBOW	1	
390	506216	FITTING	2	
391	505974	MANIFOLD	1	
392	506190	FITTING	4	
393	506191	FITTING	2	
394	506182	FITTING	3	
395	507772	REGULATOR CARTRIDGE	1	
396	507774	RELIEF VALVE	1	
397	506192	FITTING	2	
398	506246	RELIEF VALVE	1	
399	507885	SOLENOID COIL	1	
400	506247	PLUG	1	
401	506245	SOLENOID VALVE VIBRATION	1	

WHEN ORDERING PARTS, ALWAYS GIVE MODEL NUMBER AND SERIAL NUMBER OF UNIT.

HOSES



ELECTRICAL SYSTEM



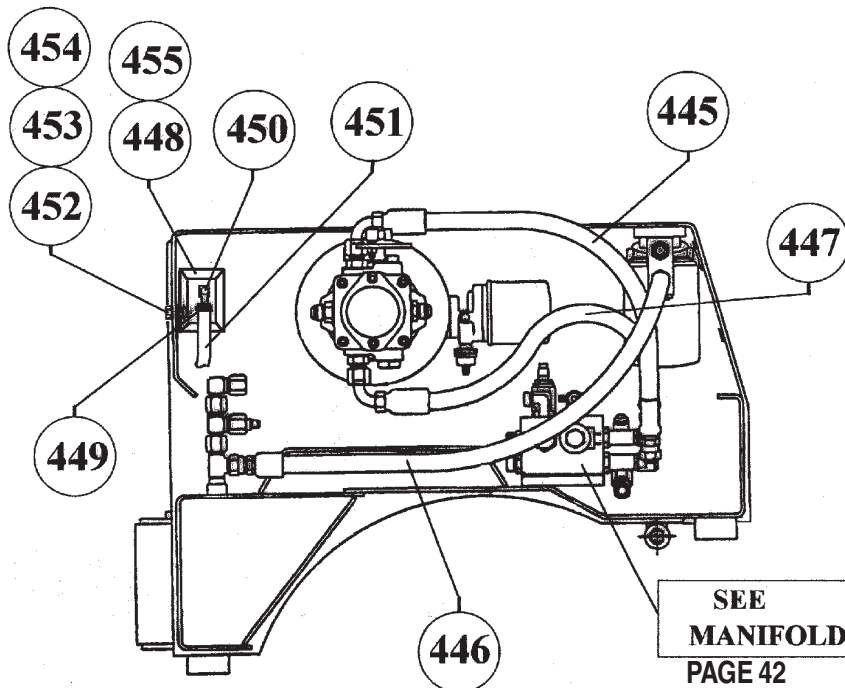
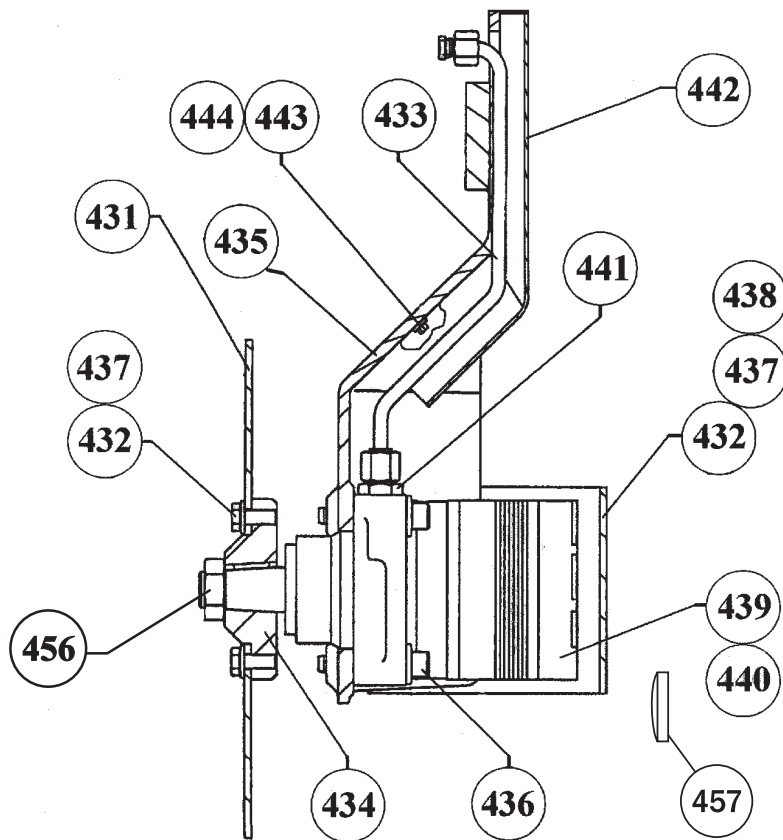
VR-36HA — HOSES & ELECTRICAL SYSTEM

MODEL VR-36H HOSES & ELECTRICAL SYSTEM

<u>NO</u>	<u>PART NO</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>SERIAL NO.</u>
407	506097	CONTROL CABLE, TRANSMISSION	1	
408	505959	HOSE	2	
409	506207	CLAMP	2	
410	505961	HOSE	1	
411	505964	HOSE	1	
412	505960	HOSE SUCTION	1	
413	505962	HOSE	1	
414	506099	CONTROL SUPPORT	1	
415	504586	CARRIAGE SCREW 3/8" NC x 1"	2	
416	492598	FLAT WASHER	2	
417	492583	LOCK NUT 3/8" NC	2	
418	508238	FUSE BLOCK (ORANGE)	1	
419	508793	FUSE BLOCK (BLUE)	1	
420	508223	BATTERY CABLE	1	
421	508792	WIRING HARNESS	1	
422	508632	FUSE 25A	2	
423	506090	BATTERY CABLE (RED)	1	
424	506273	SOLENOID, STARTER	1	

WHEN ORDERING PARTS, ALWAYS GIVE MODEL NUMBER AND SERIAL NUMBER OF UNIT.

DRIVE MOTOR AND SUPPORT



VR-36HA — DRIVE MOTOR, TUBES, HOSES, FUEL PUMP

MODEL VR-36H
DRIVE MOTOR, TUBES, HOSES, FUEL PUMP

NO	PART NO	PART NAME	QTY.	SERIAL NO.
431	505977	DRIVE PLATE	2	
432	492375	HEX. HEAD SCREW 3/8" NC x 1" G5	10	
433	505950	TUBE	2	S/N 980601 TO 980630
433	510192	TUBE	2	S/N 980701 & UP
434	505984	HUB	2	
435	508167	SUPPORT	2	S/N 980601 TO 980630
435	510003	SUPPORT	2	S/N 980701 & UP
437	508346	LOCK WASHER	10	
438	505983	GUARD	2	
439	506184	DRIVE MOTOR FRONT DRUM	1	
440	506188	DRIVE MOTOR REAR DRUM	1	
441	505951	FITTING	4	
442	508173	TUBE GUARD	2	S/N 980601 TO 980630
442	510350	TUBE GUARD	2	S/N 980701 & UP
443	492355	HEX. HEAD SCREW 1/4" NC x 1/2" G5	12	
444	492596	FLAT WASHER 1/4"	12	
445	505965	HOSE	1	
446	505961	HOSE	1	
447	505966	HOSE	1	
448	11099	FUEL PUMP, ELECTRIC	1	
449	506208	CLAMP	2	
450	20426	ELBOW	1	
451	506240	HOSE	1	
452	492356	HEX. HEAD SCREW 1/4" NC x 3/4" G5	2	
453	492596	FLAT WASHER 1/4"	2	
454	492581	LOCK NUT 1/4"	2	
455	20412	ADAPTER	1	
456	8164	NUT, SLOTTED HEX JAM 1-20	1	
457	07011-015	WOODRUFF KEY, #1008 5/16 X 1	1	

WHEN ORDERING PARTS, ALWAYS GIVE MODEL NUMBER AND SERIAL NUMBER OF UNIT.



The service procedures contained in this manual are intended for use by individuals equipped with the proper tools and equipment and are familiar with safe shop practices.



Do not open hydraulic lines or loosen hydraulic fittings while engine is running! Hydraulic fluid under pressure can penetrate the skin, blind, cause burns or create other potentially dangerous hazards follow all safety instructions as described throughout this manual.

LUBRICATION

SERVICE INSTRUCTIONS CHART	
Engine Speed	3500RPM
Exciter Speed	3900 VPM
Exciter Lubrication	Type SAE 30 16 oz.(475 ml) Every 1100 hours
Grease	Type Alvania #2 or equiv. Articulated joint (4 fittings) Static drum bearing (1 fitting) Every 75 hours
Hydraulic Oil	Type ISO46 (Anti-Wear) 5.7 gallons (21.6 liters) Every 1100 hours
Hydraulic Filter	Change every 500 hours
Engine Lubrication/Service	Refer to Engine Owners Manual
CAUTION! Running the machine without sufficient hydraulic oil will result in extreme damage to the unit's hydraulic system.	

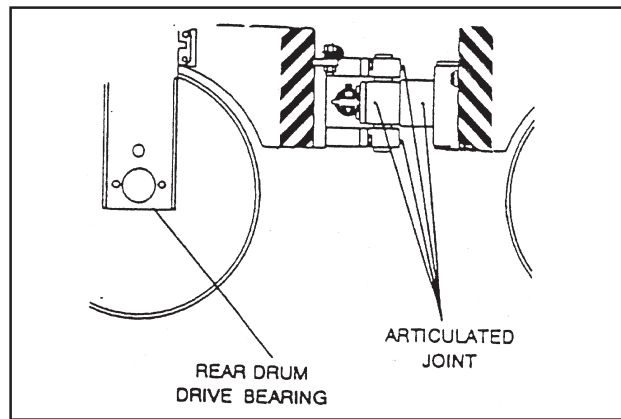
1.0 MAINTENANCE

1.1. Engine Lubrication

The engine oil must be checked daily. A good quality motor oil should be used. Fill to the full mark on the dipstick. **DO NOT OVERFILL.** See the engine manual provided with machine for service interval.

1.2. Center Joint (Articulation)

There are four grease fittings located on the center joint. They must be lubricated bi-weekly or every 100 hours.



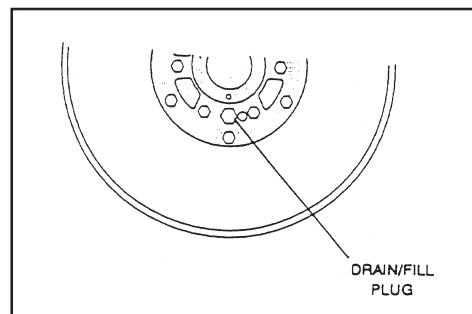
1.3. Rear Drum

The right rear drum bearing has one grease fitting. This must be lubricated bi-weekly or every 100 hours.

1.4. Vibrator Oil

The vibrator oil must be changed every 12 months or 1000 hours. The vibrator oil drain / fill plug is located on the right side of the front drum.

Position this plug on the bottom by moving the machine forward or reverse. Vibrator should be utilized for approximately three minutes before draining. Allow oil to completely drain, then rotate the drum until the plug is at the top. Fill the vibrator housing with 16 ounces of quality 10W30 motor oil. **DO NOT OVERFILL!** Replace and tighten the plug.



1.5. Hydraulic System

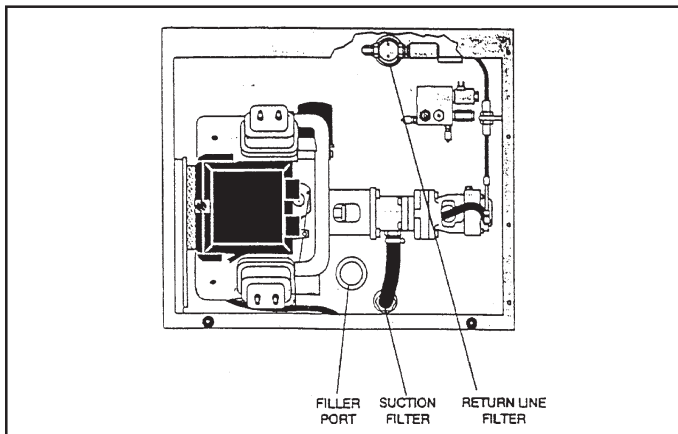
A good quality hydraulic oil should be used.

DO NOT USE MULTI-VISCOSITY OIL. Cleanliness is a very important part of proper hydraulic system operation. Hydraulic oil is not only used to transfer power; it also lubricates and cools the system components. Keeping the hydraulic system clean can help reduce costly repairs.

The hydraulic oil level sight glass is located on the right rear of the front drum, below the engine compartment. This level should be checked daily. Oil must be below the top and above the bottom of the sight glass. **DO NOT OVERFILL!** Care should be taken to clean the filler cap before adding oil to the system. If hydraulic oil has to be added, the machine should be inspected for leaks.

The suction filter is located in the hydraulic tank. This filter is attached to the fitting connected to the hydraulic pump suction hose.

The return filter is located at the front of the engine compartment. Replace both filters according to the service chart.



1.6. Changing Hydraulic Oil And Filters

1. Park the machine on a clean flat work area and set the parking brake.
2. Remove the drain plug and drain the hydraulic oil. Dispose of the used oil in an environmentally friendly manner. Replace the drain plug and tighten.
3. Remove the return filter and install a new filter. Dispose of the used filter in an environmentally friendly manner.
4. Disconnect the suction hose and remove the fitting from the tank. Replace the suction filter. Dispose of the used filter in an environmentally friendly manner. Replace the fitting and reconnect the suction hose.

5. Fill the hydraulic tank with the proper quantity and quality required. See service chart for specifications.
6. Place the forward / reverse control lever in the neutral position. Start and run the engine at idle for approximately 3 to 5 minutes.
7. Recheck the oil level and fill as required.

1.7. Scraper Bars And Cocoa Mats

The scraper bars are located on the rear of the front drum and the front of the rear drum. Adjust the scrapers, using the slotted holes provided, as close as possible to the drums.

The cocoa mats are located at the front of the front drum and the rear of the rear drum. Cocoa mats should be replaced when badly worn. Always pre-wet the cocoa mats before use.

1.8. Towing Valve

The hydraulic system has a towing valve allowing hydraulic oil to by-pass. This lets the unit freewheel for emergency towing.

The towing valve should only be used in emergencies when the machine cannot be driven due to engine or hydraulic system problems.

When towing is complete, this valve *must* be closed completely and the lock nut set. Failure to close this valve completely will result in low power, improper speed, and excessive hydraulic oil temperature.

WARNING: The towing valve is only for emergency use. **DO NOT tow unit over 2 MPH or long distance as hydraulic system component failure could result.**

2.0 HYDRAULIC SYSTEM

2.1 General

The hydraulic system consists of a two pump stack directly coupled to the engine. A hydraulic valve block is provided for quick and easy testing and troubleshooting.

Hydraulic oil is filtered by a screen filter located in the tank filler neck, a 40 micron suction filter located in the tank, and a 10 micron return filter, with cold oil bypass valve located in the return circuit.

2.2 Drum Drive

The drum drive circuit is a parallel, closed loop system consisting of a hydrostatic pump, two relief valves, towing valve, and front and rear drum drive motors.

The hydrostatic pump is manually controlled by a cable connected to the forward / reverse shift lever located on the right side of the operator. When the shift lever is placed in forward, high-pressure oil is supplied by the hydrostatic pump to the valve block (port A). The valve block directs this high-pressure oil to the front and rear drum drive motors. Return oil from the motors is returned to the valve block (port B) and is returned to the suction side of the hydrostatic pump. When shifted into reverse, the high-pressure and suction ports on the hydrostatic pump are reversed. Oil flow is then in the opposite direction of forward (port B becomes high-pressure and port A becomes suction).

2.3 Vibration & Steering

The vibration and steering system is an open loop circuit operated by a gear type pump. Separate relief valves control each circuit. This system consist of the gear pump, relief valves, electric vibration control valve, vibration drive motor, steering valve, and steering cylinder.

The vibration circuit is controlled by an electric control valve located on the valve block. This valve is controlled by the "ON / OFF" switch mounted on the steering column. High-pressure oil is supplied by the pump to the valve block (port P) and is directed to the electric control valve. When the switch is in the "OFF" position, this valve is open allowing oil to go to the steering valve, without driving the vibration motor. When the switch is in the "ON" position, the electric control valve closes and oil is directed out of port 1 to the vibration motor. Return oil from the motor returns to the valve block via port 2 and is directed to the steering valve.

Steering is controlled by a steering valve and cylinder. The steering wheel is direct coupled to

the steering valve controlling the oil flow to the cylinder. Oil supplied from the vibration circuit is directed to port 3 which connects to port P of the steering valve. When steering is not being used, oil passes out of port T of the valve block and returns to the hydraulic tank. When the steering wheel is operated, the steering valve closes and oil is directed to port L or R to extend or retract the steering cylinder.

2.4 Back Pressure Valve

A back pressure valve located in the block attached to the return filter keeps the return system at 14.5 PSI. This maintains the hydrostatic charge pump oil supplied, prevent cavitation, and keeps the hydraulic system from draining when the unit is stopped.

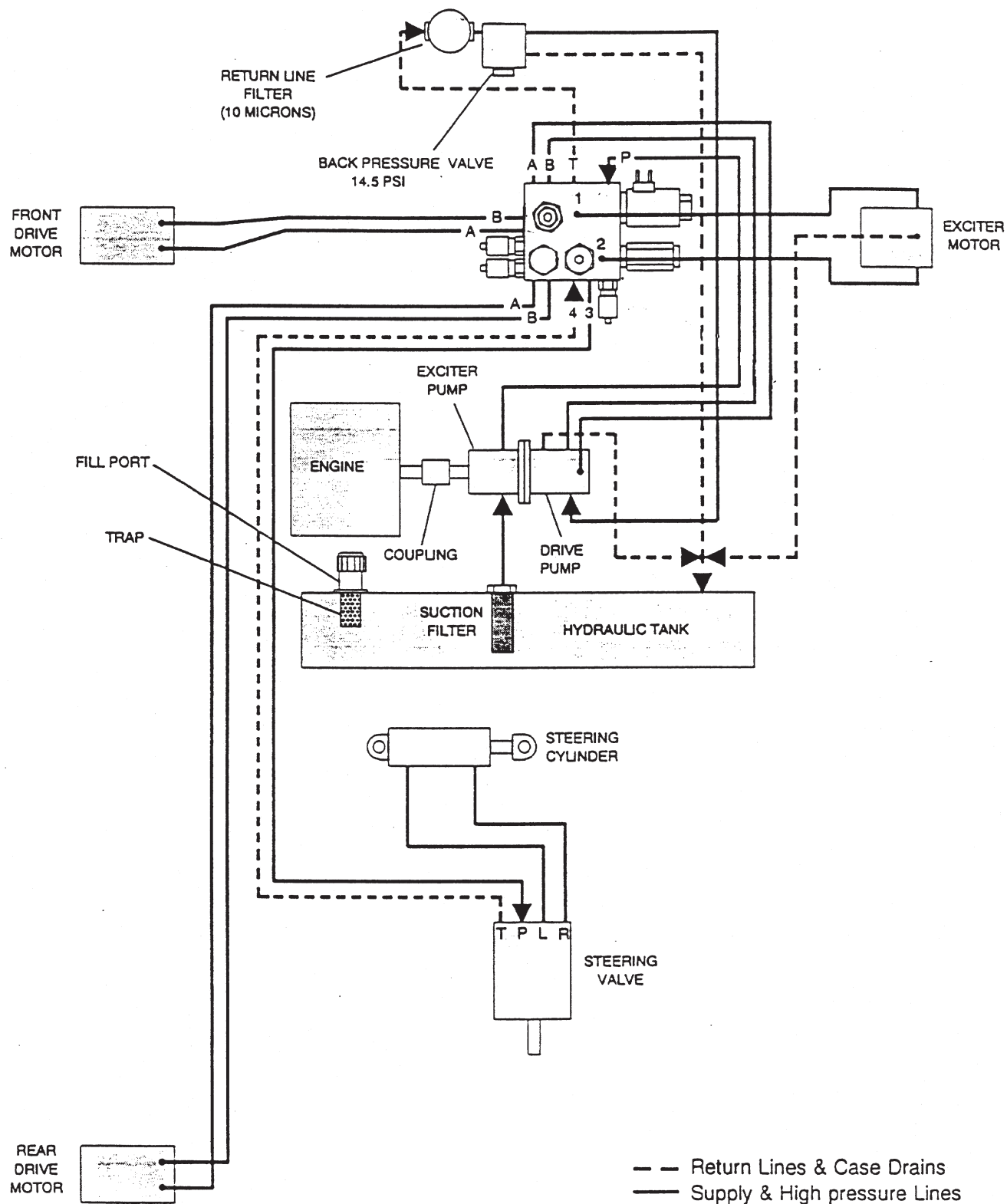
2.5 Towing Valve

A towing valve is located in the valve block. When opened, port A & B are allowed to connect, bypassing the oil to and from the drum drive motors. Freewheeling results for towing.

2.6 Testing Hydraulic Pressure

1. Set the parking brake.
2. Check and repair all hydraulic leaks.
3. Check hydraulic oil level.
4. Adjust engine RPM (3300 +/- 50 RPM)
5. Operate the machine until the hydraulic oil is at full operating temperature (approx. 180°)

VR-36HA — SERVICE INFORMATION

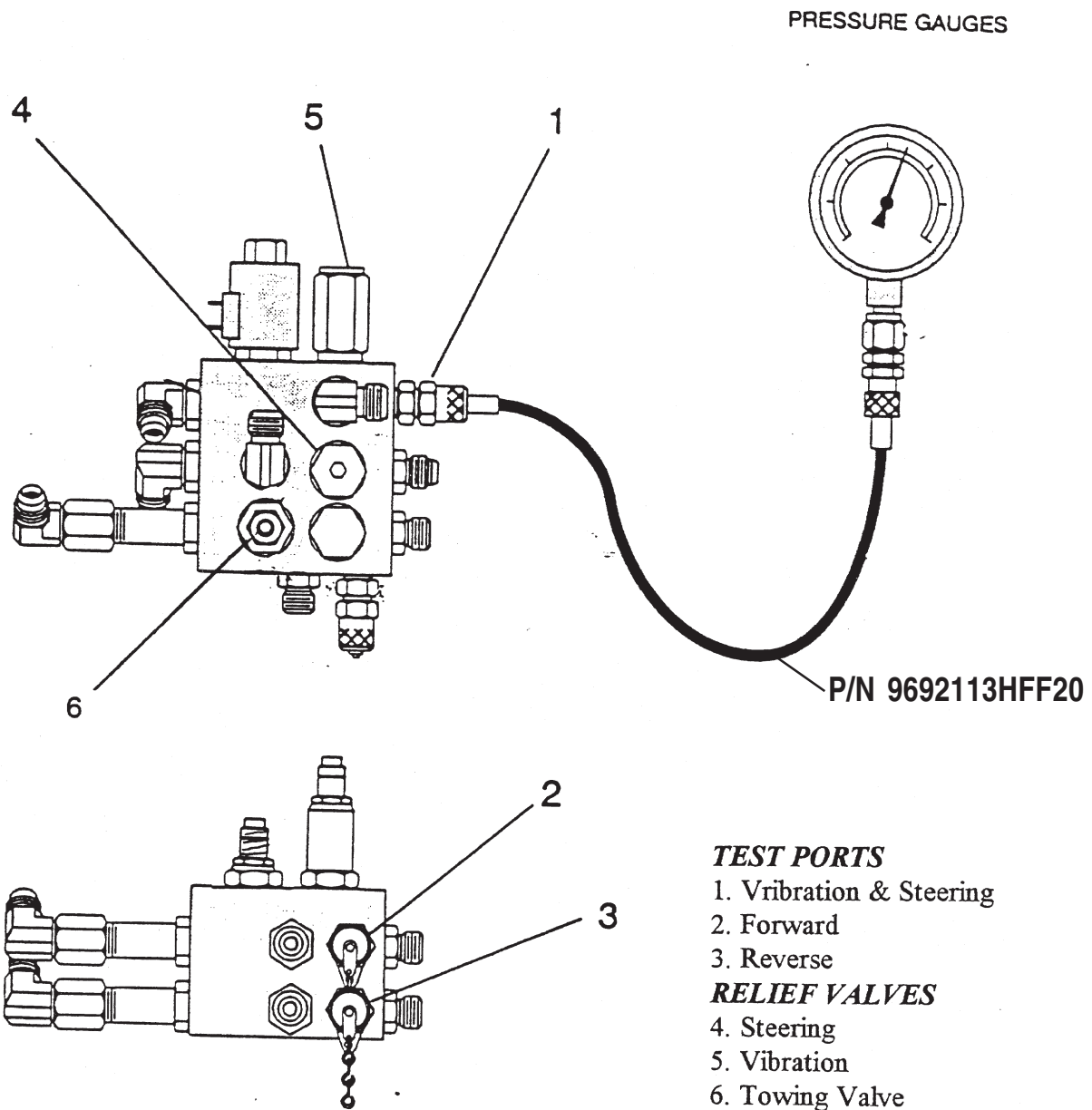


VR-36HA — SERVICE INFORMATION

A. Drive Circuit Pressure

Park the machine on a solid flat surface and stop the engine. Set the parking brake and block the front drum securely.

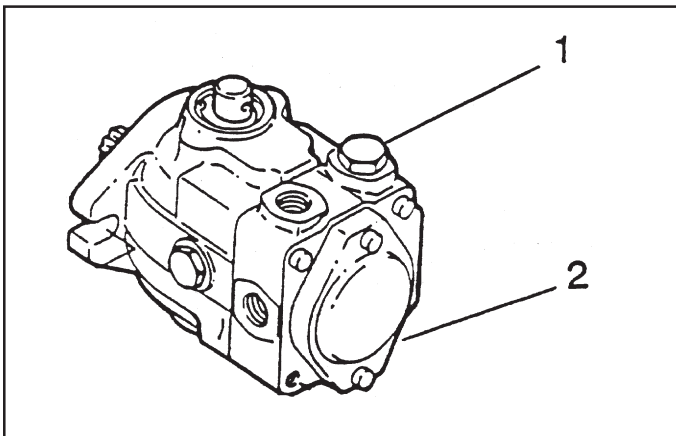
1. Install a 5000 PSI gauge to the forward pressure test quick connect (#3).
2. Start the engine and run at full throttle.
3. Move the forward / reverse control lever to forward.
MAKE SURE DRUMS DO NOT SPIN.
4. Read the pressure (pressure will “spike” and then stabilize to relief pressure).
5. Return the forward / reverse control lever to neutral and stop the engine.
6. Install the pressure gauge to the reverse quick connection (#2) and repeat the above procedures.



B. Adjusting Drive Relief Valves

The forward and reverse relief valves are shim type cartridge type and are located in the hydrostatic pump under caps #1 and #2 (cap #2 is located in the same location as #1, except it is on the bottom of pump). Relief valve #1 is Reverse; #2 is Forward.

1. Clean the area around the cap.
2. Remove the cap.
3. Carefully remove the valve cartridge.
4. Using an Allen wrench, remove the top nut (extreme care must be taken not to loosen existing shims, spring, or valve) Add or subtract shims as required (adding shims increases pressure; subtracting shims lowers pressure. One shim is equal to approximately 50 PSI).
5. Install the top nut and install valve in the pump cavity using extreme care not to bind.
6. Install the valve cap.
7. Re-test pressure, further adjustment may be needed if pressure is not correct.

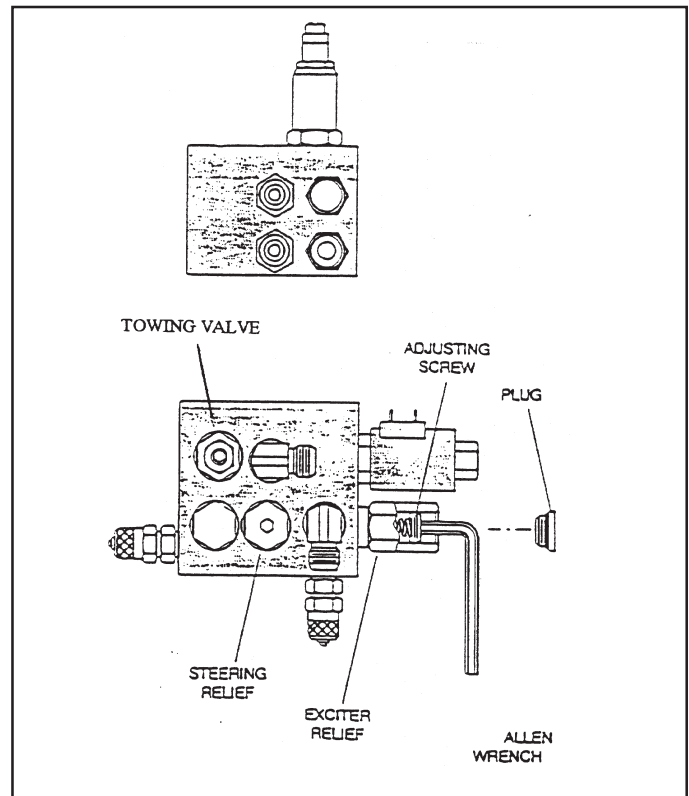


C. Vibration Circuit Pressure

Place the front drum on soil, gravel, or a heavy rubber mat. **DO NOT RUN VIBRATION ON CONCRETE OR HARD SURFACE!**

1. Install a 5000 PSI gauge to the quick connect.
2. Start the engine and run at full throttle.
3. Turn ON the vibration. Pressure will read "relief pressure" on initial vibration start up and then "return to normal operating pressure".

Vibration relief pressure is hard to read accurately using this test. It may be necessary to disconnect the pressure line to the vibration drive motor. Plug this line and re-test, pressure will be exact relief pressure. **DO NOT PERFORM THIS TEST FOR A LONG PERIOD OF TIME - DAMAGE COULD OCCUR.**



D. Steering Circuit Pressure

1. Install a 1000 PSI gauge to the quick connection.
2. Start the engine and run at full throttle.
3. Turn the steering wheel to maximum and hold. Read the steering relief pressure.

If maximum pressure cannot be reached, plug the steering cylinder pressure hoses and re-test. If pressure is correct the steering cylinder is leaking. **DO NOT OPERATE THE VIBRATION WHILE PERFORMING THIS TEST !**

	<u>Normal Operating Pressure</u>	<u>Relief Valve Pressure</u>
	<u>PSI</u>	<u>PSI</u>
Forward	400 - 600	2900
Reverse	400 - 600	2900
Vibration	800 - 1000	2000
Steering	200 - 500	500

2.7 Removing & Replacing Hydrostatic Pump Assembly

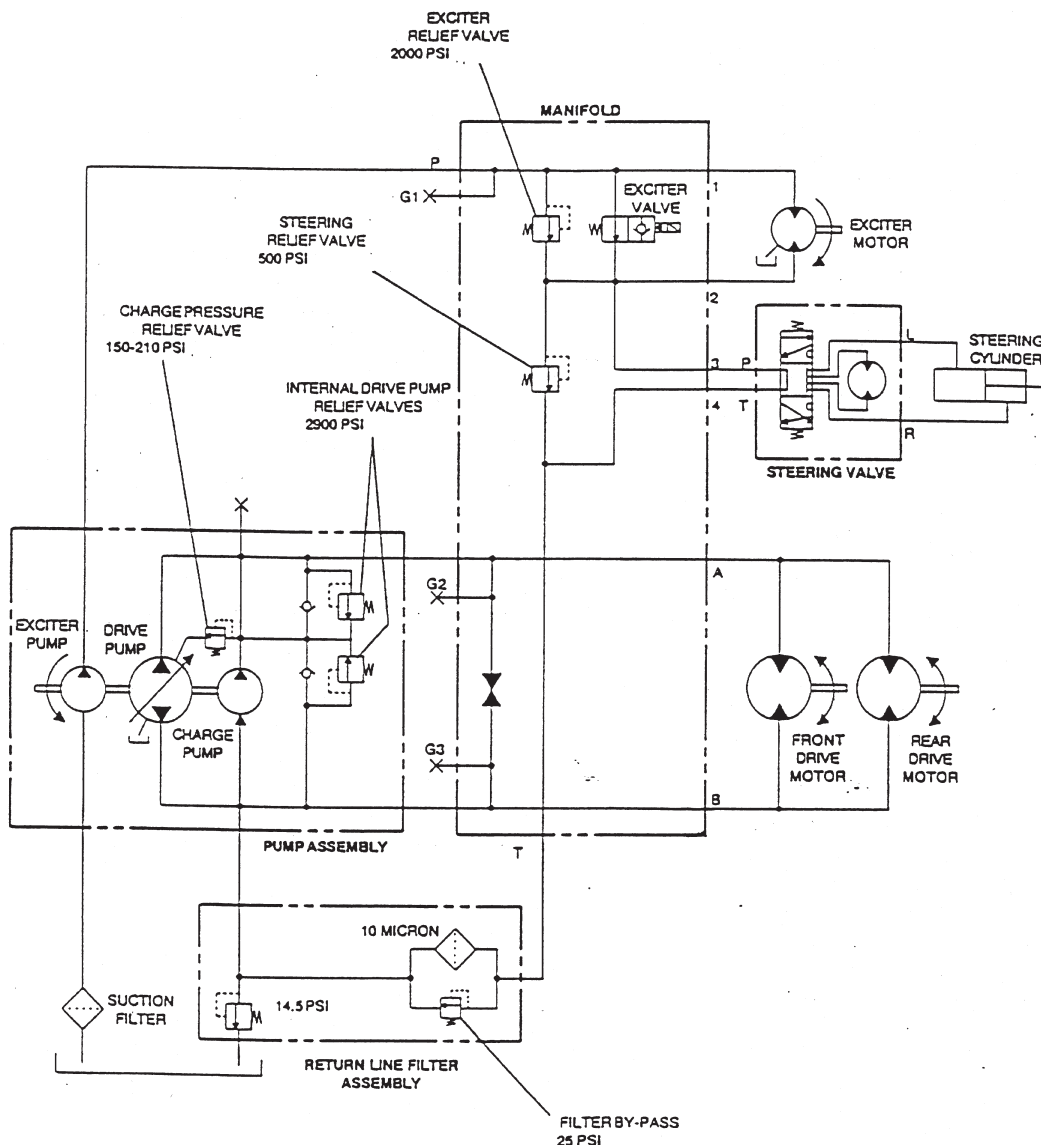
1. Set the parking brake.
2. Disconnect the battery.
3. Clean the pump and all connections.

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4. Mark and disconnect all hoses and lines from the pump.
5. Disconnect the forward / reverse control cable.
6. Disconnect the pump support bracket.
7. Remove the engine mounting bolts.
8. Elevate the pump and engine assembly using a proper lifting device.
9. Disconnect and remove the hydrostatic pump assembly.
10. Repair or replace the hydrostatic pump as required.
11. Install the hydrostatic pump in the reverse order of removal, using *Locktite 271* on all mounting bolts and nuts.
12. Test operate. Test and adjust the forward and reverse relief pressures as required. Adjust the forward / reverse control cable.

2.8 Removing and Replacing Vibration / Steering Pump

1. Remove the hydrostatic pump as per preceding instructions.
2. Remove all hoses and lines.
3. Disconnect the vibration / steering pump and remove.
4. Repair or replace pump as required.
5. Install the pump in the reverse order of removal, using *Locktite 271* on all mounting bolts and nuts.
6. Test operate. Test and adjust the forward and reverse pressure relief valves as required. Adjust the forward / reverse control cable. Test and adjust the vibration and steering pressure relief valves as required.

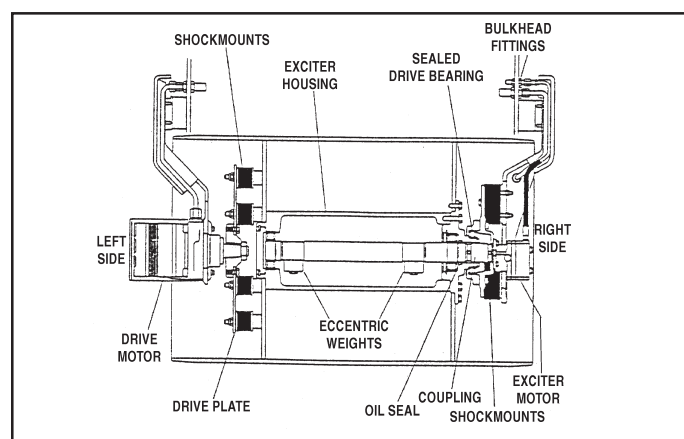


3.0 Drums and Main Frame

The front drum is designed to apply vibration and compaction force to the operating surface for compaction. This vibration and compaction force is produced when the vibrator shaft is rotated. Maximum efficiency is achieved only when the engine is operated at full throttle.

A single drive motor is mounted on the left side of the drum and is shockmounted. This type of drive motor is designed for maximum torque and power.

The vibrator is driven by a gear motor coupled to the vibrator shaft. The vibrator assembly rotates inside of a sealed housing containing oil to lubricate the bearings. This side of the drum is also shockmounted.



3.1 Removing Front Drum

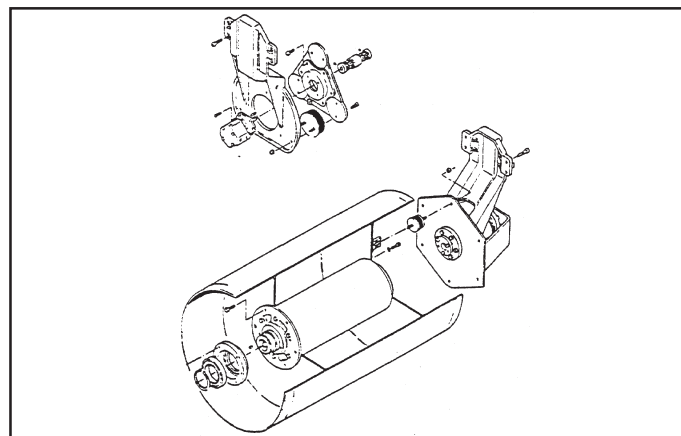
The drum assembly and all attaching hardware should be cleaned before any work is performed.

1. Park the roller on a clean, flat, hard surface. Set the parking brake and chock the rear drum.
2. Set the center joint locking arm.
4. Disconnect all hydraulic hoses and lines.
5. Using a proper lifting device, slightly lift the front frame using the lifting eyes provided on the front of the frame.
6. Remove the Allen head cap screws retaining the drum support plates.
7. Using caution, lift the front frame until the front drum can be rolled out from under machine.

3.2 Front Drum Disassembly

1. Remove the front drum as per section 3.1.
2. Remove the drive motor assembly complete with the drum support plate and drive plate.
3. Remove the vibrator drive motor and the drum support plate.

4. Stand the drum on end with the vibrator drive facing up.
5. Remove the vibrator motor mount plate.
6. Remove the snap ring which retains the vibrator bearing housing.
7. Remove the vibrator cover.
8. Remove the vibrator shaft using care not to damage the bearings.
9. Inspect, repair or replace parts as required.

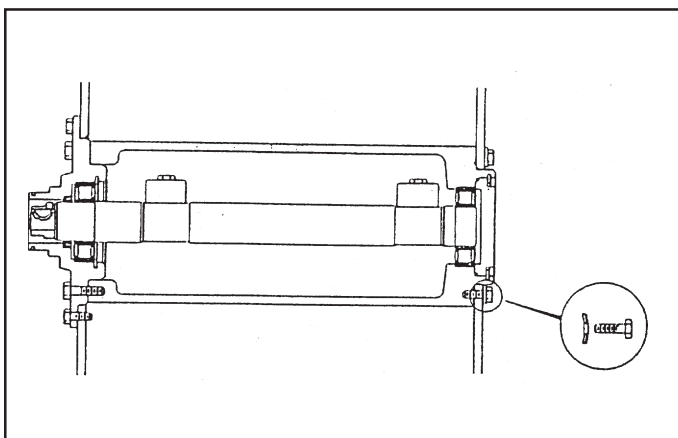


3.3 Front Drum Assembly

1. Cover the inside of the bearing housing with a light coat of oil. Install the drive bearing.
2. Install the bearing housing on the hub of the vibrator assembly, and press down until the bearing seats against the hub shoulder.
3. Install the snap ring.
4. Install the vibrator motor assembly onto the motor mount using *Loctite 271* and tighten all bolts.
5. Install the motor mount assembly to the bearing housing using *Loctite 271* and tighten all bolts.

3.4 Vibrator Assembly Removal

1. Refer to "Front Drum Disassembly", and remove the vibrator motor mount and bearing housing.
2. Remove the bolts from the vibrator cover on the right side of drum.
3. Remove the bolts from the left side of the drum holding the vibrator assembly.
4. Place the drum in the upright position (vibrator motor end up). Remove the cover using care to break the seal all around. Lift the vibrator shaft assembly up and out of the housing.



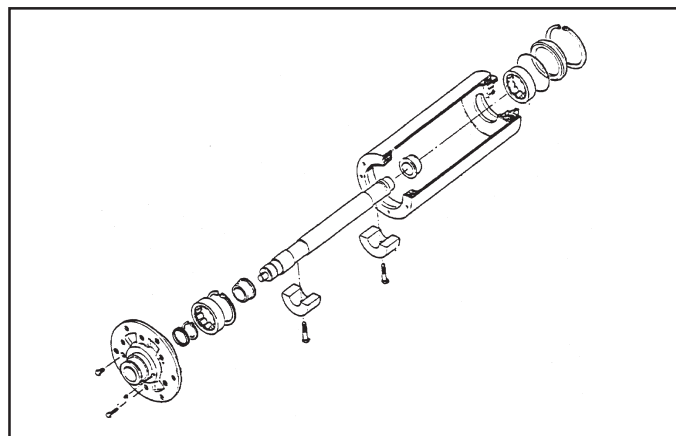
3.5 Vibrator Assembly Installation

1. Coat the left side vibrator housing and bearing flange with never-seize and install the bearing flange using *Loctite 271* on all bolts (install the flat washers with the cup facing the drum).
2. Lower the vibrator assembly into the drum, making sure that the bearing is seated properly into the hub.
3. Install the vibrator cover using *Loctite 271* on all bolts.

3.6 Vibrator Disassembly

1. Refer to "Vibrator Assembly Removal" and remove the vibrator assembly from the drum.
2. Drain the oil from the vibrator housing by removing the drain / fill plug.
3. Remove the two set screws from the cover. Using pusher bolts, remove the bearing carrier from the vibrator housing.
4. Remove the bearing carrier and lift the vibrator shaft out of the housing.
5. Remove the snap ring which retains the vibrator bearing (right side).

6. Remove the two set screws and using pusher bolts, push the bearing out of the carrier.
7. Remove the seal using care not to damage the seal mounting surface.
8. Remove the large snap ring from the left side of the vibrator housing.
9. Tap lightly on a piece of wood and drive the drive end cover off of the housing.
10. Install the vibrator shaft into the housing and using it for a pusher, press the end cover off of the housing.
11. Remove the set screw from the coupler, and remove the coupler adapter and key of the vibrator shaft.
12. Remove the snap ring from the right side of the vibrator shaft. Press the bearings off of the vibrator shaft using a proper pressing device.
13. Heat must be applied to remove the vibrator weights retaining bolts.



3.7 Vibrator Assembly

1. Clean all parts and components.
2. Install the vibrator weights using *Loctite 271* on all bolts.
3. Using a proper pressing device, install the bearings making sure that both bearings are seated completely.
4. Install the right side bearing snap ring.
5. Install the key in the shaft and install the coupler over the key. Tap the coupler into place and using *Loctite 241*, install the set screw.
6. With the left side of the housing facing up, coat the inside bearing surface with oil. Install the bearing cage making sure that the bearing seats properly.

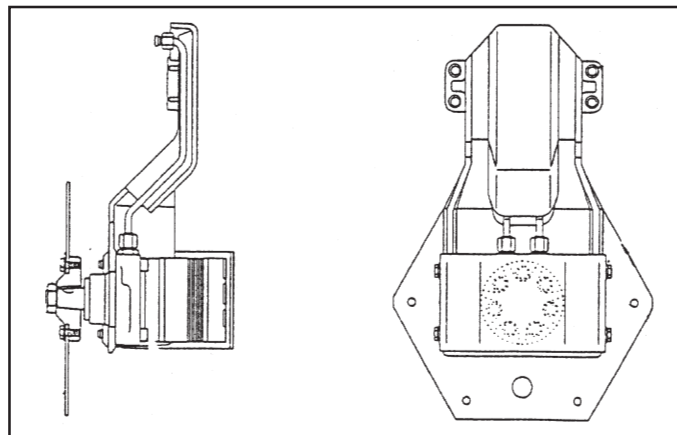
7. Lubricate the O-ring and install it inside of the hub.
8. Install the hub in its bore making sure that it seats properly (a proper pressing device may be required).
9. Install the oil seal inside of the bearing carrier with the seal lip facing the vibrator housing.
10. Install the bearing cage into the carrier and install the snap ring.
11. Place the vibrator shaft assembly into the housing.
12. Coat the top of the vibrator housing with *Loctite 515*.
13. Using guide bolts install the vibrator housing.
14. Install the retaining bolts using *Loctite 271*.
15. Pour 16 ounces of SAE 30W engine motor oil into the housing through the drain / fill hole. Replace the plug.
16. Refer to previous sections to reinstall vibrator assembly.

3.8 Installing Front Drum

1. Using caution, roll the front drum under the machine using care to position in the proper location.
2. Using caution, lower the front frame to the proper height.
3. Rotate the drum supports and install the Allen head cap screws using *Loctite 271* and torque to 95 Ft. Lbs.
4. Connect all hoses and lines.
5. Test operate and inspect for any leaks at the hydraulic fittings.

3.9 Drive Motor Removal

1. Using a proper lifting device, elevate the left side of the machine and secure with jack stands.
2. Disconnect the hydraulic lines from the top fittings and install caps.
3. Remove the retaining bolts from the drive plate to drum.
4. Remove the left side drum support retaining bolts and remove the complete drive / support assembly.
5. Remove the hydraulic pipe guard and remove the hydraulic pipes.
6. Remove the retaining bolts from the drive motor drive hub and remove the drive plate.
7. Remove the large nut from the drive end of the drive motor.
8. Using a proper pressing device, press off the drive hub.
9. Remove the retaining bolts and remove the drive motor from the drum support.



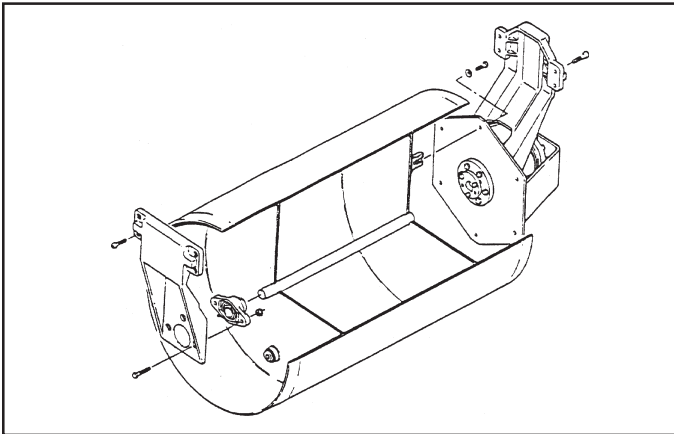
3.10 Drive Motor Installation

1. Install the drive motor to the drum support using *Loctite 271* on all bolts.
2. Install the key and install the drive hub. Using *Loctite 271* secure the retaining nut to 300 - 400 ft. lbs. of torque (a proper retaining device is necessary to hold the hub).
3. Install the drive plate using *Loctite 271* on all bolts.
4. Install the hydraulic lines (do not tighten).
5. Install the drive / support assembly to the drum using *Loctite 271* on all bolts and nuts.
6. Install the drum support to frame bolts using *Loctite 271*.
7. Remove the caps and connect the hydraulic lines to the bulk head fittings. Tighten all lines (upper and lower).
8. Test operate and check for hydraulic leaks.

3.11 Rear Drum Removal

1. Park the roller on a hard flat surface, connect the center joint locking arm, and chock the front drum.
2. Remove the drain / fill plug and drain any ballast in the drum.
3. Using a proper lifting device, lift the rear of the roller using the provided lifting eyes.
4. Remove the retaining bolts from the right side drum bearing block.
5. Disconnect and cap the hydraulic lines of the left side.
6. Remove the retaining bolts on the left drum support bracket.

7. Lift the roller until drum can be removed. Install jack stands for proper safety.



3.12 Rear Drum Installation

1. Locate the drum under the machine and align for proper mounting.
2. Remove the jack stands and using caution, lower the roller until proper alignment is obtained.
3. Install the left drum support bracket using *Locktite 271* on all retaining bolts.
4. Install the right bearing retaining bolts using *Locktite 271* on all retaining bolts.
5. Connect the hydraulic lines and tighten.
6. Test operate and check for hydraulic leaks.

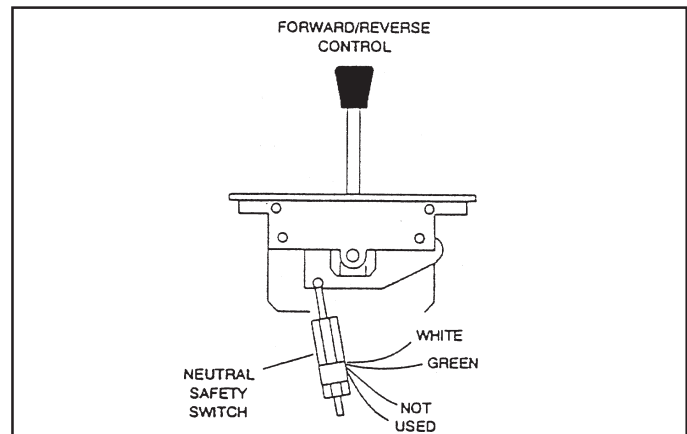
4.0 Alternator / Regulator

The VR-36H is equipped with a 20 amp charging system. This system uses three charge coils connected in parallel. The windings of each coil are wound with heavy-duty insulated wire and are further protected by insulating material for long life. A voltage regulator is provided to control the amount of charge voltage being delivered to the 12 volt electrical system. For servicing this charging system, contact your Honda dealer.

4.1 Neutral Safety Switch

The forward / reverse control lever is provided with a neutral safety switch that prevents the engine from starting when lever is in the forward or reverse drive position. Lever must be in the neutral position for starter function.

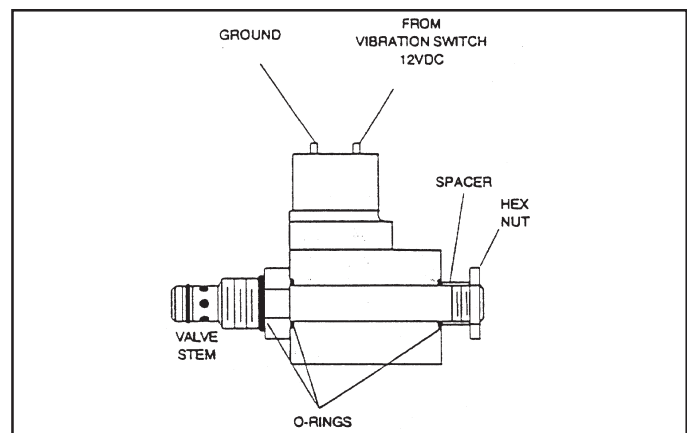
To check this switch, remove the panel located below and to the rear of the floor. This switch is mounted to the lower forward / reverse lever mechanism. Disconnect the white and green wires. Place the lever in neutral and test for continuity. Place the lever in forward or reverse; no continuity should be present. Repair or replace as required.



4.2 Vibrator Solenoid

The vibrator solenoid is located in the valve block and is controlled by the vibration switch located on the steering column. This solenoid controls the vibration control valve which supplies hydraulic oil to the vibration drive motor.

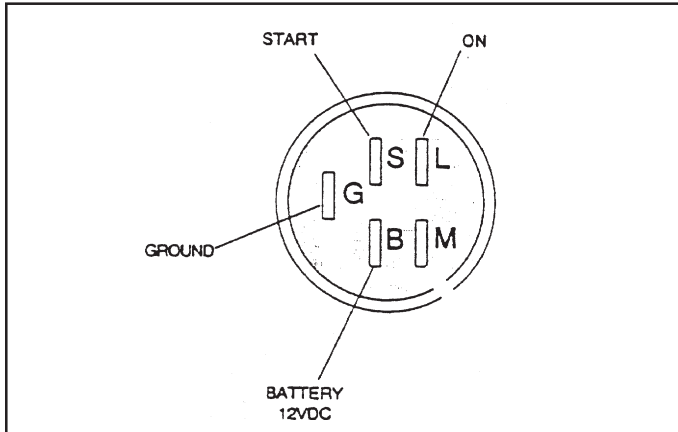
To test the vibration solenoid, turn the ignition switch on. Check for proper supply voltage and ground. If proper voltage and ground are present, check the solenoid for continuity. If no continuity, replace the solenoid coil. If continuity is present, place your hand on the solenoid and turn the switch to the ON position; movement should be felt. **DO NOT START THE ENGINE FOR THIS TEST**



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4.3 Ignition Switch

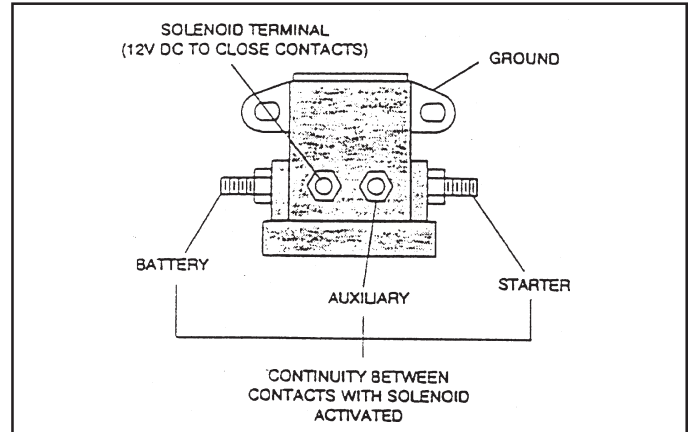
The ignition switch is a three position type switch. "OFF," "ON," and "START." In the "OFF" position, all circuits are open. In the "ON" position, the vibration, fuel pump, voltage regulator, hour meter, and fuel shut down solenoid are powered. In the "START" position, all of the "ON" positions are powered, and the starter circuit is powered via the neutral safety switch.



Switch Position	Continuity Across Terminals	Voltage 12V DC
OFF	G - M	B
ON	B - L	L
START	B - S	S

4.4 Starter Solenoid

The starter solenoid is used to allow the use of high amperage for starter operation. This solenoid is connected to the battery. When the starter position is utilized on the ignition switch, it is engaged to connect the battery to the starter for high amperage operation.



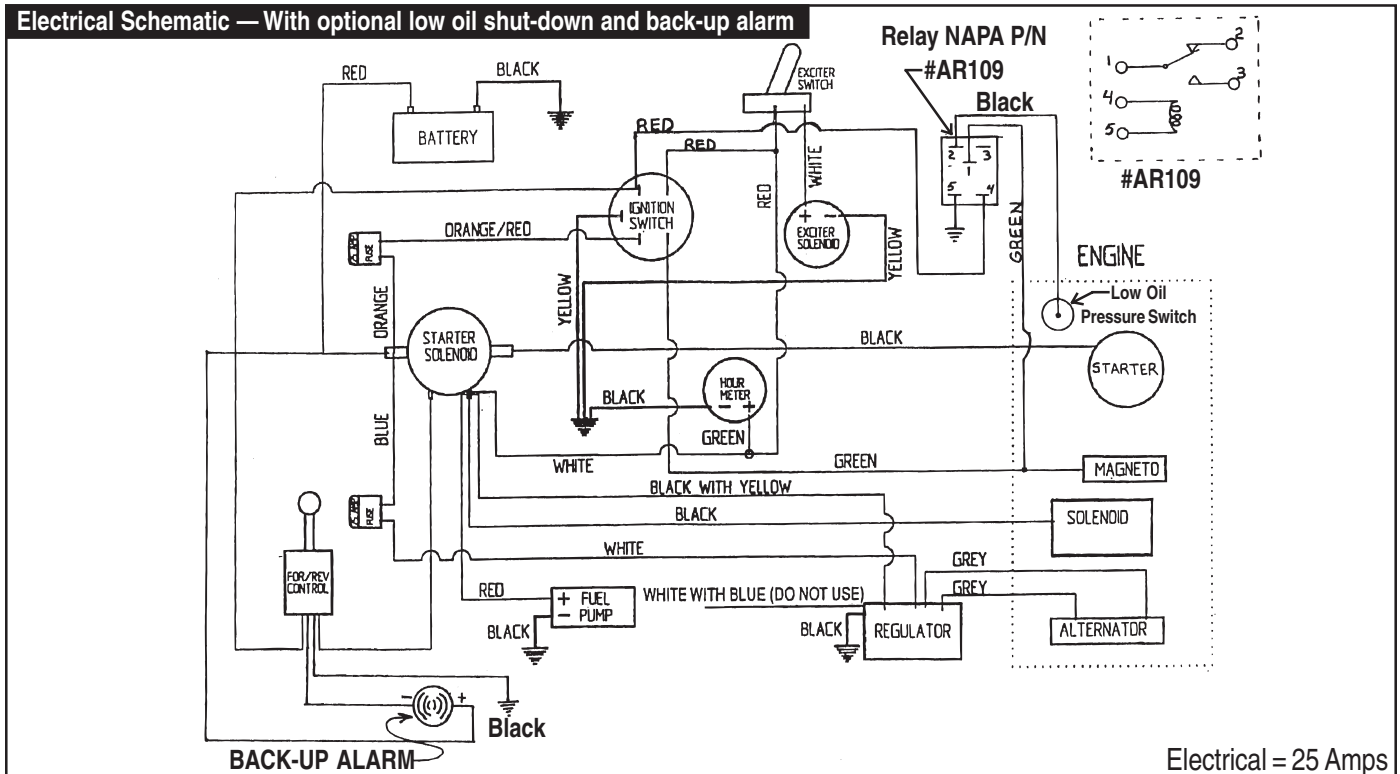
4.5 Fuses

There are two fuses in the system for circuit protection. They are located beside the starter solenoid in the engine compartment. These fuses are built into the wiring harness.

Charge = 25 Amps

Electrical = 25 Amps

Electrical Schematic — With optional low oil shut-down and back-up alarm



Electrical = 25 Amps

PAYMENT TERMS

Terms of payment for parts are net 10 days.

FREIGHT POLICY

All parts orders will be shipped collect or prepaid with the charges added to the invoice. All shipments are F.O.B. point of origin. Multiquip's responsibility ceases when a signed manifest has been obtained from the carrier, and any claim for shortage or damage must be settled between the consignee and the carrier.

MINIMUM ORDER

The minimum charge for orders from Multiquip is \$15.00 net. Customers will be asked for instructions regarding handling of orders not meeting this requirement.

RETURNED GOODS POLICY

Return shipments will be accepted and credit will be allowed, subject to the following provisions:

1. A Returned Material Authorization must be approved by Multiquip prior to shipment.
2. To obtain a Return Material Authorization, a list must be provided to Multiquip Parts Sales that defines item numbers, quantities, and descriptions of the items to be returned.
 - a. The parts numbers and descriptions must match the current parts price list.
 - b. The list must be typed or computer generated.
 - c. The list must state the reason(s) for the return.
 - d. The list must reference the sales order(s) or invoice(s) under which the items were originally purchased.
 - e. The list must include the name and phone number of the person requesting the RMA.
3. A copy of the Return Material Authorization must accompany the return shipment.
4. Freight is at the sender's expense. All parts must be returned freight prepaid to Multiquip's designated receiving point.
5. Parts must be in new and resalable condition, in the original Multiquip package (if any), and with Multiquip part numbers clearly marked.
6. The following items are not returnable:
 - a. Obsolete parts. (If an item is listed in the parts price book as being replaced by another item, it is obsolete.)
 - b. Any parts with a limited shelf life (such as gaskets, seals, "O" rings, and other rubber parts) that were purchased more than six months prior to the return date.
 - c. Any line item with an extended dealer net price of less than \$5.00.
 - d. Special order items.
 - e. Electrical components.
 - f. Paint, chemicals, and lubricants.
 - g. Decals and paper products.
 - h. Items purchased in kits.
7. The sender will be notified of any material received that is not acceptable.
8. Such material will be held for 5 working days from notification, pending instructions. If a reply is not received within 5 days, the material will be returned to the sender at his expense.
9. Credit on returned parts will be issued at dealer net price at time of the original purchase, less a 15% restocking charge.
10. In cases where an item is accepted for which the original purchase document can not be determined, the price will be based on the list price that was effective twelve months prior to the RMA date.
11. Credit issued will be applied to future purchases only.

PRICING AND REBATES

Prices are subject to change without prior notice. Price changes are effective on a specific date and all orders received on or after that date will be billed at the revised price. Rebates for price declines and added charges for price increases will not be made for stock on hand at the time of any price change.

Multiquip reserves the right to quote and sell direct to Government agencies, and to Original Equipment Manufacturer accounts who use our products as integral parts of their own products.

SPECIAL EXPEDITING SERVICE

A \$20.00 to \$50.00 surcharge will be added to the invoice for special handling including bus shipments, insured parcel post or in cases where Multiquip must personally deliver the parts to the carrier.

LIMITATIONS OF SELLER'S LIABILITY

Multiquip shall not be liable here under for damages in excess of the purchase price of the item with respect to which damages are claimed, and in no event shall Multiquip be liable for loss of profit or good will or for any other special, consequential or incidental damages.

LIMITATION OF WARRANTIES

No warranties, express or implied, are made in connection with the sale of parts or trade accessories nor as to any engine not manufactured by Multiquip. Such warranties made in connection with the sale of new, complete units are made exclusively by a statement of warranty packaged with such units, and Multiquip neither assumes nor authorizes any person to assume for it any other obligation or liability whatever in connection with the sale of its products. A part from such written statement of warranty, there are no warranties, express, implied or statutory, which extend beyond the description of the products on the face hereof.

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PARTS AND OPERATION MANUAL

HERE'S HOW TO GET HELP

*PLEASE HAVE THE MODEL AND SERIAL NUMBER
ON-HAND WHEN CALLING*

PARTS DEPARTMENT

800-427-1244 or 310-537-3700

FAX: 800-672-7877 or 310-637-3284

SERVICE DEPARTMENT/TECHNICAL ASSISTANCE

800-478-1244 or 310-537-3700

FAX: 310- 537-4259

WARRANTY DEPARTMENT

888-661-4279, or 310-661-4279

FAX: 310- 537-1173

MAIN

800-421-1244 or 310-537-3700

FAX: 310-537-3927



MULTIQUIP INC.

POST OFFICE BOX 6254
CARSON, CA 90749
310-537-3700 • 800-421-1244
FAX: 310-537-3927
E-MAIL: mq@multiquip.com
WWW: multiquip.com

Atlanta • Boise • Dallas • Houston • Newark
Quebec, Canada • Manchester, UK • Rio De Janeiro, BR • Guadalajara, MX