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0605	

Roller

RD 11 /...

OPERATOR'S MANUAL

0155952EN

CALIFORNIA

Proposition 65 Warning:

Engine exhaust, some of its constituents, and certain vehicle components contain or emit chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

1. Foreword

This manual provides information and procedures to safely operate and maintain this Wacker model. For your own safety and protection from injury, carefully read, understand and observe the safety instructions described in this manual.

Keep this manual or a copy of it with the machine. If you lose this manual or need an additional copy, please contact Wacker Corporation. This machine is built with user safety in mind; however, it can present hazards if improperly operated and serviced. Follow operating instructions carefully! If you have questions about operating or servicing this equipment, please contact Wacker Corporation.

The information contained in this manual was based on machines in production at the time of publication. Wacker Corporation reserves the right to change any portion of this information without notice.

2. Safety Information

This manual contains DANGER, WARNING, CAUTION, and NOTE callouts which must be followed to reduce the possibility of personal injury, damage to the equipment, or improper service.

This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

DANGER

DANGER indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

WARNING

WARNING indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION

CAUTION indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.

CAUTION: Used without the safety alert symbol, CAUTION indicates a potentially hazardous situation which, if not avoided, may result in property damage.

Note: *Contains additional information important to a procedure.*

2.1 Operating Safety

Notice: State Health Safety Codes and Public Resources Codes specify that in certain locations spark arresters be used on internal combustion engines that use hydrocarbon fuels. A spark arrester is a device designed to prevent accidental discharge of sparks or flames from the engine exhaust. Spark arresters are qualified and rated by the United States Forest Service for this purpose.

In order to comply with local laws regarding spark arresters, consult the engine distributor or the local Health and Safety Administrator.

WARNING

Familiarity and proper training are required for the safe operation of equipment! Equipment operated improperly or by untrained personnel can be dangerous! Read the operating instructions contained in both this manual and the engine manual and familiarize yourself with the location and proper use of all controls. Inexperienced operators should receive instruction from someone familiar with the equipment before being allowed to operate the machine.

2.1.1 ALWAYS disengage and stow locking bar for the articulated joint before operating machine. The machine cannot be steered when the locking bar is engaged.

2.1.2 ALWAYS check that all controls are functioning properly immediately after start-up! DO NOT operate machine unless all controls operate correctly.

2.1.3 ALWAYS remain aware of changing positions and movement of other equipment and personnel on the job site.

2.1.4 ALWAYS remain seated at all times while operating machine.

2.1.5 ALWAYS remain aware of changing surface conditions and use extra care when operating over uneven ground, on hills, or over soft or coarse material. The machine could shift or slide unexpectedly.

2.1.6 ALWAYS use caution when operating near the edges of pits, trenches or platforms. Check to be sure that ground surface is stable enough to support the weight of the machine and that there is no danger of the roller sliding, falling or tipping.

2.1.7 ALWAYS wear protective clothing appropriate to the job site when operating equipment.

2.1.8 ALWAYS keep hands, feet, and loose clothing away from moving parts of the machine.

2.1.9 ALWAYS read, understand, and follow procedures in Operator's Manual before attempting to operate equipment.

2.1.10 ALWAYS store equipment properly when it is not being used. Equipment should be stored in a clean, dry location out of the reach of children.

2.1.11 ALWAYS operate machine with all safety devices and guards in place and in working order.

2.1.12 NEVER allow anyone to operate this equipment without proper training. People operating this equipment must be familiar with the risks and hazards associated with it.

2.1.13 NEVER touch the engine or muffler while the engine is on or immediately after it has been turned off. These areas get hot and may cause burns.

2.1.14 NEVER use accessories or attachments that are not recommended by Wacker. Damage to equipment and injury to the user may result.

2.1.15 NEVER leave machine running unattended.

2.1.16 NEVER operate with fuel cap loose or missing.

2.2 Operator Safety while using Internal Combustion Engines

DANGER

Internal combustion engines present special hazards during operation and fueling! Read and follow warning instructions in engine owner's manual and safety guidelines below. Failure to follow warnings and safety guidelines could result in severe injury or death.

2.2.1 DO NOT smoke while operating machine.

2.2.2 DO NOT smoke when refueling engine.

2.2.3 DO NOT refuel hot or running engine.

2.2.4 DO NOT refuel engine near open flame.

2.2.5 DO NOT spill fuel when refueling engine.

2.2.6 DO NOT run engine near open flames.

2.2.7 DO NOT run machine indoors or in an enclosed area such as a deep trench unless adequate ventilation, through such items as exhaust fans or hoses, is provided. Exhaust gas from the engine contains poisonous carbon monoxide gas; exposure to carbon monoxide can cause loss of consciousness and may lead to death.

2.2.8 ALWAYS refill fuel tank in well-ventilated area.

2.2.9 ALWAYS replace fuel tank cap after refueling.

2.2.10 ALWAYS keep area around hot exhaust pipes free of debris to reduce the chance of an accidental fire.

2.3 Service Safety

WARNING

Poorly maintained equipment can become a safety hazard! In order for the equipment to operate safely and properly over a long period of time, periodic maintenance and occasional repairs are necessary.

2.3.1 DO NOT attempt to clean or service machine while it is running. Rotating parts can cause severe injury.

2.3.2 DO NOT crank a flooded engine with the spark plug removed on gasoline-powered engines. Fuel trapped in the cylinder will squirt out the spark plug opening.

2.3.3 DO NOT test for spark on gasoline-powered engines, if engine is flooded or the smell of gasoline is present. A stray spark could ignite fumes.

2.3.4 DO NOT use gasoline or other types of fuels or flammable solvents to clean parts, especially in enclosed areas. Fumes from fuels and solvents can become explosive.

2.3.5 DO NOT modify the equipment without express written approval of the manufacturer.

2.3.6 ALWAYS check and tighten all external fasteners at regular intervals.

2.3.7 ALWAYS keep area around muffler free of debris such as leaves, paper, cartons, etc. A hot muffler could ignite them, starting a fire.

2.3.8 ALWAYS replace worn or damaged components with spare parts designed and recommended by Wacker.

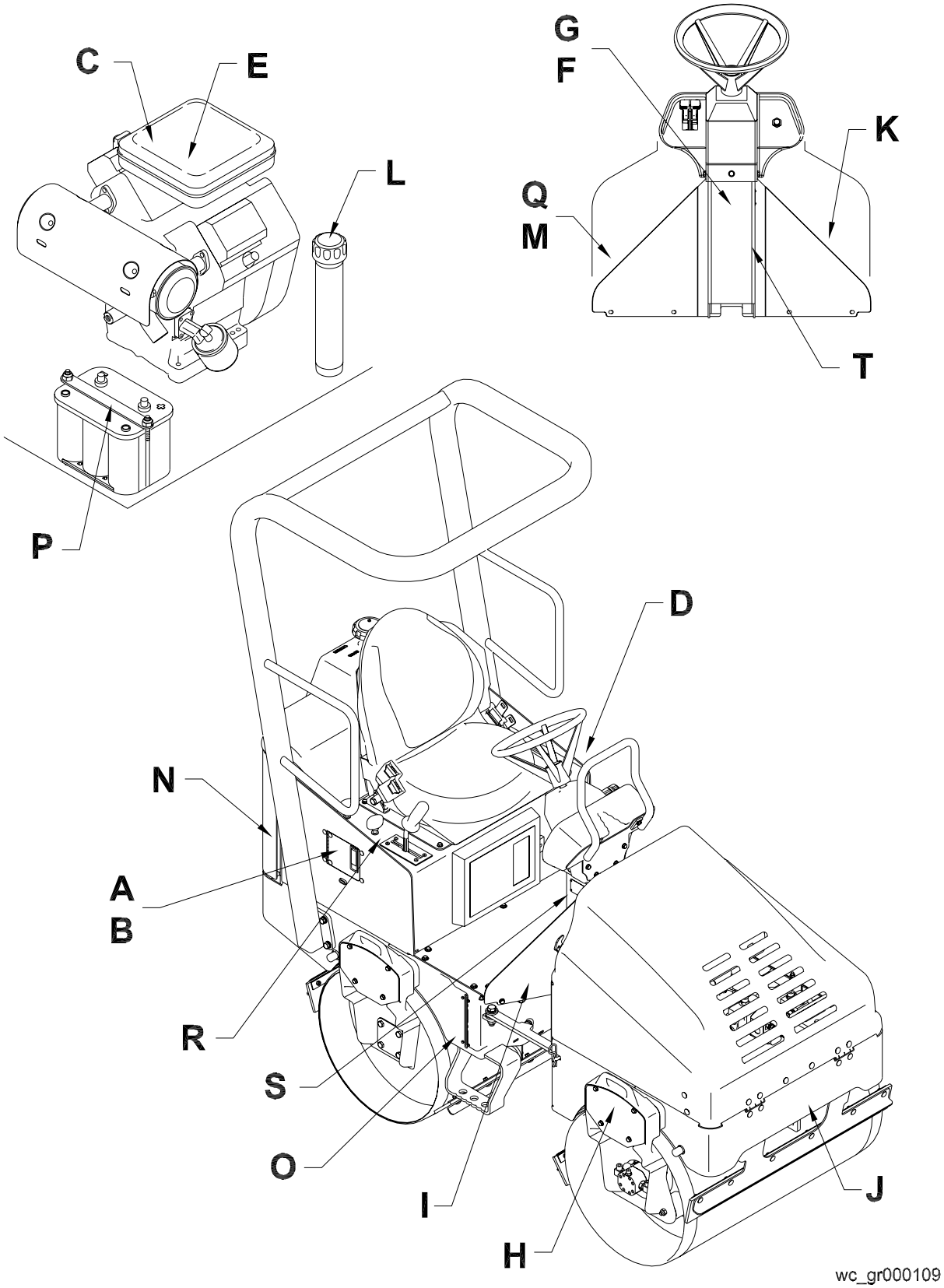
2.3.9 ALWAYS disconnect spark plug on machines equipped with gasoline engines, before servicing, to avoid accidental start-up.

2.3.10 ALWAYS keep machine clean and labels legible. Replace all missing and hard-to-read labels. Labels provide important operating instructions and warn of dangers and hazards.

2.3.11 ALWAYS switch off the power supply at the battery disconnect before adjusting or maintaining the electrical equipment.

2.3.12 ALWAYS do Periodic Maintenance as recommended in Operator's Manual.

2.4 Label Locations



2.5 Safety Labels

Wacker machines use international pictorial labels where needed. These labels are described below:

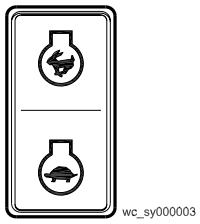
Ref.	Label	Meaning
A		DANGER! Engines emit carbon monoxide; operate only in well ventilated area. Read the operator's manual. No sparks, flames or burning objects near machine. Shut off engine before refueling.
B		DANGER! Before fueling, stop the engine. No sparks, flames or burning objects near machine.
C		WARNING! Hot surface!
D		WARNING! Read and understand the supplied operator's manual before operating this machine. Failure to do so increases the risk of injury to yourself or others.
E		CAUTION! Read and understand the supplied operator's manuals before operating this machine. Failure to do so increases the risk of injury to yourself or others.
F		WARNING! To prevent hearing loss, wear hearing protection when operating this machine.

Ref.	Label	Meaning
G		WARNING! Always wear seat belt when operating roller.
H		CAUTION! Lifting point
I		WARNING! Pinch point.

2.6 Operating Labels

Ref.	Label	Meaning
J		Tie-down point
K		Hydraulic oil drain
L		Hydraulic oil reservoir fill
M		Hydraulic oil reservoir level

Ref.	Label	Meaning
N		Water level
O		Gas level
P		Torque battery hold-down nuts to 3.5 Nm (2.5 ft.lbs.) max.
Q		Grease Points: Inspect and lubricate every 100 hours of operation.
R		Water Control Valve
S		Guaranteed sound power level in dB(A).

Ref.	Label	Meaning
T		A nameplate listing the Model Number, Item Number, Revision, and Serial Number is attached to each unit. Please record the information found on this plate so it will be available should the nameplate become lost or damged. When ordering parts or requesting service information, you will always be asked to specify the model, item number, revision number, and serial number of the unit.
		Variable speed throttle
		Variable choke
		Variable direction control
		Vibration control
		Key switch, engine start: Off On Start

Ref.	Label	Meaning
		This machine may be covered by one or more patents.

3. Technical Data

Item Number	Revision
0007693	128 & higher
0007694	128 & higher
0007695	128 & higher

3.1 Engine

Item No.		**RD 11A** 0007693	**RD11 AEC** 0007695	**RD 11V** 0007694
Engine				
Engine Type		4-stroke, 2 cylinder, air cooled		
Engine Make		Honda	Honda	Briggs & Stratton
Engine Model		GX 610 QDF		Vanguard 350447
Rated Power	kW (Hp)	13.4 (18)		
Displacement	cm³ (in³)	614 (37.5)		570 (34.7)
Spark Plug		(NGK) BPR6ES / (NGK) BPR6ES High Heat		Champion RC12YC
Electrode Gap	mm (in)	0.71–0.79 (0.028–0.031)		0.76 (0.030)
Engine Speed - full load	rpm	3200		
Engine Speed - idle	rpm	1800		
Valve Clearance (cold) intake: exhaust:	mm (in.)	 0.10–0.16 (0.004–0.006) 0.10–0.16 (0.004–0.006)		
Battery	V	12 VDC		
Air Cleaner	type	Dual Element		
Fuel	type	Regular Unleaded Gasoline		
Fuel Tank Capacity	l (gal.)	24 (6.3)		
Fuel Consumption	l (gal.)/hr.	4.6 (1.2)		

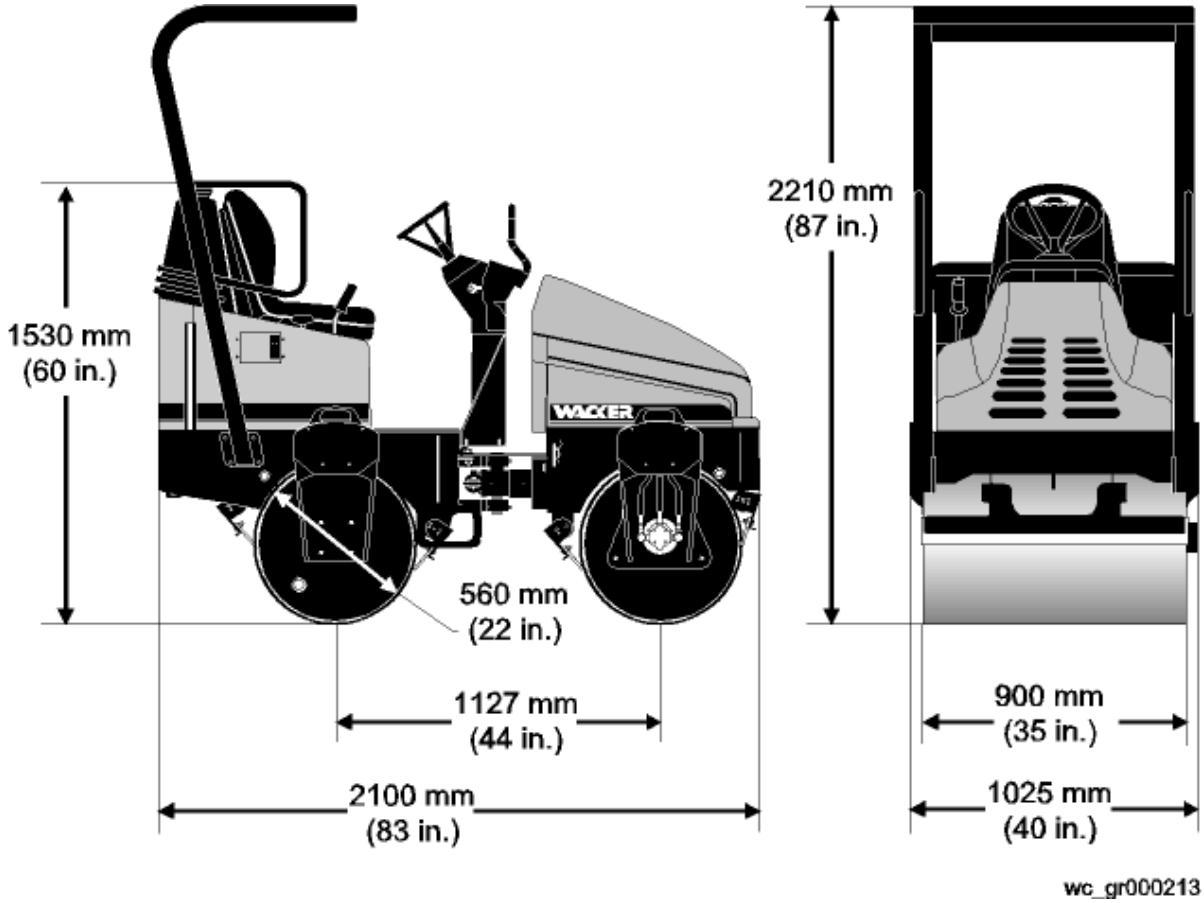
3.2 Roller

Item No.		RD 11A 0007693	RD 11AEC 0007695	RD 11V 0007694
Roller				
Dry Weight		925 (2040)	1067 (2353)	925 (2040)
Curb Clearance: Right Left	mm (in.)	 470 (18.4) 205 (8.1)	 390 (15.4) 210 (8.7)	 470 (18.4) 205 (8.1)
Water Tank Capacity	l (gal.)	151 (40)		
Outside Turning Radius	m (ft.)	2.8 (9.2)		
Forward / Reverse Speed	m (ft.) / min.	0–126 (0–414)		
Gradeability		27% (12º)		
Vibration Frequency	Hz (vpm)	65 (3900)		

3.3 Lubrication

Item No.		RD 11A 0007693	RD 11AEC 0007695	RD 11V 0007694
Lubrication				
Engine Lubrication	type l (pt.)	SAE 10W30 Class SG, SF,or SE rated 1.6 (3.5)		
Hydraulic System	type l (gal)	Premium grade, Anti-wear hydraulic fluid 10W30 21.6 (5.7)		
Exciter	type	Wheel Bearing Grease Filmite EMB		
Rear Drum Drive Bearing	type qty.	Shell Alvania No. 2 Grease (1 grease fitting) 2–3 shots with hand-held grease gun		
Front Drum Drive Bearing	type	Sealed Bearings —No lubrication required		
Articulated Joint	type qty.	Shell Alvania No. 2 Grease (1 grease fitting) 2–3 shots with hand-held grease gun		

3.4 Dimensions



3.5 Sound and Vibration Measurements

The required sound specification, Paragraph 1.7.4.f of 89/392/EEC Machinery Directive, is:

The sound pressure level at operator's location (L_{pA}) = 89.1 dB(A).

The guaranteed sound power level (L_{WA}) = 109 dB(A).

These noise values were obtained at the operator's location according to ISO 3744 for the sound power level (L_{WA}) and ISO 6081 for the sound pressure level (L_{pA}).

The weighted effective acceleration value, determined according to ISO 8662 Part 1, is approximately:

Hands = 5.65 m/s^2, Feet = 0.64 m/s^2, Seat = 1.05 m/s^2.

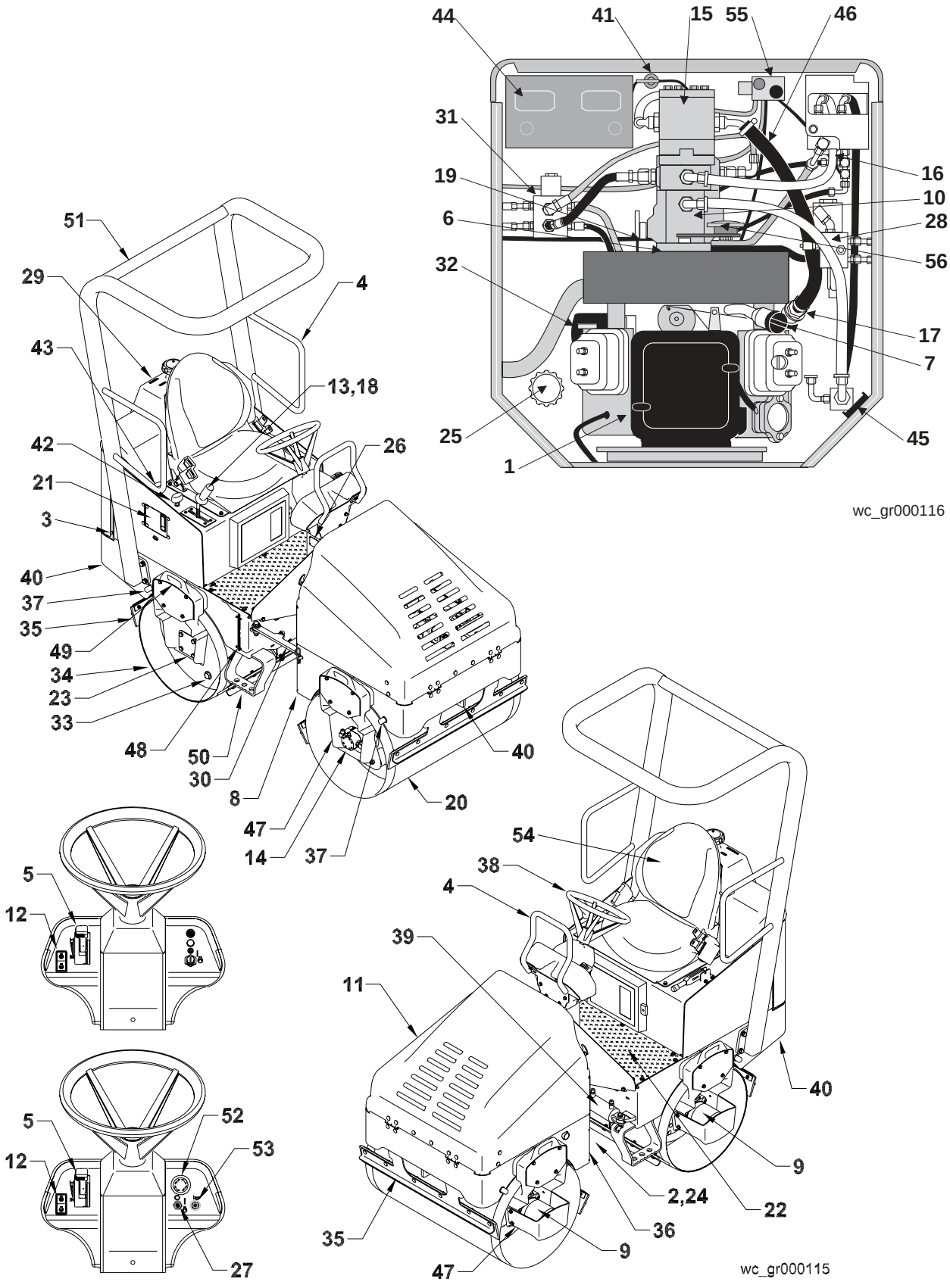
The sound and vibration measurements were obtained with the machine operating on hard asphalt at maximum RPM and top speed.

4. Operation

4.1 Operation and Service Locations

See Graphic: wc_gr000115 & wc_gr000114

Ref.	Description	Ref.	Description
1.	Air Cleaner	29.	Water Tank
2.	Articulated Joint	30.	Lockarm
3.	Water Level Sight Gauge	31.	Drive Manifold Assembly (Valve Block)
4.	Hand holds	32.	Oil Filter - Engine
5.	Choke Lever	33.	Rear Drum Fill/Drain Plug
6.	Coupling - Engine	34.	Rear Drum - Static
7.	Dipstick	35.	Scraper Bar (4 places)
8.	Drain Plug - Hydraulic Tank	36.	Sightglass - Hydraulic Tank
9.	Drive Motor	37.	Sprinkler Tube (4)
10.	Drive Pump	38.	Steering Wheel
11.	Engine Hood	39.	Steering Cylinder
12.	Engine Throttle Control	40.	Tiedown (2 places)
13.	Vibration Control Button	41.	Battery disconnect (RD11AEC)
14.	Exciter Motor	42.	Water System Control - Front Drum
15.	Exciter/Steering Pump	43.	Water System Control - Rear Drum
16.	Filter - Return Line	44.	Battery
17.	Filter - Suction Line	45.	Hour Meter / Tachometer
18.	Forward / Reverse Control	46.	Suction Line
19.	Forward / Reverse Control Cable	47.	Grease Fitting - Exciter (2 places)
20.	Front Drum - Vibratory	48.	Fuel Level Sight Gauge
21.	Fuel Tank Access Door	49.	Lifting Eye (4 places)
22.	Fuel Filter (under floor panel)	50.	Step (2)
23.	Grease Fitting - Rear Drum	51.	ROPS
24.	Grease Fittings - Articulated Joint (4 places)	52.	Emergency Stop Pushbutton / Parking Brake (RD11AEC)
25.	Hydraulic Tank Fill Port	53.	Horn Switch (RD11AEC)
26.	Identification Plate	54.	Adjustable Seat with Seatbelt (RD11AEC)
27.	Ignition Switch	55.	Brake Release-tow valve (RD11AEC)
28.	Steering/Exciter Manifold	56.	Horn (RD11AEC)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4.2 Application

This machine is designed as a lightweight roller to be used in the compaction of sublayers and finish layers of asphalt on roads, driveways, parking lots, and other types of asphalt-covered surfaces. Do not use this machine for any other purpose.

4.3 Recommended Fuel

The engine requires regular grade unleaded gasoline. Use only fresh, clean gasoline. Gasoline containing water or dirt will damage fuel system. Consult engine owner's manual for complete fuel specifications.

4.4 Before Starting

Before starting the machine check the following:

- Engine oil level
- Hydraulic fluid level
- Condition of fuel lines
- Condition of air cleaner
- Operation of the brake system
- Fuel level
- Water level
- Safety belt
- Scraper bars are clean and properly adjusted

Note: *All fluid levels should be checked with the machine on a level surface.*

Ensure that regular maintenance has been carried out.

Ensure that the driver's platform is clean.

Always use the steps and handrails when climbing on and off the machine.

4.5 Starting (RD11A / RD11V)

See Graphic: wc_gr000123

4.5.1 If the engine is cold, place the choke lever in the closed position **(b2)**. If the engine is warm, place the choke control in the open position **(b1)**.

4.5.2 Set the forward/reverse control in the neutral position **(e2)**.

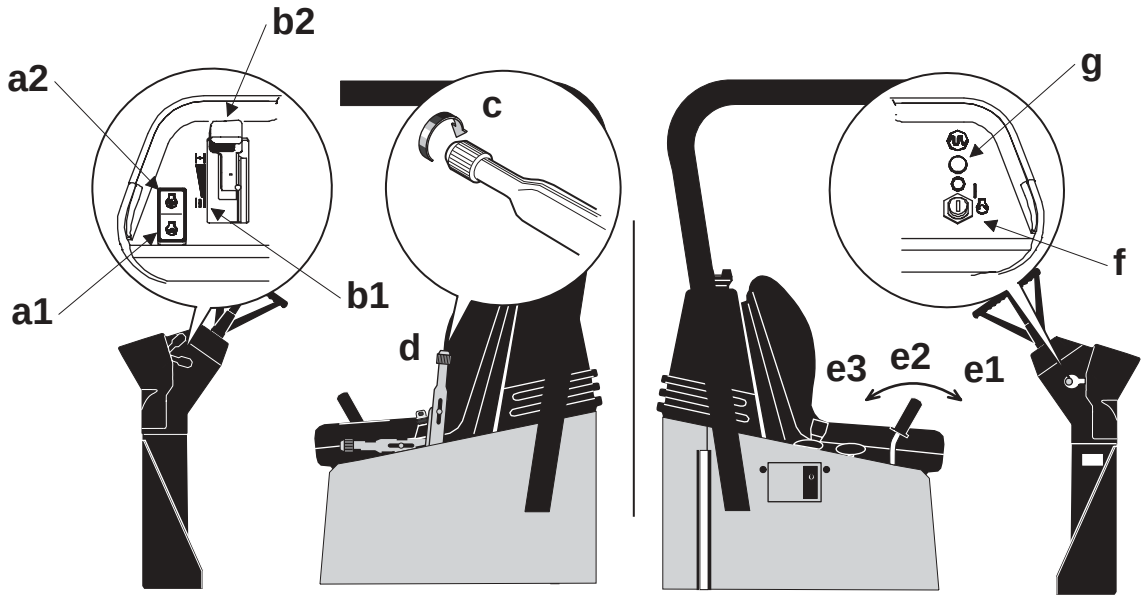
Note: *The roller will not start unless the forward/reverse control is in neutral.*

4.5.3 Check that the parking brake is set **(d)**.

4.5.4 Turn the ignition switch **(f)** to start the engine. If exciter indicator light **(g)** is on, turn vibration off.

CAUTION: Do not crank the engine starter for more than 15 seconds at one time. Longer cranking cycles could lead to starter damage.

4.5.5 Gradually place the choke lever to the open position **(b1)** as the engine warms up. Allow the engine to warm up for a few minutes before operating the roller.



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4.6 Stopping/Parking (RD11A / RD11V)

See Graphic: wc_gr000123

4.6.1 Turn vibration off.

4.6.2 Close both watering valves.

4.6.3 Return engine throttle to idle **(a1)** by pressing the throttle switch and allow engine to cool down.

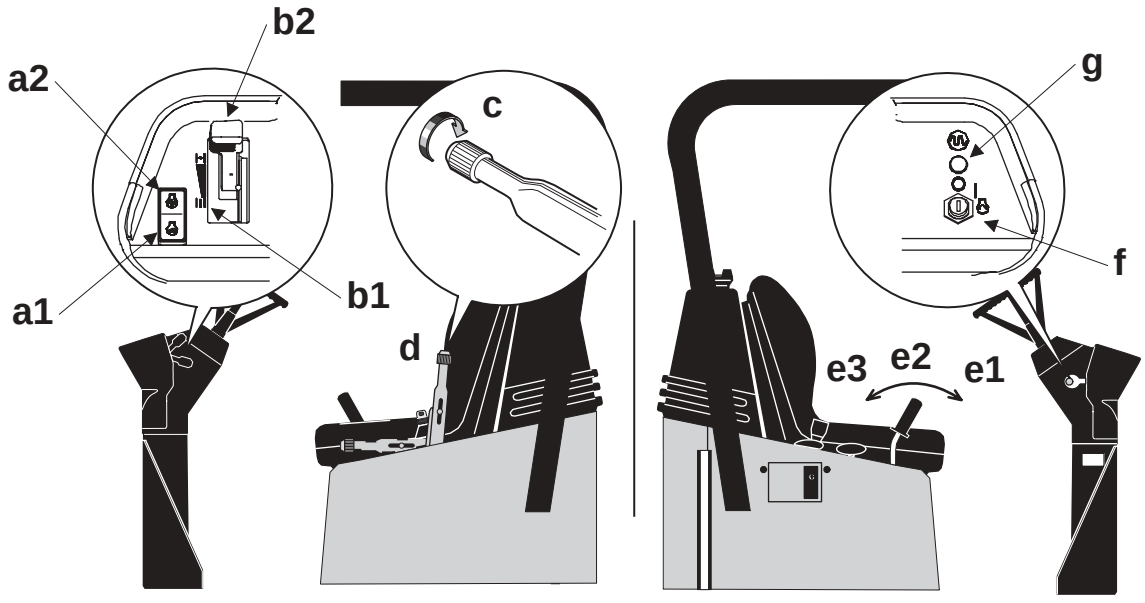
4.6.4 Stop engine by turning ignition switch to “OFF”.

4.6.5 Set parking brake.To set the brake **(d)**, pull the brake lever up until brake pad engages drum. To release, lower lever. Always set parking brake before leaving machine.

The parking brake is connected to the brake pads and can be adjusted by turning the knob **(c)** on the end of the handle. See *Parking Brake Adjustment.*

Note: *The parking brake engages the rear drum only*.

CAUTION: Avoid parking roller on a hill or incline. If roller must be parked on a hill, block drums in addition to setting brake to prevent roller from moving.



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4.7 Direction and Speed (RD11A / RD11V)

See Graphic: wc_gr000123

The forward/reverse lever controls both the direction and speed of the roller. Use the control lever, rather than the throttle, to control the speed of the machine while compacting.

Daily, before operating, check the machine for “drift” (movement with the forward/reverse control in the NEUTRAL position) and adjust as needed. See *Adjusting the Drive Control Cable*.

Speed is controlled by the amount the lever is moved in the direction of travel—forward **(e1)** or reverse **(e3)**.

During operation, to run the machine at full throttle **(a2)**, quickly press and release the throttle switch. This ensures maximum travel speeds and will produce the best compaction results. Operating the machine at slower engine speeds will reduce compaction, slow down machine functions, and damage hydraulic components.

CAUTION: Holding the throttle switch in for a period of time will trip the circuit breaker.

4.8 Braking Machine (RD11A / RD11V)

See Graphic: wc_gr000123

The machine will brake automatically when the control lever is returned to neutral **(e2)**. If machine continues to drift, shift the control lever **slightly** in the opposite direction to stop movement and then return lever to neutral. If it will not remain stationary in neutral, adjust as needed. See *Adjusting the Drive Control Cable.*

Note: *Do not stop the machine using the parking brake! The parking brake is not intended to be used to stop the machine.*

4.9 Starting (RD11AEC)

See Graphic: wc_gr000139

4.9.1 If the engine is cold, place the choke lever in the closed position **(b2)**. If the engine is warm, place the choke control in open position **(b1)**.

4.9.2 Set the forward/reverse control in the neutral position **(c2)**.

Note: *The roller will not start unless the forward/reverse control is in neutral.*

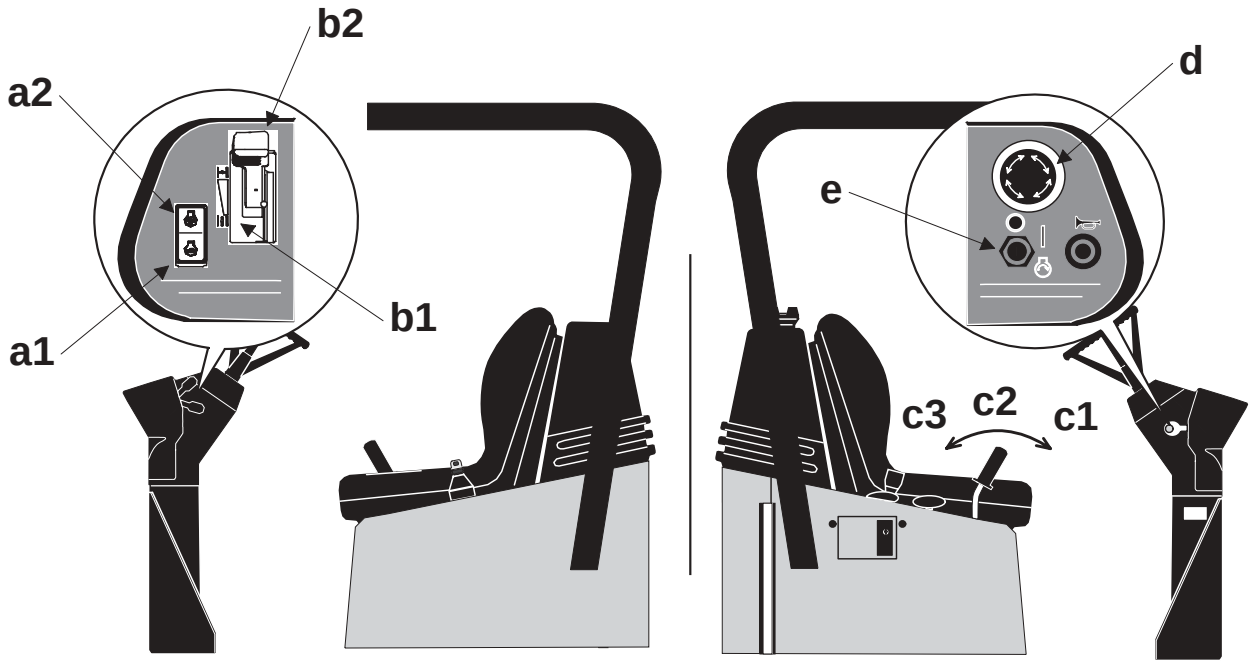
4.9.3 Push the emergency stop pushbutton **(d)** to make sure that the parking brake is set.

4.9.4 Turn the ignition switch **(e)** to start engine.

CAUTION: Do not crank the engine starter for more than 15 seconds at one time. Longer cranking cycles could lead to starter damage.

4.9.5 Gradually place the choke lever to the open position **(b1)** as the engine warms up. Allow the engine to warm up for a few minutes before operating roller.

4.9.6 Disengage the parking brake by turning the emergency stop button **(d)** until it pops out.



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4.10 Stopping/Parking (RD11AEC)

See Graphic: wc_gr000139

4.10.1 Turn vibration off.

4.10.2 Close both watering valves.

4.10.3 Return engine throttle to idle **(a1)** by pressing the throttle switch and allow engine to cool down.

4.10.4 Stop engine by turning ignition switch to “OFF”.

4.10.5 To engage the parking brake **(d)**, push the emergency stop button. This switch engages a hydraulically activated brake on the drive motors.Always set parking brake before leaving machine.

CAUTION: Avoid parking roller on a hill or incline. If roller must be parked on a hill, block drums in addition to setting brake to prevent roller from moving.

4.11 Direction and Speed (RD11AEC)

See Graphic: wc_gr000139

The forward/reverse lever controls both the direction and speed of the roller. Use the control lever, rather than the throttle, to control the speed of the machine while compacting.

Daily, before operating, check the machine for “drift” (movement with the forward/reverse control in the NEUTRAL position) and adjust as needed. See *Adjusting the Drive Control Cable.*

Speed is controlled by the amount the lever is moved in the direction of travel—forward **(c1)** or reverse **(c3)**.

During operation, to run the machine at full throttle **(a2)**, quickly press and release the throttle switch. This ensures maximum travel speeds and will produce the best compaction results. Operating the machine at slower engine speeds will reduce compaction, slow down machine functions, and damage hydraulic components.

CAUTION: Holding the throttle switch in for a period of time will trip the circuit breaker.

Note: *This machine is fitted with an "Operator Presence" safety system which prevents the machine from moving if an operator is not seated in the driver's seat.*

WARNING Do not use the machine without the ROPS in place. The ROPS is designed to protect the operator in a rollover accident.

WARNING Always wear the seat belt provided when operating the roller.

4.12 Braking Machine (RD11AEC)

See Graphic: wc_gr000139

Automatic functions

The machine will brake automatically when the control lever is returned to neutral. If machine continues to drift, shift the control lever slightly in the opposite direction to stop movement and then return lever to neutral. If it will not remain stationary in neutral, adjust per Section *Adjusting the Drive Control Cable*.

The emergency stop / parking brakes will automatically apply when:

- The emergency stop button is pushed.
- The engine is off.
- A loss of hydraulic or electrical power occurs.
- The operator rises from the driver's seat, activating the Operator Presence System.

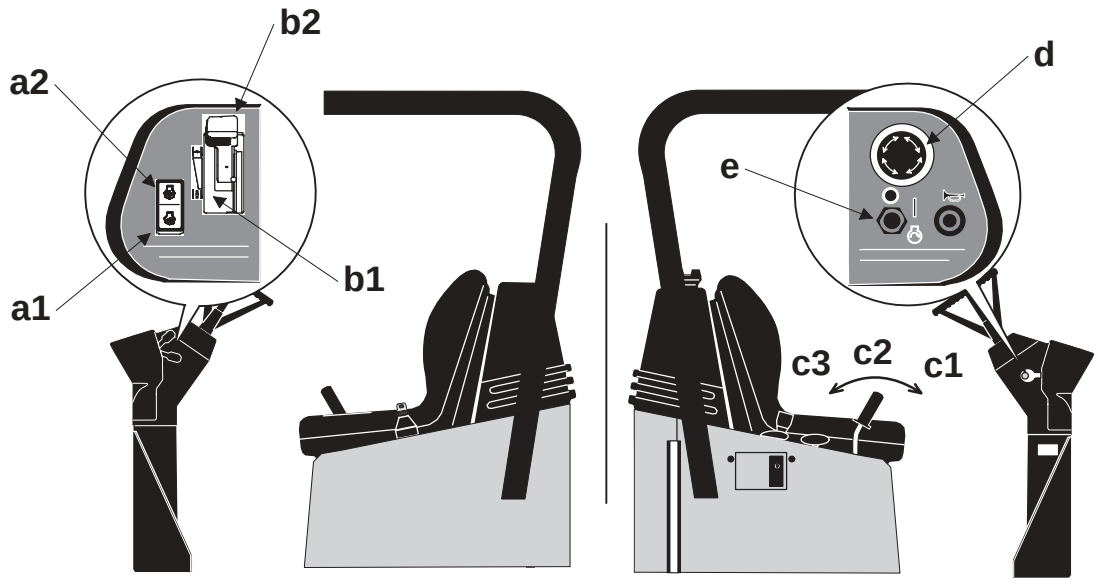
Note: *The Operator Presence System will only trip after a one-half second delay.*

Emergency stop pushbutton

When pushed, the emergency stop button not only stops all travel (either forward or reverse) and applies the brake, but it also stops vibration of the exciter.

When the emergency stop button is reset, vibration will not resume until it is turned ON. See *Vibration*.

Before releasing the emergency stop button, place the Forward/ Reverse Control in neutral.



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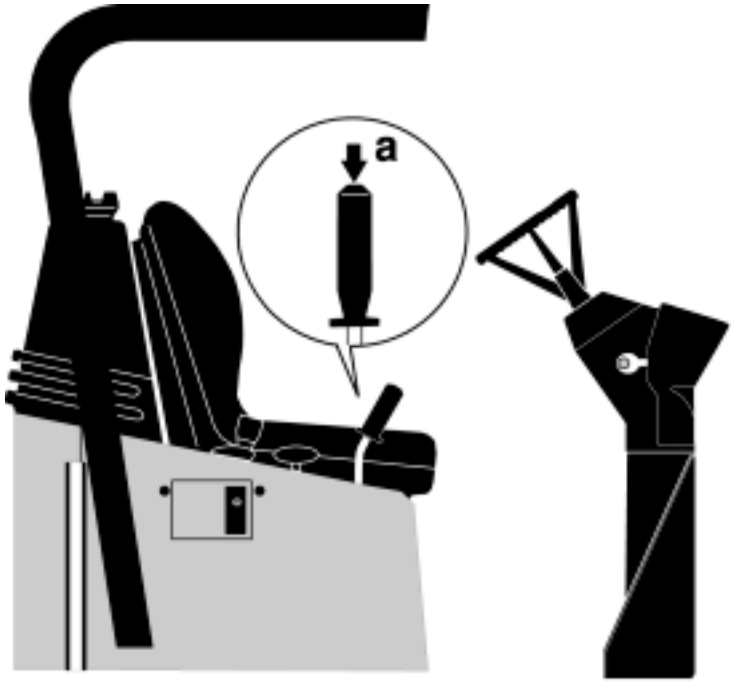
4.13 Vibration (RD11A / RD11V)

See Graphic: wc_gr000117

Vibration is turned “ON” or “OFF” by a push button **(a)** located in the uppermost portion of the Forward/Reverse Control. Push the button to turn vibration on; push it again to turn it off. Vibration can be turned on while operating in either forward or reverse and will remain on until it is switched off.

CAUTION: If machine has been turned off with the vibration on, the vibration will come on as soon as machine is restarted. Therefore, for easier starting and to keep surface finish smooth, be ready to switch vibration off should it come on while cranking engine.

Note: *Vibration will remain on even when the forward/reverse control is in neutral. When operating on asphalt, to keep surface finish smooth, turn vibration off before stopping roller.*



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4.14 Vibration (RD11AEC)

See Graphic: wc_gr000117

Vibration is turned “ON” or “OFF” by a pushbutton **(a)** located in the uppermost portion of the Forward/Reverse Control. Press the button to turn vibration on; press it again to turn it off. Vibration can be turned on while operating in either forward or reverse and will remain on until it is switched off.

Note: *Vibration will always be OFF when the engine is started.*

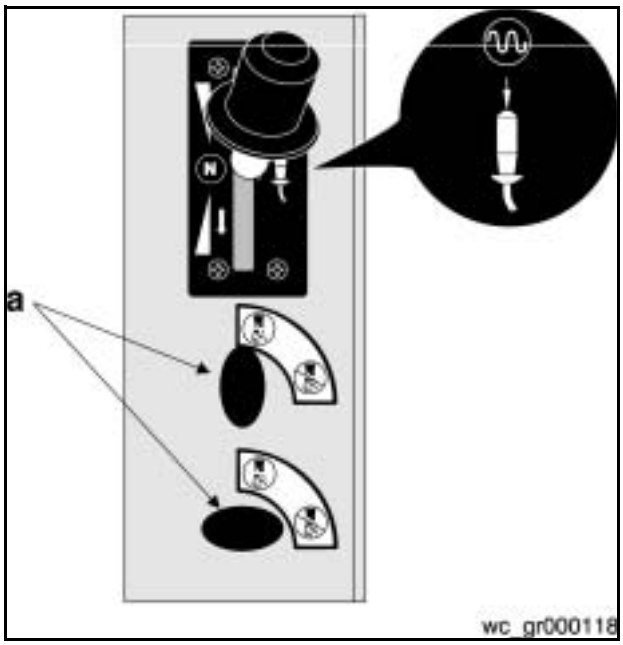
Note: *Vibration will remain on even when the forward/reverse control is in neutral. When operating on asphalt, to keep surface finish smooth, turn vibration off before stopping roller.*

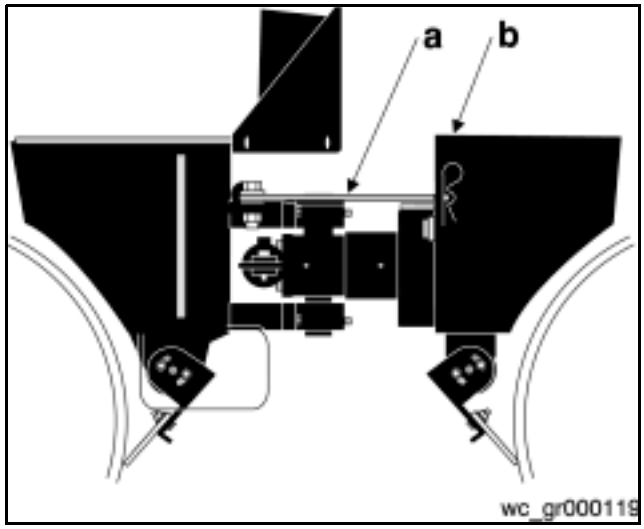
Note: *Pressing the emergency stop button will also stop vibration. After the emergency stop button has been reset, press pushbutton **(a)** to restart vibration.*

4.15 Watering System

See Graphic: wc_gr000118

The watering system is controlled by two valves, one for each drum. The valve handles **(a)** are located to the right of the operator. Rotate the valve handles to control the amount of water being applied to the drum.





4.16 Articulation Joint Lockarm

See Graphic: wc_gr000119

A lockarm **(a)**, located above the articulated joint, is provided to secure the front and rear halves of the roller together. Once secured, the lockarm prevents the two halves from swinging together.

WARNING

To avoid being pinched by machine halves, set the lockarm before lifting the machine for transport or repairs!

To set lockarm, release it from its holder and swing it out from its stored position. Place the forward end of the arm into the hole provided in the front frame of the machine. Secure it in this position using the large hairpin cotter **(b)** provided.

4.17 Adding Ballast to Rear Drum

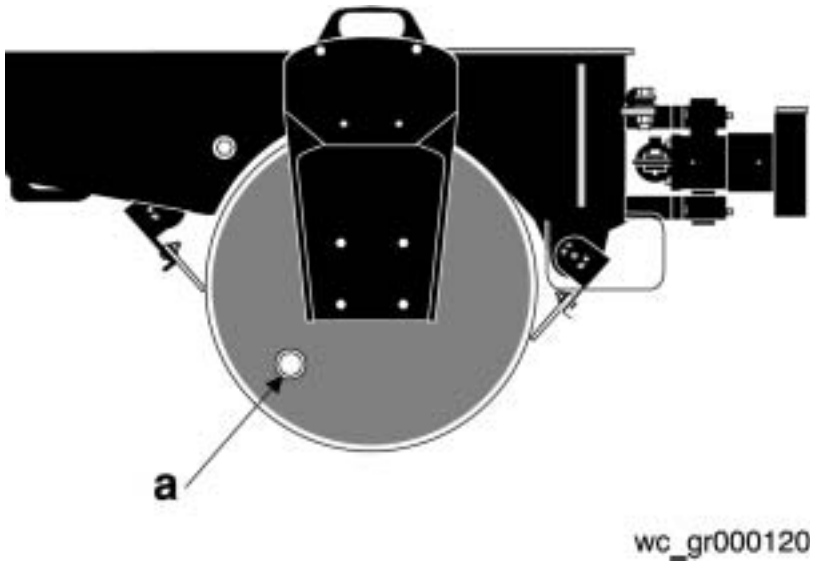
See Graphic: wc_gr000120

The rear drum can be filled with ballast to provide additional weight. Add ballast through plug opening **(a)**.

Drum Capacity: 30.2 gal. (114 liters)

Added Weight (water ballast): 250 lbs. (113 Kg)

If water is used as ballast, add antifreeze or drain drum after use, in areas where temperatures are below freezing.



wc_gr000120

4.18 Roll Over Protection Structure (ROPS)

See Graphic: wc_gr000121

The machine is fitted with a Roll Over Protection Structure (ROPS). The machine is normally delivered to the customer with the ROPS folded forward to facilitate transport.

Before using the machine, position the ROPS in the fully upright position as follows:

4.18.1 Support the ROPS **(a)** using a crane and suitable rigging capable of supporting 105 lbs. (48 kg.), or two individuals capable of supporting the ROPS.

4.18.2 Loosen the screws **(c)** (one on each side) without removing them.

4.18.3 Raise the ROPS to the upright position.

4.18.4 Insert the screws into the holes **(b)** and torque all screws to 88 ft.lbs. (120 Nm).

4.18.5 Remove the rigging from the ROPS.

CAUTION: Do not use the ROPS to lift the machine.

Each month, check that the screws holding the ROPS in place are tight. Check that the ROPS frame is not rusty, cracked, broken or damaged in any way.

If the frame has been removed from the machine, it must be reinstalled before the machine is used. When reinstalling a safety frame, use the original nuts and bolts.

Keep the safety frame upright when working with the roller, and use the safety belt provided.

To remove the ROPS:

4.18.6 Support the ROPS with a crane and rigging with sufficient capacity to support 105 lbs. (48 Kg).

4.18.7 Remove all the screws securing the ROPS to the machine.

4.18.8 Lift the ROPS from the machine and place it on the ground.

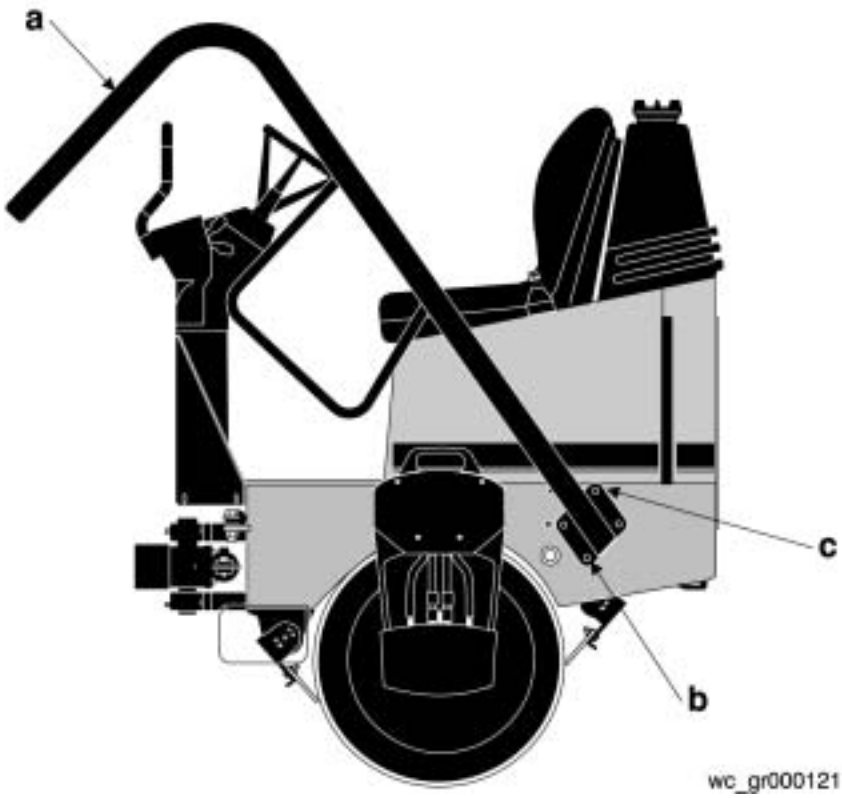
CAUTION: Do not use the ROPS to lift the machine.

WARNING

Do not use the machine without the ROPS in place. The ROPS is designed to protect the operator in a rollover accident.

WARNING

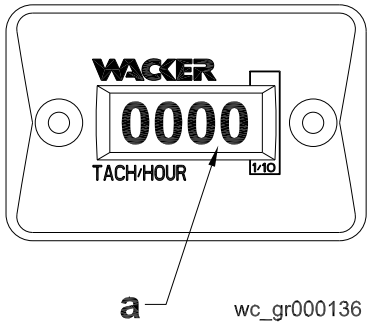
Always wear the safety belt provided when operating the roller.



4.19 Hour Meter / Tachometer

See Graphic: wc_gr000136

The hour meter/tachometer **(a)** is located on the steering column. When the engine is running, it acts as a tachometer. When the engine is shut down, it records the actual running time of the engine. Use the hour meter when planning scheduled maintenance.



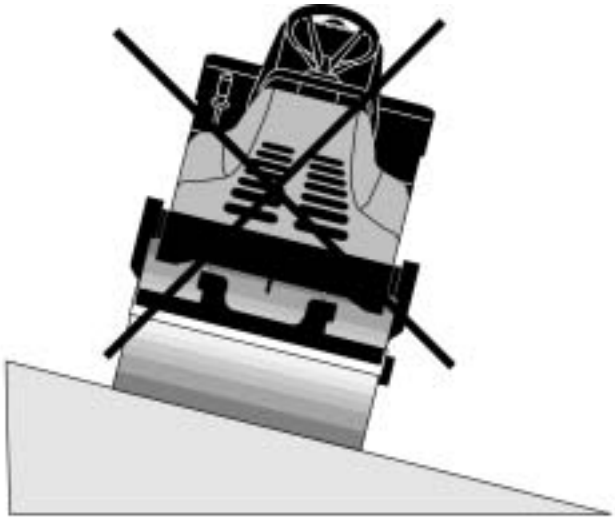
4.20 Operation on Slopes

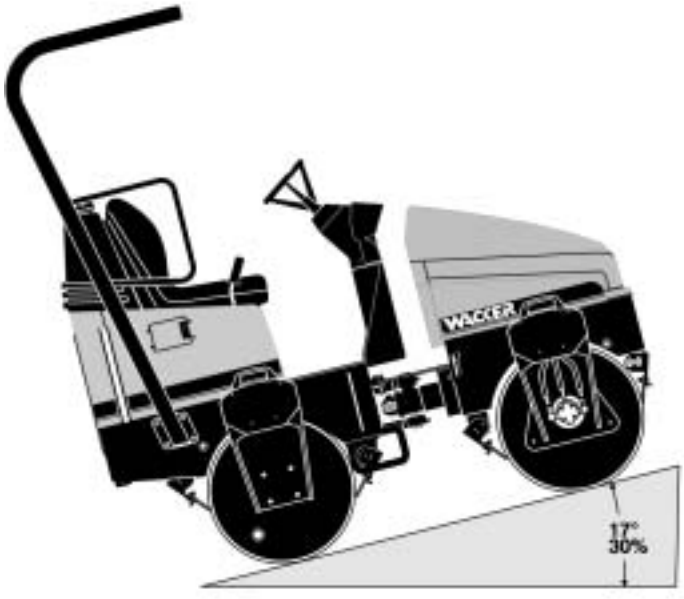
See Graphic: wc_gr000122

When operating on slopes or hills special care must be taken to reduce the risk of personal injury or damage to the equipment. Always operate the machine up and down hills rather than from side to side. For safe operation and for protection of the engine, continuous duty use should be restricted to front/rear slopes of 17° (30% grade) or less.

WARNING

NEVER operate machine on side slopes. The machine may roll over, even on stable ground.



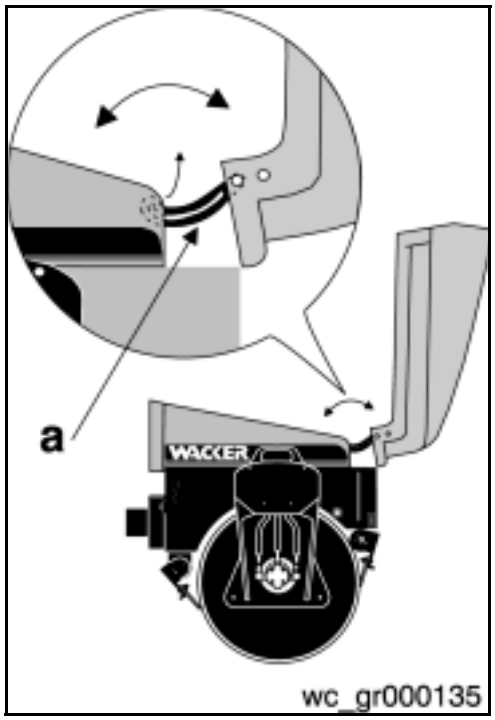


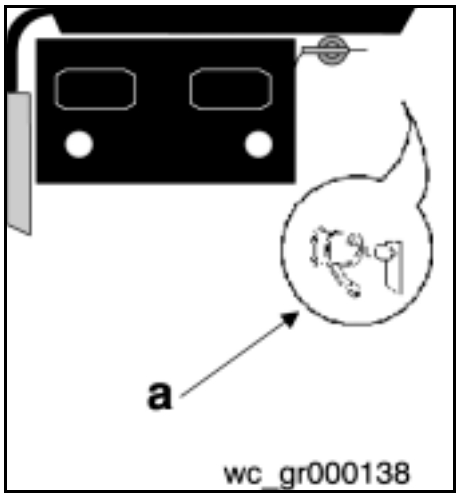
wc_gr000122

4.21 Hood Prop Bar

See Graphic: wc_gr000135

The hood prop bar **(a)** is designed to prevent the hood from shutting inadvertently while maintenance is being performed in the engine compartment. To close the hood, release the prop by lifting up on the bottom of the bar, then lower the hood.





4.22 Battery Disconnect (RD11AEC)

See Graphic: wc_gr000138

This machine is equipped with a battery disconnect switch located adjacent to the battery.

To disconnect and isolate the electrical system from the battery, turn the selector key **(a)** counter-clockwise 1/4 of a turn and remove.

To reconnect the battery, insert the selector key and turn clockwise to the end of its travel.

WARNING

Isolate the battery using this switch before performing any maintenance operations on electrical equipment.

4.23 Operator Presence System (RD11AEC)

See Graphic: wc_gr000137

The machine is equipped with an “operator presence system”. This system is part of the driver's seat and senses the weight of an operator in the seat. If the operator is not sitting in the driver's seat, the roller will NOT drive, and the exciter will NOT vibrate. If the operator leaves the driver's seat, the roller will stop moving and vibrating. When the operator sits down again, the forward/reverse lever must be placed in the neutral position before the roller can be driven or the vibration can be started.

A one-half second delay keeps the system from tripping when the roller passes over a bump.

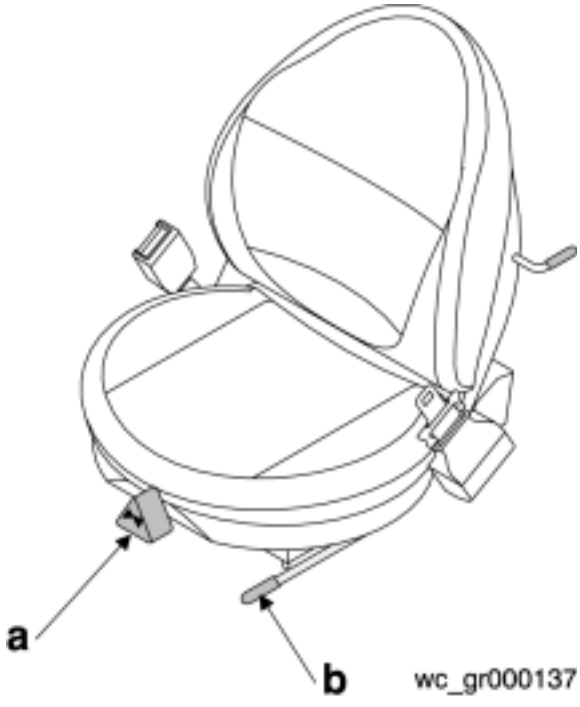
The seat can be adjusted as follows:

- Knob **(a)** for adjusting the seat tension to the driver's weight.
- Lever **(b)** for adjusting the distance from the seat to the driving controls.

Note: *Do not change position of the driver’s seat while the machine is moving. The “OPERATOR PRESENCE” safety device will prevent all machine movements if an operator is not seated.*

WARNING

Always wear the seat belt provided when operating the roller.



5. Maintenance

5.1 Engine Maintenance

The chart below lists basic engine maintenance. Refer to engine manufacturer's Operation Manual for additional information on engine maintenance.

Honda	Daily before starting	After first 20 hrs.	Every 50 hrs.	Every 100 hrs.	Every 300 hrs.
Check fuel level.	•				
Check engine oil level.	•				
Inspect air filter. Replace as needed.	•				
Change engine oil and filter.		•		•	
Clean air cleaner.			•		
Check and clean spark plug.				•	
Clean sediment cup.				•	
Check and adjust idle speed					•*
Check and adjust valve clearances.					•*
Replace fuel filter.					•

*These items should be serviced by an authorized Honda dealer, unless the owner has the proper tools and is mechanically proficient. See Honda Shop Manual.

Vanguard	Daily before starting	After first 8 hrs.	Every 50 hrs.	Every 100 hrs.	Every 300 hrs.
Check fuel level.	•				
Check engine oil level.	•				
Change engine oil and filter.		•	•		
Clean air cleaner.			•		
Check and clean spark plug.				•	
Check and adjust valve clearances.					•
Replace fuel filter.					•

5.2 Maintenance Schedule

RD 11 /...	Daily before starting	Every 100 hrs.	Every 600 hrs.	Every 1200 hrs.
Check and tighten external hardware.	•			
Check level of hydraulic fluid.	•			
Grease articulated joint.		•		
Grease rear drum drive bearing.		•		
Grease exciter bearing.		•		
Change hydraulic system return line filter.			•	
Check and adjust scraper bars.			•	
Clean battery terminals.			•	
Change hydraulic oil.				•

Periodically:

- Check operation of parking brake, making sure it engages.
- Check for leaks around hydraulic hoses and connections.
- Clean engine exterior, cooling fins, and blower housing.
- Check electrical wiring and connections.
- Check operation of neutral safety switch.

New Machines:

- Change engine oil per engine schedule.
- Replace hydraulic system return line filter after first month or 100 hours of operation.

All machines:

- Increase air cleaner / filter inspections and cleaning under dusty conditions.

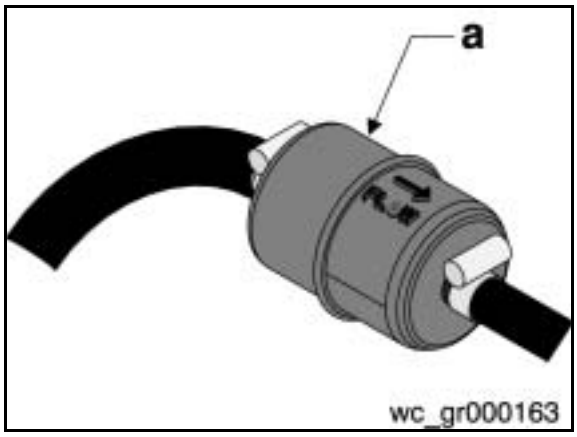
5.3 Fuel Filter

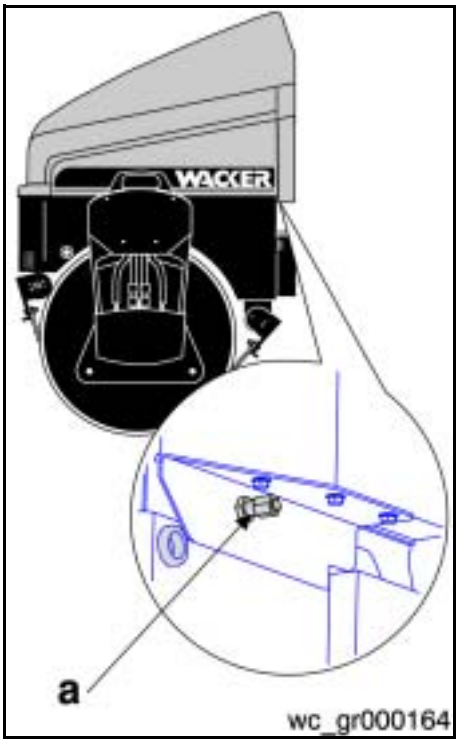
See Graphic: wc_gr000163

5.3.1 Change in-line fuel filter **(a)** once a year. Check fuel lines and fittings daily for cracks or leaks. Replace as needed.

Gasoline is extremely flammable! Turn engine off and allow engine to cool before replacing fuel filter.

Note: *The fuel filter is located under the floor panel of the operating platform.*





5.4 Engine Oil Drain

See Graphic: wc_gr000164

The engine oil drain **(a)** has been routed to the outside of the front half of the RD-11. This is to make draining easier and to help keep the engine compartment clean.

5.5 Engine Oil

See Graphic: wc_gr000173 (RD11A / RD11AEC)
See Graphic: wc_gr000172 (RD11V)

Drain oil while engine is still warm. To drain oil:

5.5.1 Remove filler cap **(a)**, drain screw, and washer. Drain oil into a suitable container.

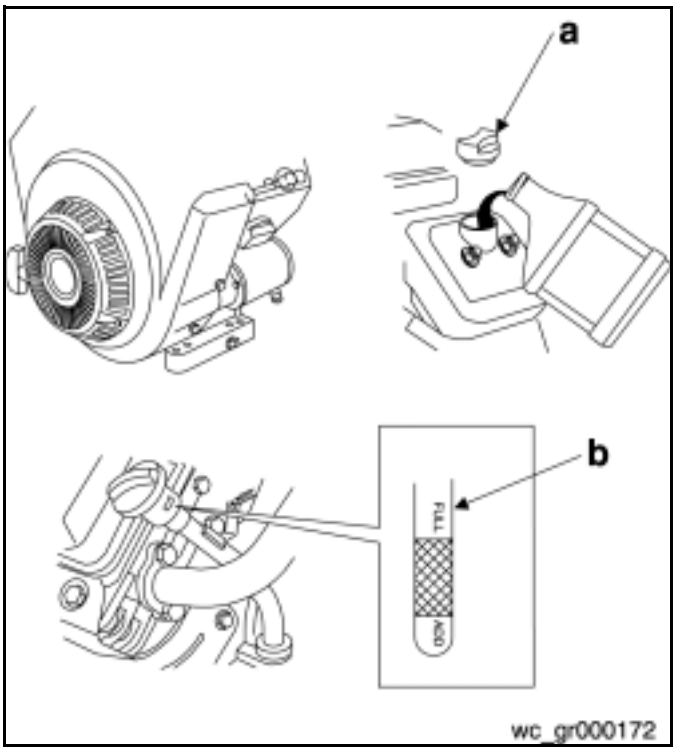
Note: *In the interests of environmental protection, place plastic sheeting and a container under the machine to collect the liquid which drains off. Dispose of this liquid properly.*

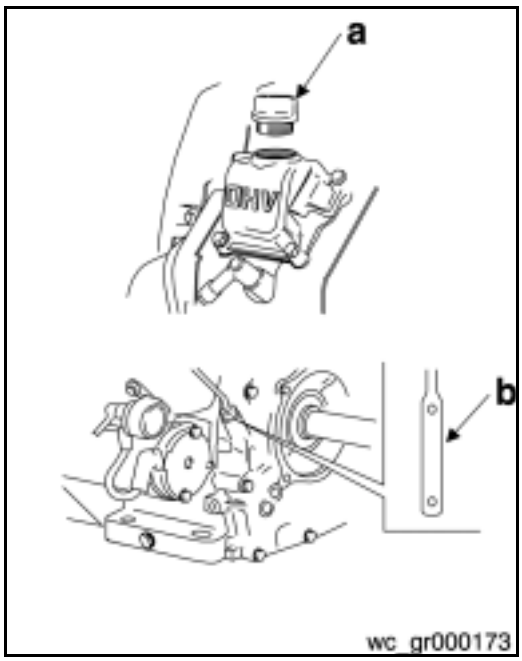
5.5.2 Re-insert the drain screw and washer and tighten the screw securely.

5.5.3 Fill the engine with the recommended oil to the upper limit mark on the dipstick **(b)**. See *Technical Data* for correct oil type and amount.

WARNING

Danger of burns! Care must be taken when draining hot engine oil. Hot oil can burn!





5.6 Oil Filter (Honda)

See Graphic: wc_gr000165

Replace the oil filter after every 200 hours of operation.

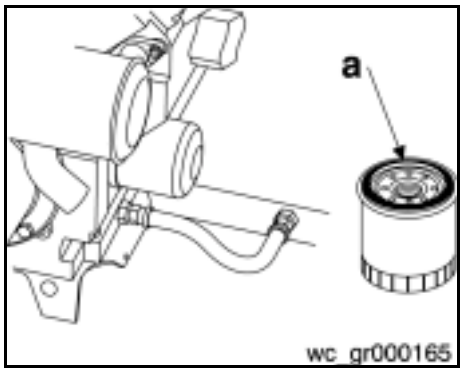
To change filter:

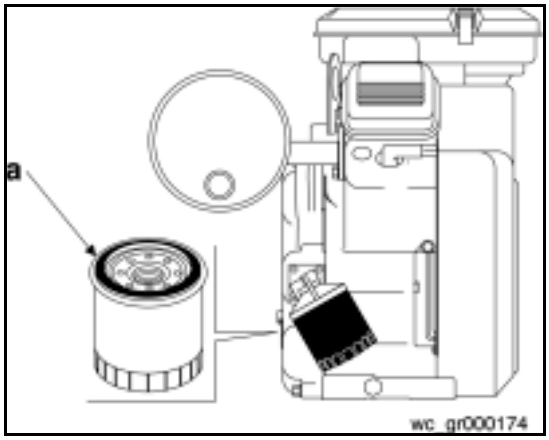
5.6.1 Drain the engine oil. See *Engine Oil*. Remove used filter.

5.6.2 Before installing new filter, lightly oil filter gasket **(a)** with fresh, clean engine oil. Screw filter on by hand until gasket makes contact, then tighten an additional 7/8 turn.

5.6.3 Fill the engine with the recommended oil. See *Engine Oil.*

5.6.4 Start and run engine to check for leaks. Stop engine. Recheck oil level and add oil if required. Refer to engine owner's manual.





5.7 Oil Filter (Vanguard)

See Graphic: wc_gr000174

Replace oil filter every 100 hours of operation.

5.7.1 Drain engine oil and replace with fresh oil before removing used oil filter. See *Technical Data* for oil quantity and type.

Note: *In the interests of environmental protection, place a plastic sheet and a container under the machine to collect any liquid which drains off. Dispose of this liquid in accordance with environmental protection legislation.*

5.7.2 Remove used filter, and before installing new filter, lightly oil filter gasket with fresh, clean engine oil.

5.7.3 Screw filter **(a)** on by hand until gasket makes contact, then tighten an additional 1/2 to 3/4 turn.

5.7.4 Start and run engine to check for leaks. Stop engine. Recheck oil level and add oil if required. See *Engine Lubrication*.

5.8 Spark Plug

See Graphic: wc_gr000028

Clean or replace spark plug as needed to ensure proper operation. Refer to the engine Owner's Manual.

WARNING

The muffler becomes very hot during operation and remains hot for a while after stopping the engine. Do not touch the muffler while it is hot.

Note: *Refer to the Technical Data for the recommended spark plug type and the electrode gap setting.*

5.8.1 Remove spark plug and inspect it.

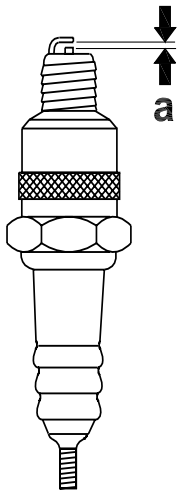
5.8.2 Replace plug if the insulator is cracked or chipped.

5.8.3 Clean spark plug electrodes with a wire brush.

5.8.4 Set the electrode gap **(a)**.

5.8.5 Tighten spark plug securely.

CAUTION: A loose spark plug can become very hot and may cause engine damage.



wc_gr000028

5.9 Air Cleaner (Honda)

See Graphic: wc_gr000175

The Honda engine is equipped with a dual element air cleaner. To service:

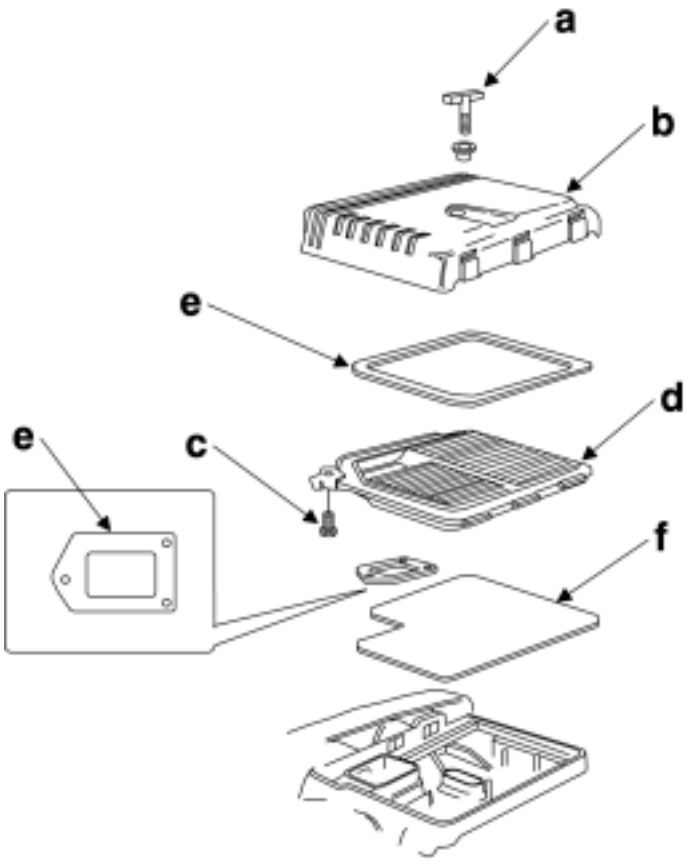
5.9.1 Remove wing bolt **(a)** and cover **(b)**.

5.9.2 Remove the 5 mm screws **(e)** from cover and remove paper element **(d)** from cover.

5.9.3 To clean paper element, tap it lightly on a flat surface. Replace paper element if it is damaged or heavily soiled. Re-assemble paper element to cover. Include gaskets **(c,f)**.

5.9.4 To clean foam element **(g)**, wash it in liquid detergent and water. Squeeze dry in a clean cloth. Once dry, saturate foam element in engine oil, then squeeze out excess. Replace foam element if it is damaged or heavily soiled. Re-install foam element and re-assemble air cleaner.

Note: *Do not use petroleum solvents to clean precleaner or cartridge. Petroleum type solvents will damage them. Do not use pressurized air to clean cartridge. Pressurized air can also damage the cartridge*.



wc_gr000175

5.10 Air Cleaner (Vanguard)

See Graphic: wc_gr000176

To service air cleaner:

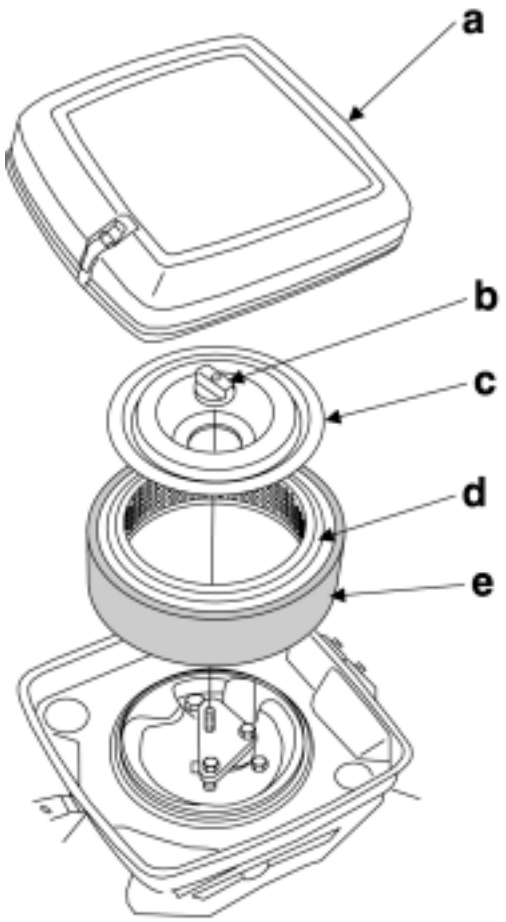
5.10.1 Remove cover **(a)**, knob **(b)**, and retaining plate **(c)**.

5.10.2 Remove foam precleaner **(e)** from filter cartridge **(d)**.

5.10.3 Wash precleaner in liquid detergent and water. Squeeze dry in a clean cloth. Saturate precleaner in engine oil, squeeze out excess oil. Replace precleaner if it is damaged or heavily soiled.

5.10.4 To clean cartridge, remove and tap lightly on a flat surface. Replace cartridge if it is damaged or heavily soiled.

Note: *Do not use petroleum solvents to clean precleaner or cartridge. Petroleum type solvents will damage them. Do not use pressurized air to clean cartridge. Pressurized air can also damage the cartridge.*



wc_gr000176

5.11 Carburetor (Vanguard)

See Graphic: wc_gr000177

Note: *Air cleaner must be in place and engine warm when making adjustments to carburetor.*

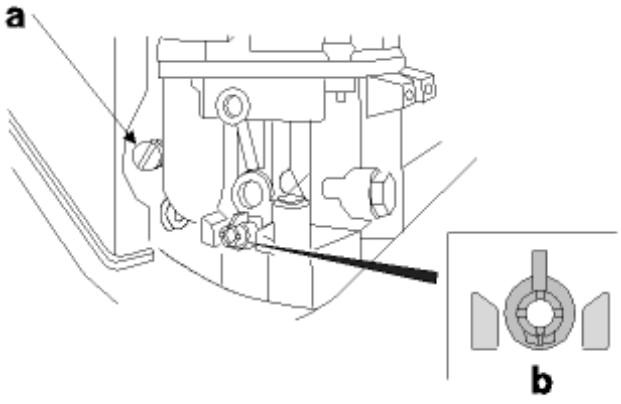
To adjust:

5.11.1 With engine running, place throttle in SLOW position and rotate carburetor throttle lever against the idle speed screw **(a)** and hold it there.

5.11.2 Turn the idle speed screw to obtain 2000 rpm.

5.11.3 While still holding the throttle lever against the idle speed screw, turn the idle mixture valve **(b)** midway between limits.

5.11.4 Readjust the idle speed to 1750 rpm and release carburetor throttle lever. Engine should accelerate smoothly when throttle is opened. If it does not, readjust idle mixture valve slightly counterclockwise.



wc_gr000177

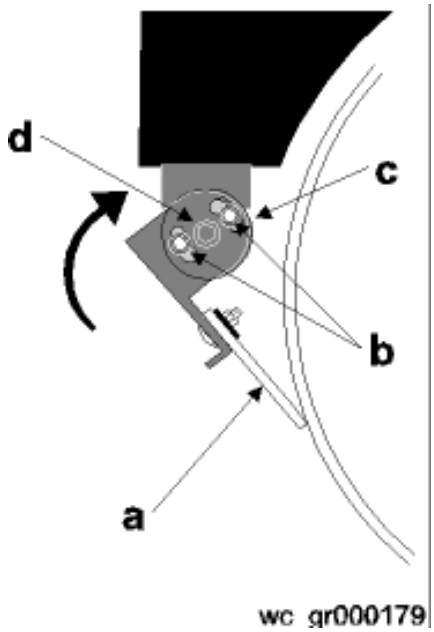
5.12 Scraper Bars

See Graphic: wc_gr000179

Scraper bars, located in front of and behind each drum, are used to prevent dirt and asphalt from sticking to and accumulating on the drum surface. These bars must be adjusted periodically as they wear.

To adjust the scraper bar **(a)**, loosen the bolts **(b)** connecting the scraper bars to the shockmounts **(c)** on both sides of the drum. Using a 9 mm (3/8") drive ratchet extension in socket **(d)**, rotate assembly away from the drum until the bolts are observed to have rotated approximately 6 mm (1/4") in slots, then tighten the bolts. Check that the scraper bar has a slight deflection where it contacts the drum, and readjust as necessary.

Note: *A large deflection of the scraper bar indicates excessive pre-loading of the rubber shockmounts, which will result in premature scraper wear.*



5.13 Grease Fittings

See Graphic: wc_gr000178

See *Technical Data - Lubrication.*

Articulated Joint:

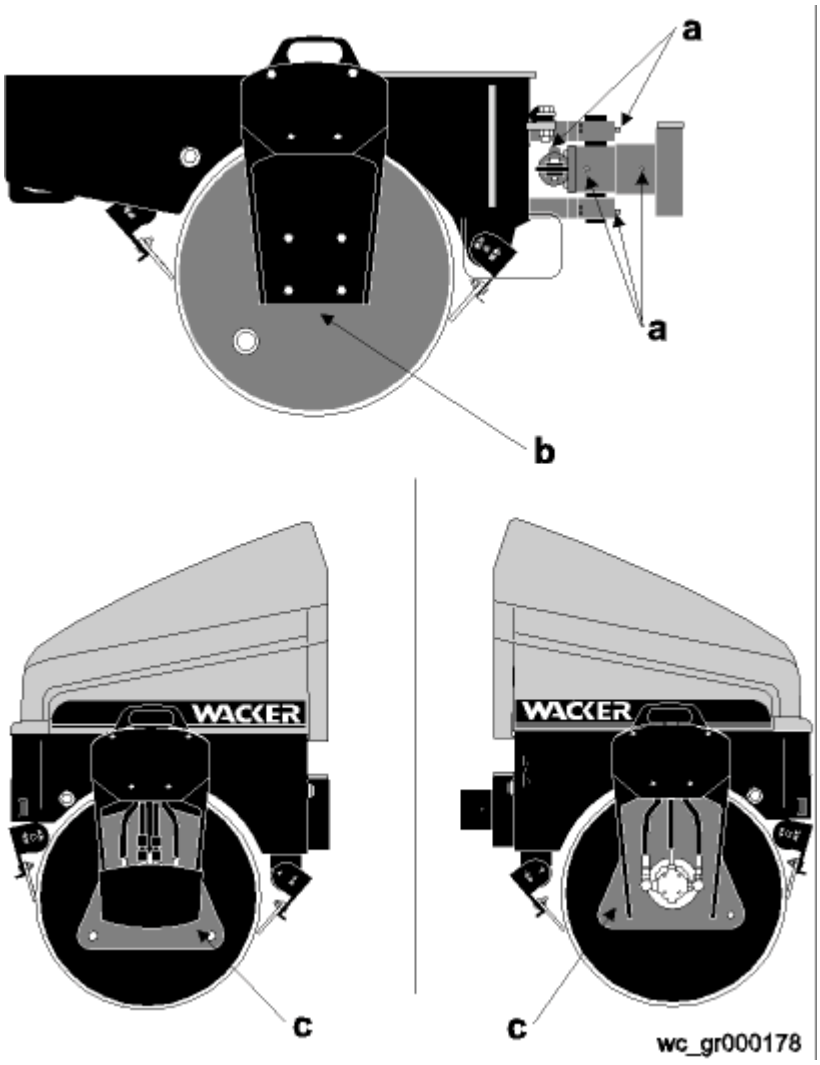
The articulated joint is equipped with grease fittings **(a)** for lubrication.

Rear Drum:

The rear drum drive bearing is equipped with a grease fitting **(b)** located at the center of the drum behind the right rear drum support.

Exciter:

The exciter is grease lubricated. There are two grease fittings **(c)**, one on each side of the machine, located behind the front drum supports.



5.14 Hydraulic System Cleanliness

Keeping the hydraulic oil clean is a vital factor affecting the service life of hydraulic components. Oil in hydraulic systems is used not only to transfer power, but also to lubricate the hydraulic components used in the system. Keeping the hydraulic system clean will help avoid costly downtime and repairs.

Major sources of hydraulic system contamination include:

- Particles of dirt introduced when the hydraulic system is opened for maintenance or repair.
- Contaminants generated by the mechanical components of the system during operation.
- Improper storage and handling of hydraulic oil.
- Use of the wrong type of hydraulic oil.
- Leakage in lines and fittings.

To minimize hydraulic oil contamination:

CLEAN hydraulic connections before opening lines. When adding oil, clean hydraulic tank filler cap and surrounding area before removing.

AVOID opening pumps, motors, or hose connections unless absolutely necessary.

PLUG or cap all open hydraulic connections while servicing system.

CLEAN and cover the containers, funnels, and spouts used to store and transfer hydraulic oil.

CHANGE hydraulic filters and oils at the recommended service intervals.

5.15 Hydraulic Oil Requirements

Wacker recommends the use of a good petroleum-based, anti-wear hydraulic oil in the hydraulic system of this equipment. Good anti-wear hydraulic oils contain special additives to reduce oxidation, prevent foaming, and they provide for good water separation.

When selecting hydraulic oil for your machine, be sure to specify anti-wear properties. Most hydraulic oil suppliers will provide assistance in finding the correct hydraulic oil for your machine.

Avoid mixing different brands and grades of hydraulic oils.

Most hydraulic oils are available in different viscosities.

The SAE number for an oil is used strictly to identify viscosity—it **does not** indicate the type of oil (engine, hydraulic, gear, etc.).

When selecting a hydraulic oil be sure it matches the specified SAE viscosity rating and is intended to be used as a hydraulic oil. See *Technical Data - Lubrication.*

5.16 Hydraulic Oil Level

See Graphic: wc_gr000198

A hydraulic oil level sightglass **(a)** is located near the bottom left side of the machine below the engine compartment.

Check that the hydraulic oil level is visible in the sightglass. If it is not, add oil through the filler port **(b)** inside the engine compartment. Use only clean hydraulic oil.

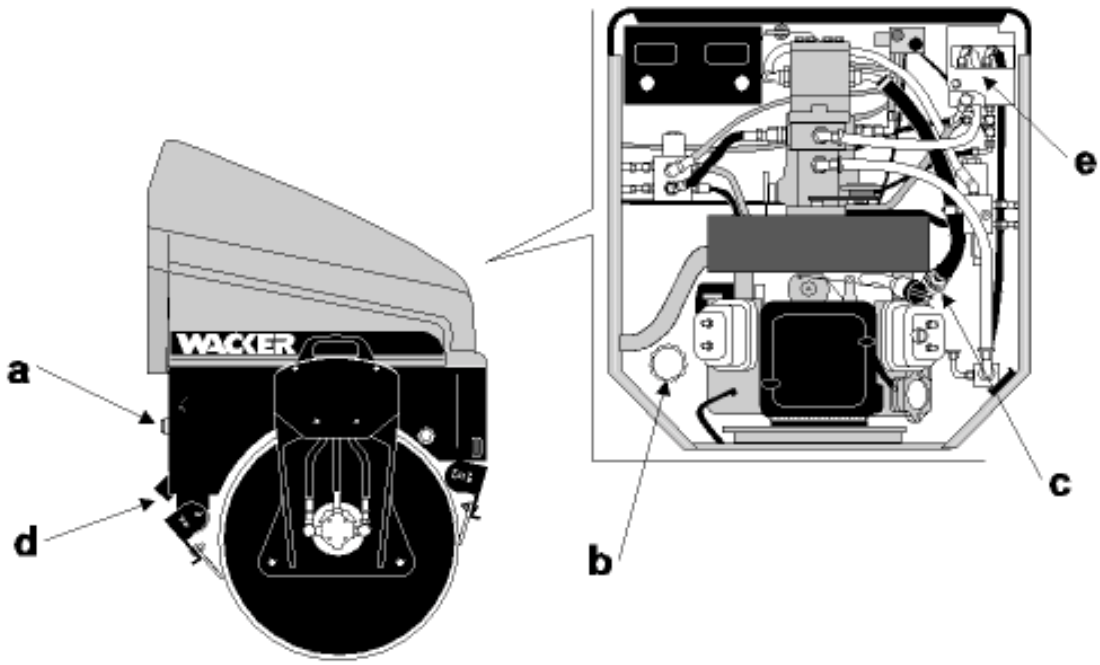
Thoroughly clean top of filler cap before removing it from the tank. Care should be taken to prevent smaller dirt particles from entering the system.

If hydraulic oil continually needs to be added, inspect hoses and connections for possible leaks.

5.17 Suction Filter

See Graphic: wc_gr000198

A hydraulic filter **(c)** is located in the hydraulic tank. This filter will not normally require service and does not need to be replaced when changing the hydraulic oil.



wc gr000198

5.18 Changing Hydraulic Oil & Filter

See Graphic: wc_gr000198

All oils eventually shear or thin out with use, reducing their lubricating ability. In addition, heat, oxidation, and contamination may cause the formation of sludge, gum, or varnish in the system. For these reasons, it is important to change the hydraulic oil at specified intervals. See *Maintenance Schedule.*

5.18.1 Remove filler cap **(b)** from top of hydraulic tank.

5.18.2 Remove drain plug **(d)** and allow hydraulic fluid to drain.

Note: *In the interests of environmental protection, place plastic sheeting and a container under the machine to collect the liquid which drains off. Dispose of this liquid properly.*

5.18.3 Unscrew the return line filter **(e)** and replace filter cartridge.

5.18.4 Install drain plug.

5.18.5 Fill hydraulic tank through filler port with clean hydraulic fluid.

5.18.6 Bleed hydraulic system. See *Bleeding the Hydraulic System.*

5.19 Bleeding the Hydraulic System

See Graphic: wc_gr000199

5.19.1 Fill the hydraulic system with clean hydraulic oil until it is visible in the sightglass. Do not re-use used hydraulic oil.

5.19.2 Disconnect the line **(a)** from drive pump. Fill pump case with hydraulic oil through the open connection. Reconnect the line.

5.19.3 Disconnect spark plug wires to prevent engine from starting and crank engine 5 – 10 seconds. This will allow oil to fill inlet lines.

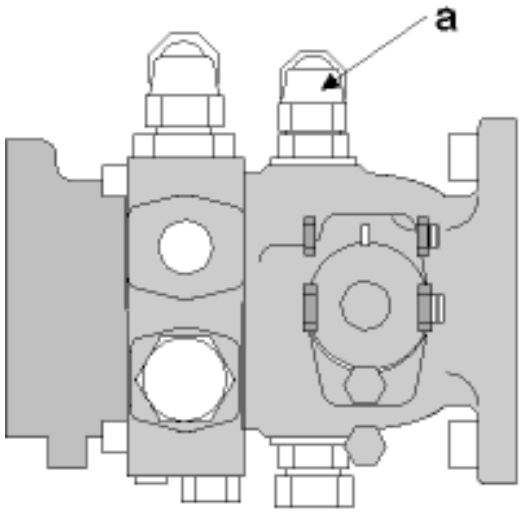
5.19.4 Reconnect spark plug wires and place forward/reverse control lever in NEUTRAL. Start engine and run machine at idle for 3 – 4 minutes.

5.19.5 With engine still running at idle, move control slowly back and forth from forward to reverse for a short time to bleed air trapped in drive circuit.

5.19.6 Gradually increase engine speed to full throttle and operate all controls to bleed remaining air from hydraulic lines.

5.19.7 Check hydraulic oil level and add oil as required.

Note: *If drive pump chatters or operation is noisy, turn machine off and check for air leaks in the inlet line of the charge pump.*



wc_gr000199

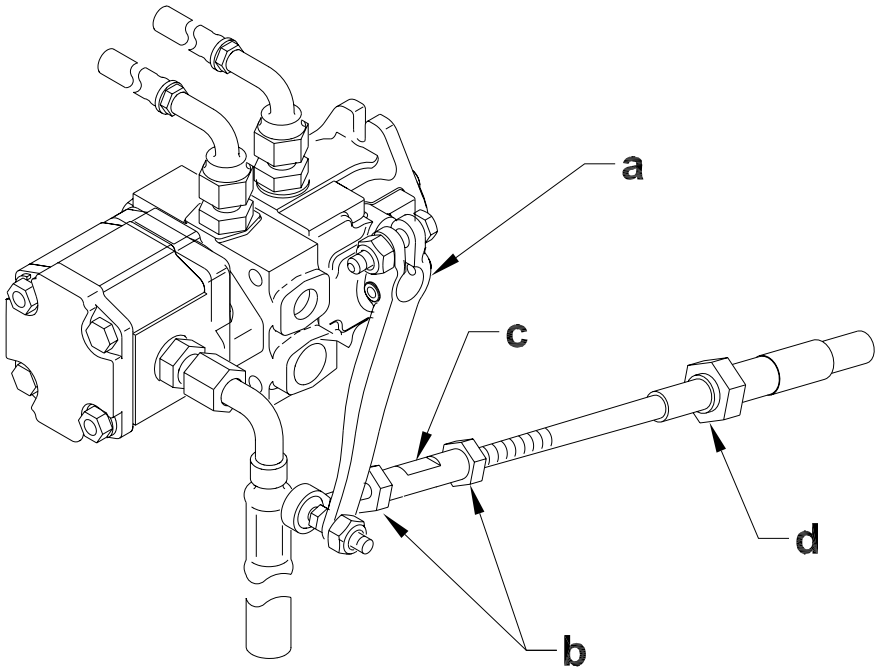
5.20 Adjusting the Drive Control Cable

See Graphic: wc_gr000200

If the RD11 tends to “drift” in either direction when the forward/reverse control is in neutral, the drive control cable must be adjusted.

Check the adjustment with the machine on a hard level surface, the engine running, and the forward/reverse control in NEUTRAL. The pump control lever **(a)** should be centered. If the machine does not remain stationary, loosen the jam nuts **(b)** and move the turnbuckle **(c)** as needed until movement stops.

If adjusting the turnbuckle does not achieve the desired results, a gross adjustment can be made at nut **(d)** and then fine-tuned as described above.



wc_gr000200

5.21 Parking Brake Adjustment (RD11A / RD11V)

See Graphic: wc_gr000201

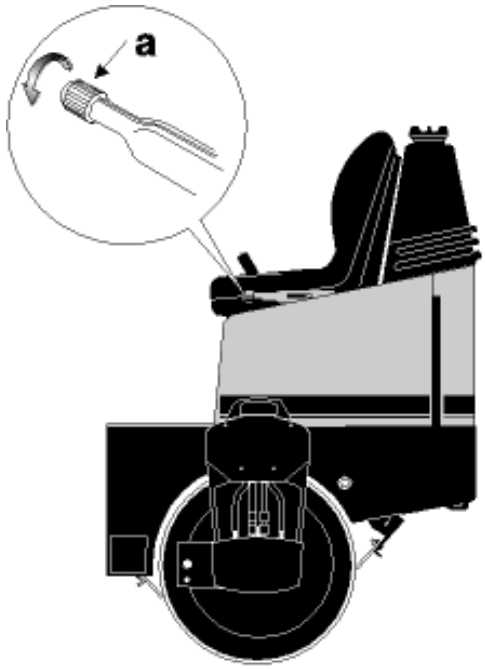
The parking brake is located on the rear drive motor drum support, and is used to prevent the roller from moving when it is turned off.

Adjust brake for proper holding force as follows:

5.21.1 Unscrew brake lever knob **(a)** until brake can be applied with moderate force (approx. 30 lbs.).

5.21.2 Start roller on level ground and try to travel forward and reverse with brake applied. If roller drives through brake, stop machine, tighten lever knob one turn and repeat process.

5.21.3 When machine no longer moves with brake set, stop machine, turn knob one more turn and brake is properly set.



wc_gr000201

5.22 Throttle Solenoid Adjustment

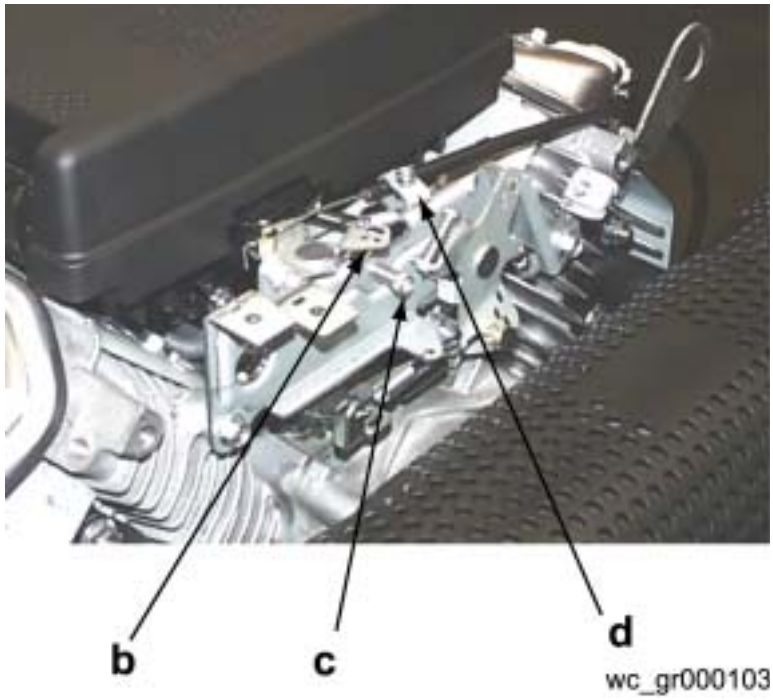
See Graphic: wc_gr000103

5.22.1 With engine still operating, set the throttle lever stop screw **(c)** on engine to 3200 rpm.

5.22.2 Shut down engine and then turn key to the first position (don't start the engine). Activate throttle solenoid. While holding the throttle lever **(b)** on engine to the fully engaged position (as set in step 2), pull cable tight through throttle nut/set screw **(d)** and secure cable. Disengage solenoid.

5.22.3 Turn the throttle lever stop screw **(c)** counter-clockwise three turns.

5.22.4 Start the engine and engage solenoid. Using the 5/16" mounting nuts on threaded casing end, adjust top speed to 3200 rpm.



5.23 Lifting Machine

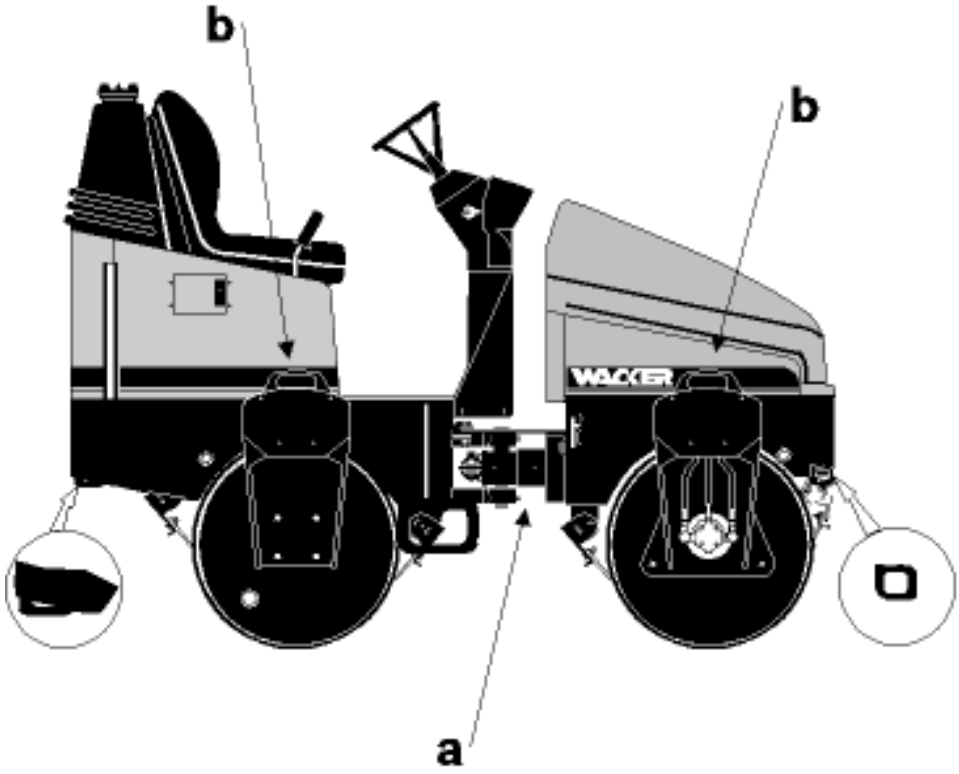
See Graphic: wc_gr000205

Lock front and rear machine halves together using the lockarm **(a)** at the articulation joint. Place slings or chains through each lifting eye **(b)** on the machine (4 places). Use four slings or chains with a minimum length of 2 meters (6 feet) on each leg connected to a central lifting device, OR two slings or chains with a minimum length of 4 meters (12 feet), one connecting the front lifting eyes and one connecting the rear lifting eyes, then brought together over the crane hook. Ensure that all lifting devices have sufficient weight-bearing capacity.

WARNING

To avoid being pinched by machine halves, set the lockarm before lifting the machine for transport or repairs!

CAUTION: Never use anything but the lifting eyes provided to lift the machine, as severe damage to the machine can result.



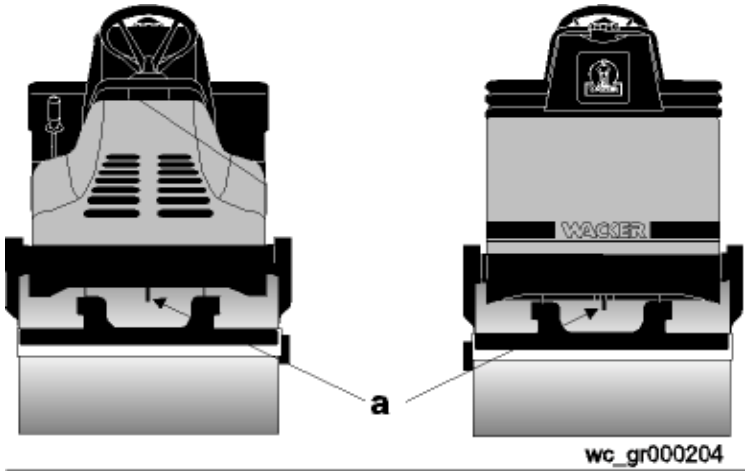
wc gr000205

5.24 Transporting Machine

See Graphic: wc_gr000204

When transporting the machine place blocks in front of and behind each drum and use the front and rear tie-down lugs **(a)** provided to securely fasten the machine to the trailer (2 places).

CAUTION: Never use anything but the tiedown lugs provided to tie down the machine, as severe damage to the machine can result.



5.25 Storage

If unit is to be stored for more than 30 days:

- Drain fuel tank and water tank. Also drain rear drum, if ballast was added.
- Open water valves and drain water from sprinkling system.
- Change engine oil.
- Remove spark plugs and pour approximately 1 ounce (3 ml) of SAE 30W oil into each engine cylinder through spark plug opening.
- Install spark plugs. Leave ignition wires disconnected to prevent engine from starting. Crank engine for one or two seconds to distribute oil inside engine cylinders. Connect ignition wires.
- Clean entire roller and engine compartment.
- Remove dirt from cooling fins on engine cylinders and on blower housing.
- Set lockarm to secure roller halves together.
- Remove battery from machine and charge it periodically.
- Cover entire machine and place in a dry, protected area.

5.26 Towing (RD11A / RD11V)

See Graphic: wc_gr000202

The drive circuit is equipped with a towing valve to allow oil to bypass the drive motors and let the roller freewheel for towing.

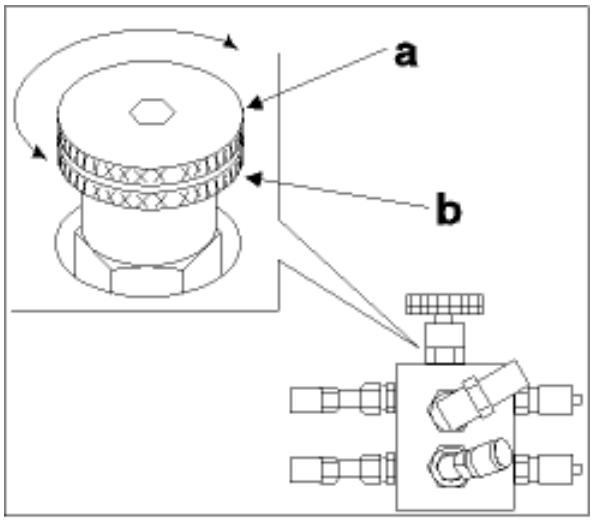
The towing valve should be used in emergency cases where the machine has become bogged down in loose or muddy soil, or cannot be driven due to an engine or hydraulic system failure.

To open bypass, shut engine off and loosen jam nut **(b)** one full turn counterclockwise. Then turn valve **(a)** one full turn counterclockwise.

When resuming machine operation, make sure by-pass is closed tightly. Turn valve **(b)** clockwise until fully seated. Then secure valve with jam nut **(a)**. If valve is not closed completely, the drive system may not respond or may perform sluggishly.

WARNING With the tow valve open, the drive circuit has no braking action and the machine will roll freely. Close valve immediately after towing operation is complete to prevent machine from rolling unexpectedly.

CAUTION: *Do not tow the roller long distances or at speeds greater than 3 - 5 km/h (2–3 mph). Damage to the drive motors may occur.*



wc_gr000202

5.27 Towing (RD11AEC)

See Graphic: wc_gr000203

The drive circuit is equipped with a brake release system to manually release the brakes and allow the roller to freewheel for towing.

The brake release system should be used in emergency cases where the machine has become bogged down in loose or muddy soil, or cannot be driven due to an engine or hydraulic system failure.

To release the brakes:

- Shut off the engine.
- Push down on the brake override valve **(a)**.
- Stroke the brake release pump **(b)** just until firm resistance is felt.

Note: *It will take approximately 25 strokes of the pump to release the brakes.*

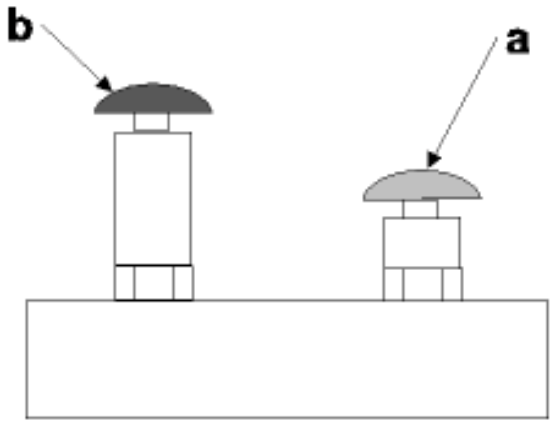
When resuming machine operation, pull up on the brake override valve **(a)**.

CAUTION: Do not tow the roller long distances or at speeds greater than 3–5 km/h (2–3 mph). Damage to the drive motors may occur.

Note: *The brake release system will automatically reset when the engine is started.*

WARNING

With the brakes released, the drive circuit has no braking action and the machine will roll freely. Pull up on the brake override valve immediately after towing operation is complete to prevent machine from rolling unexpectedly.

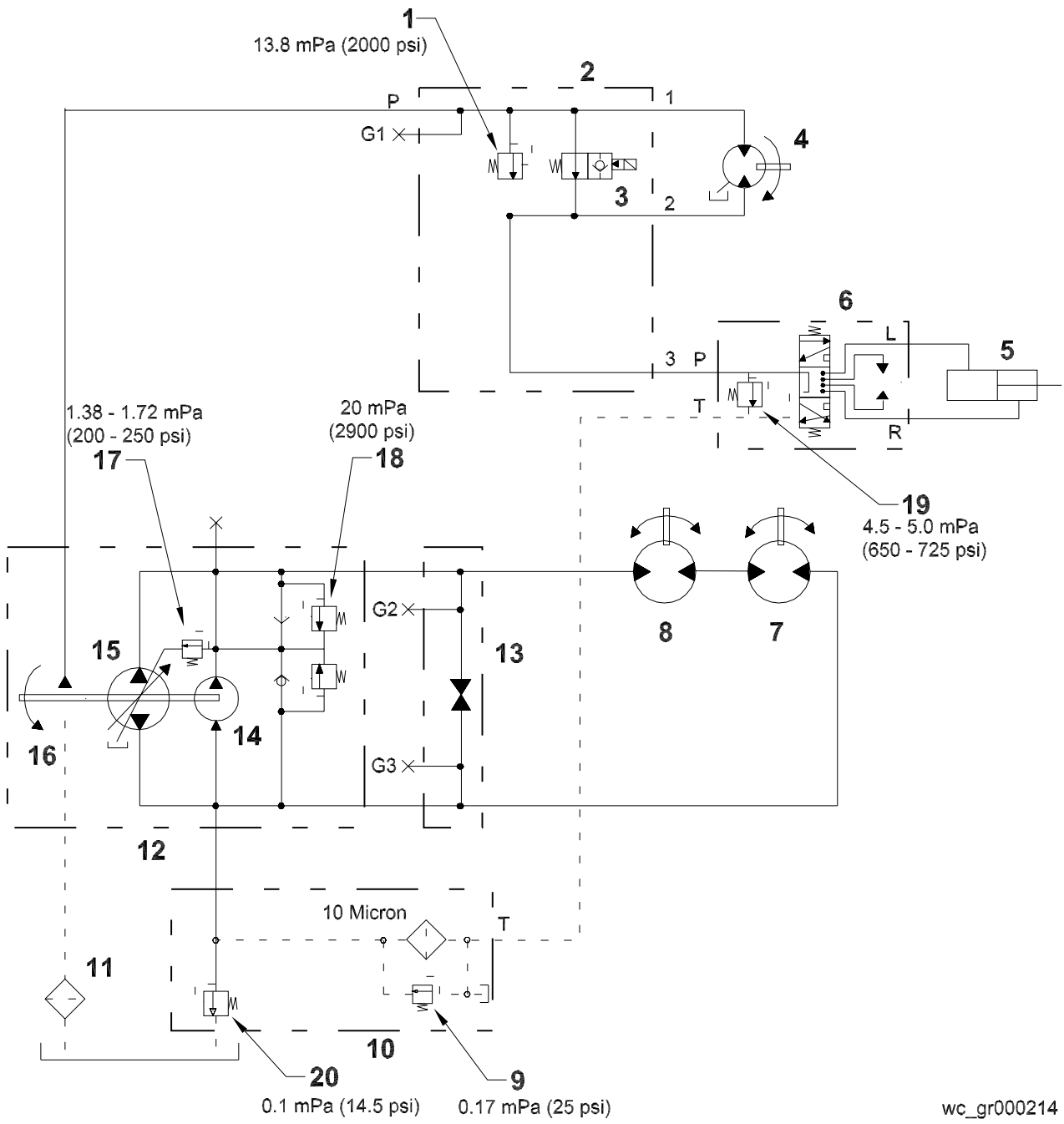


wc_gr000203

5.28 Hydraulic Schematic (RD11A / RD11V)

See Graphic: wc_gr000214

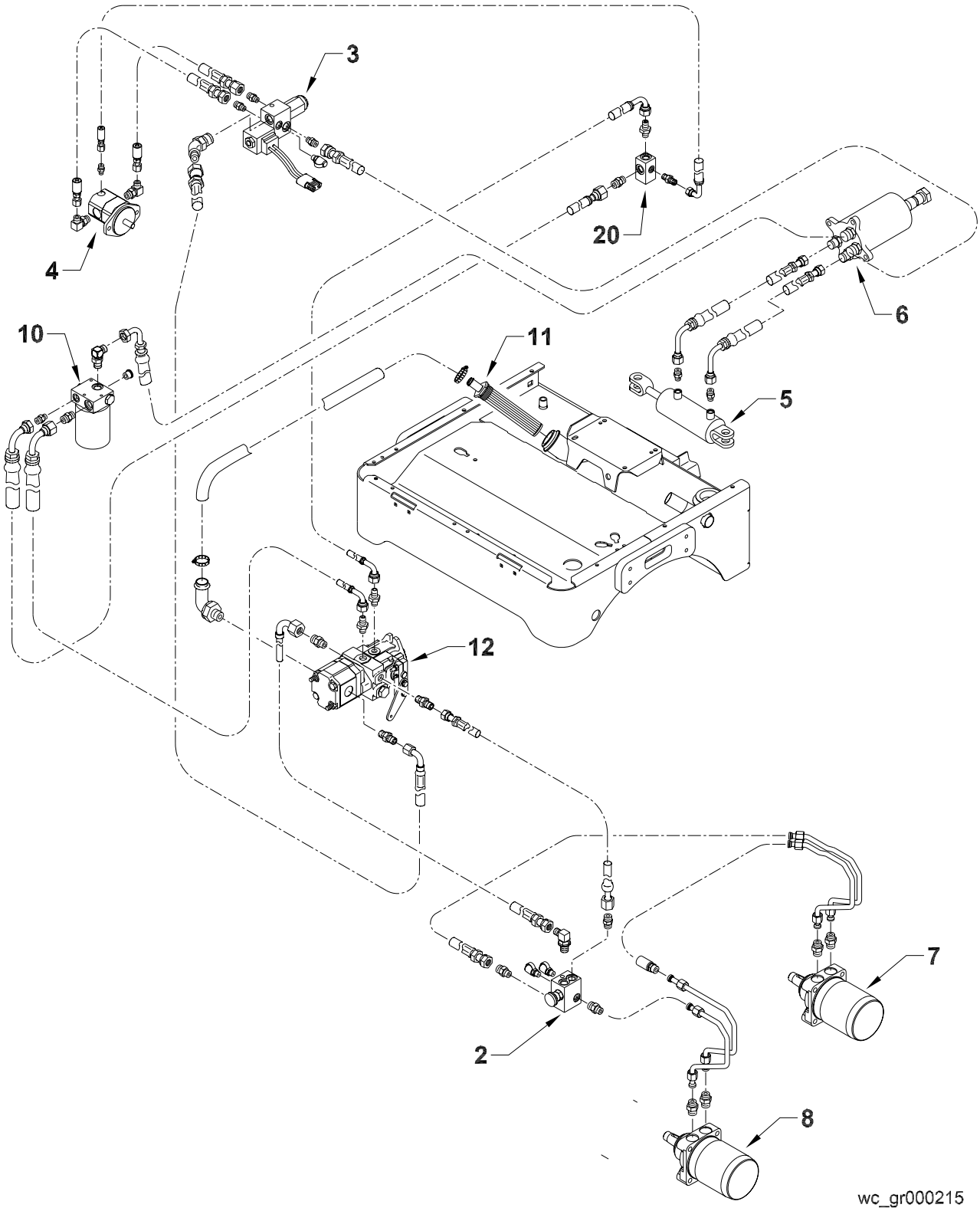
Ref.	Description	Ref.	Description
1.	Exciter Relief Valve	11.	Suction Filter
2.	Manifold	12.	Pump Assembly
3.	Exciter Control Valve	13.	Towing Valve
4.	Exciter Motor	14.	Charge Pump
5.	Steering Cylinder	15.	Drive Pump
6.	Steering Valve	16.	Exciter Pump
7.	Rear Drive Motor	17.	Charge Pressure Relief Valve
8.	Front Drive Motor	18.	Internal Drive Pump Relief Valves
9.	Filter Bypass	19.	Steering Relief Valve
10.	Return Line Filter Assembly	20.	Backpressure Valve


1
13.8 mPa (2000 psi)
2
P
G1
1
4
3
2
6
L
5
3 P
T
R
19
4.5 - 5.0 mPa
(650 - 725 psi)
1.38 - 1.72 mPa
(200 - 250 psi)
17
20 mPa
(2900 psi)
18
8
7
G2
15
13
16
14
G3
12
10 Micron
T
11
10
20
0.1 mPa (14.5 psi)
9
0.17 mPa (25 psi)
wc_gr000214

5.29 Hydraulic Diagram (RD11A / RD11V)

See Graphic: wc_gr000215

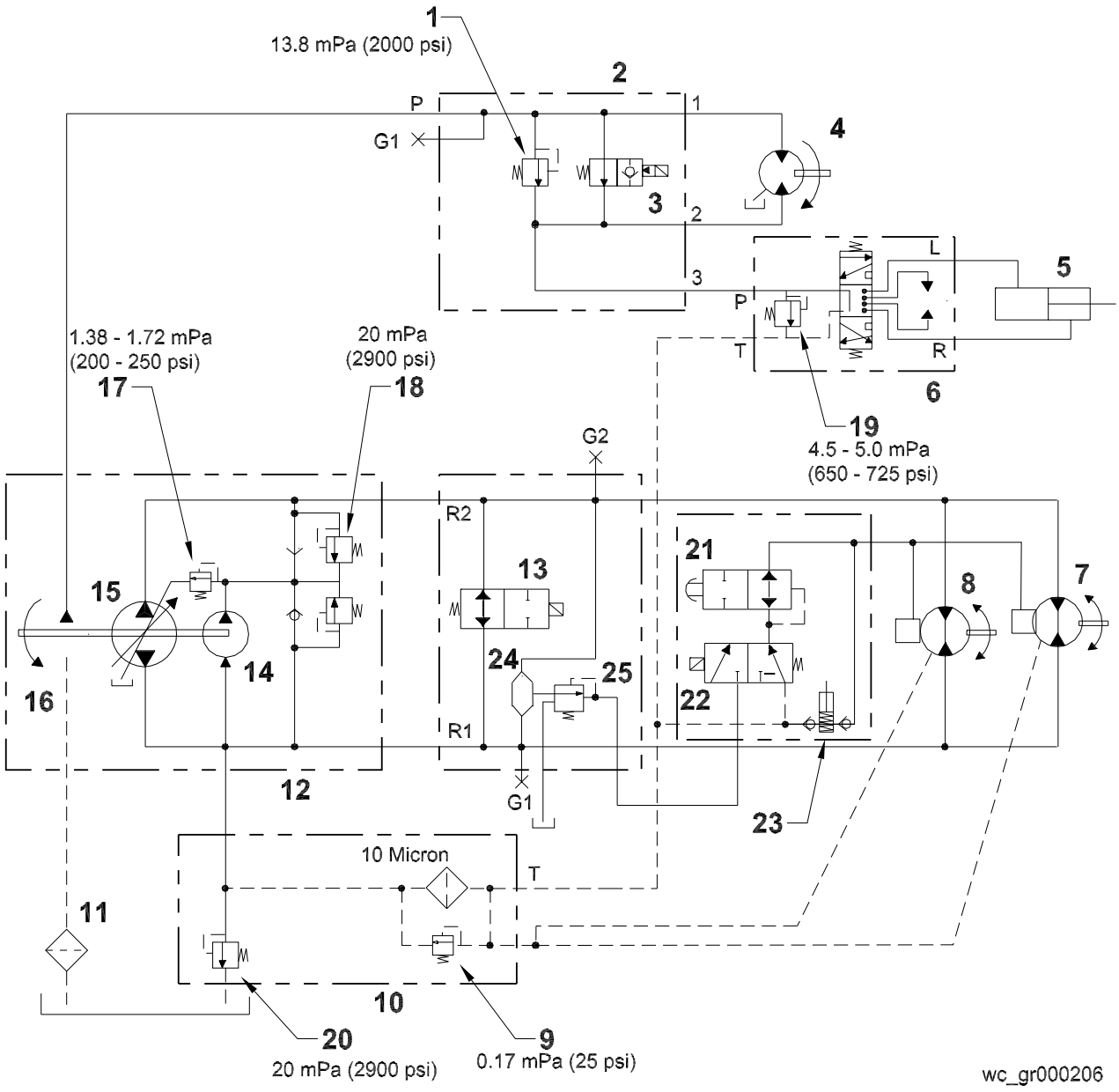
Ref.	Description	Ref.	Description
1.	Exciter Relief Valve	11.	Suction Filter
2.	Manifold	12.	Pump Assembly
3.	Exciter Control Valve	13.	Towing Valve
4.	Exciter Motor	14.	Charge Pump
5.	Steering Cylinder	15.	Drive Pump
6.	Steering Valve	16.	Exciter Pump
7.	Rear Drive Motor	17.	Charge Pressure Relief Valve
8.	Front Drive Motor	18.	Internal Drive Pump Relief Valves
9.	Filter Bypass	19.	Steering Relief Valve
10.	Return Line Filter Assembly	20.	Backpressure Valve


3
4
20
6
10
11
5
12
7
2
8
wc_gr000215

5.30 Hydraulic Schematic (RD11AEC)

See Graphic: wc_gr000206

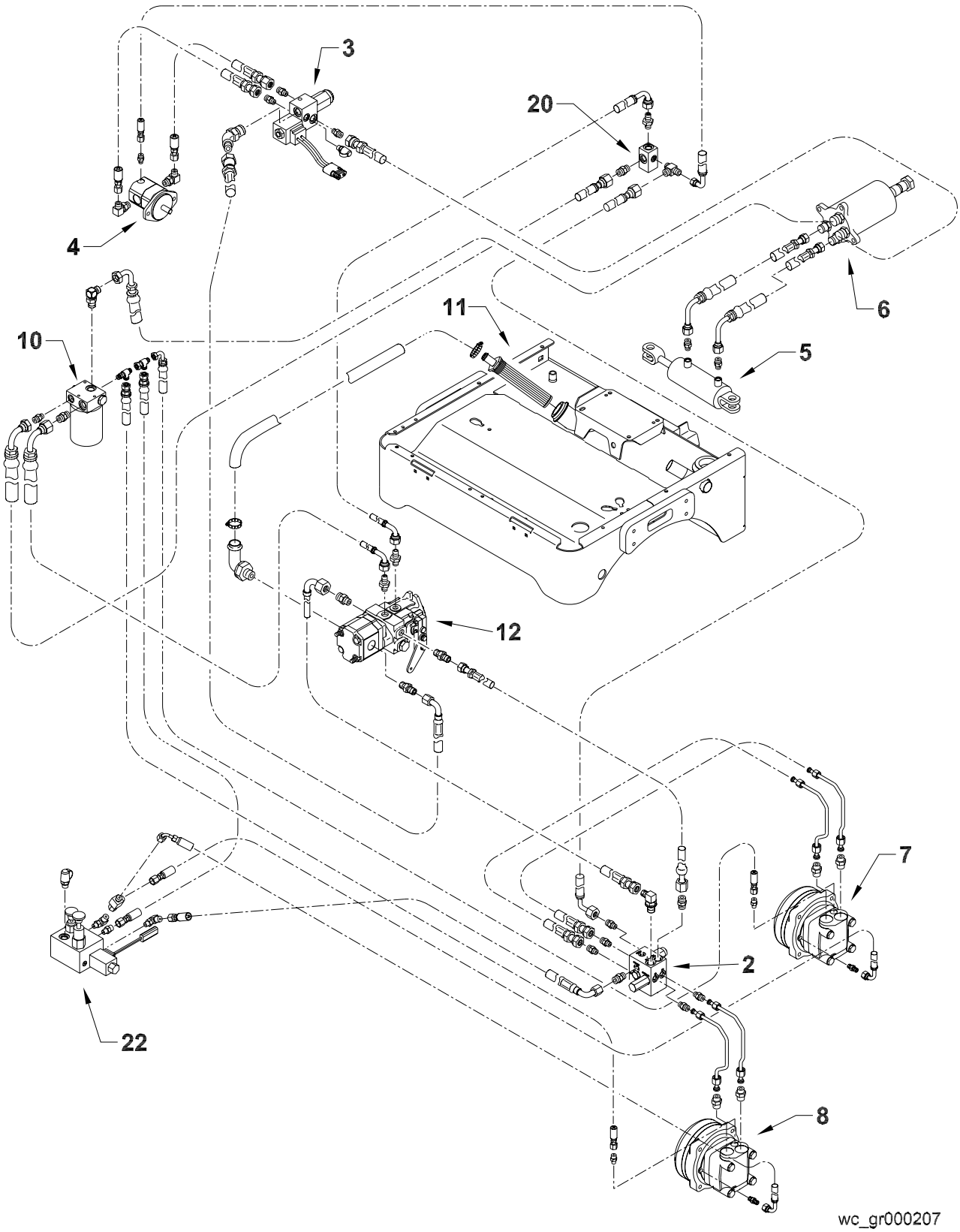
Ref.	Description	Ref.	Description
1.	Exciter Relief Valve	14.	Charge Pump
2.	Manifold	15.	Drive Pump
3.	Exciter Control Valve	16.	Exciter Pump
4.	Exciter Motor	17.	Charge Pressure Relief Valve
5.	Steering Cylinder	18.	Internal Drive Pump Relief Valves
6.	Steering Valve	19.	Steering Relief Valve
7.	Rear Drive Motor	20.	Backpressure Valve
8.	Front Drive Motor	21.	Manual Override Valve
9.	Filter Bypass	22.	Brake Valve
10.	Return Line Filter Assembly	23.	Hand Pump
11.	Suction Filter	24.	Shuttle Valve
12.	Pump Assembly	25.	Pressure Reducing Valve
13.	Pump Shunt Valve		


1
13.8 mPa (2000 psi)
2
P
G1
1
2
3
3
4
L
5
P
T
R
6
1.38 - 1.72 mPa
(200 - 250 psi)
17
20 mPa
(2900 psi)
18
19
4.5 - 5.0 mPa
(650 - 725 psi)
G2
R2
13
21
8
7
15
24
25
22
16
14
R1
12
G1
23
10 Micron
T
11
10
20
20 mPa (2900 psi)
9
0.17 mPa (25 psi)
wc_gr000206

5.31 Hydraulic Diagram (RD11AEC)

See Graphic: wc_gr000207

Ref.	Description	Ref.	Description
1.	Exciter Relief Valve	14.	Charge Pump
2.	Manifold	15.	Drive Pump
3.	Exciter Control Valve	16.	Exciter Pump
4.	Exciter Motor	17.	Charge Pressure Relief Valve
5.	Steering Cylinder	18.	Internal Drive Pump Relief Valves
6.	Steering Valve	19.	Steering Relief Valve
7.	Rear Drive Motor	20.	Backpressure Valve
8.	Front Drive Motor	21.	Manual Override Valve
9.	Filter Bypass	22.	Brake Valve
10.	Return Line Filter Assembly	23.	Hand Pump
11.	Suction Filter	24.	Shuttle Valve
12.	Pump Assembly	25.	Pressure Reducing Valve
13.	Pump Shunt Valve		

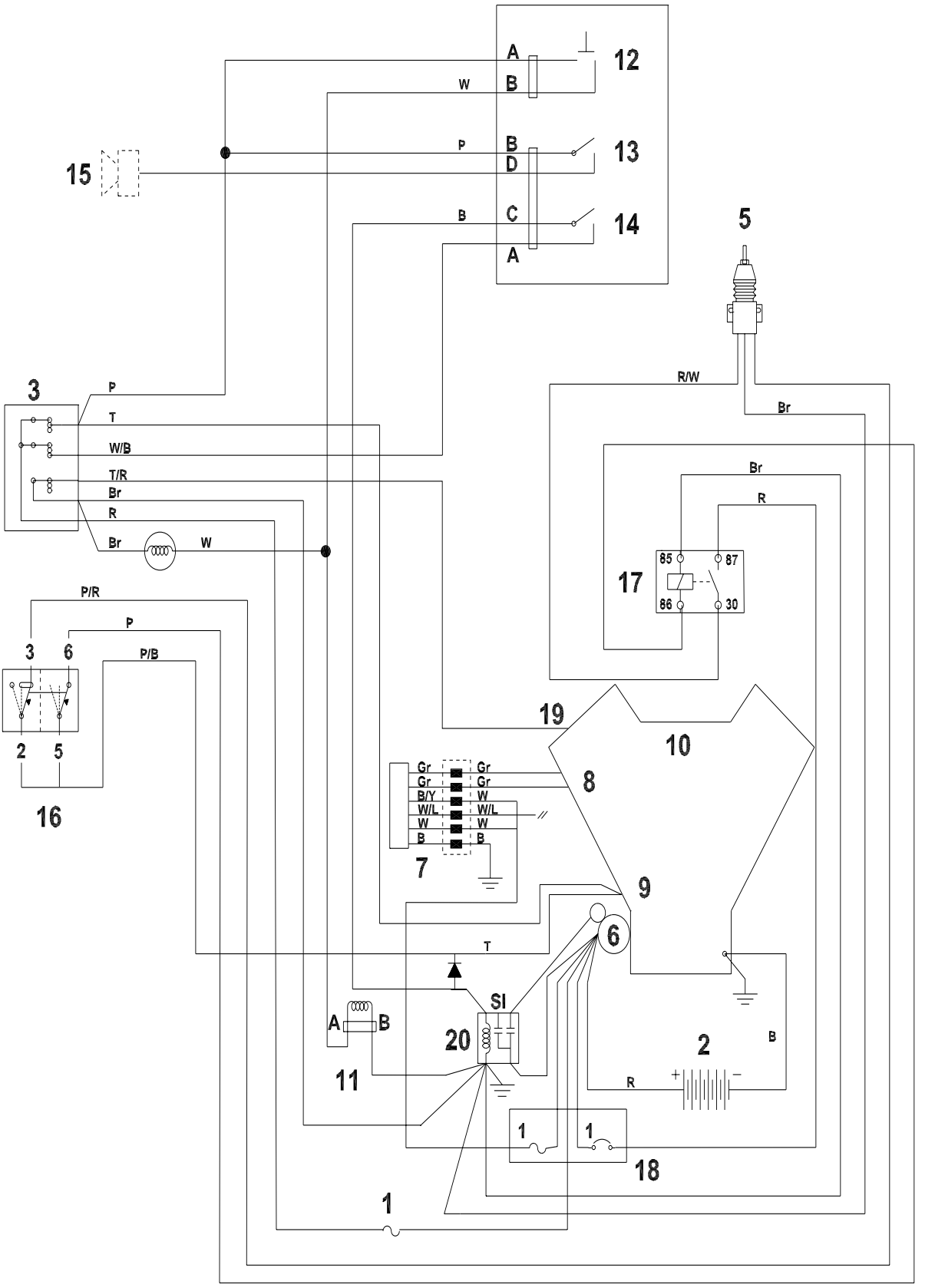

3
20
4
6
11
10
5
12
7
2
22
8
wc_gr000207

5.32 Electrical Schematic (RD11A) Revisions 116 & lower

See Graphic: wc_gr001498

Ref.	Description	Ref.	Description
1.	20 Amp fuse	11.	Exciter Manifold
2.	Battery	12.	Vibration Switch
3.	Key Switch	13.	Forward/Reverse Control
4.		14.	Neutral Safety Switch
5.	Throttle Solenoid	15.	Backup Alarm (optional)
6.	Starter	16.	Throttle Switch
7.	Regulator / Rectifier	17.	12VDC Relay
8.	Alternator	18.	20 Amp Circuit Breaker
9.	Anti-backfire	19.	Magneto Kill
10.	Engine	20.	Starter Relay

Wire Colors							
B	Black	R	Red	Y	Yellow	Or	Orange
G	Green	T	Tan	Br	Brown	Pr	Purple
L	Blue	V	Violet	Cl	Clear	Sh	Shield
P	Pink	W	White	Gr	Gray	LL	Light Blue


A
B
C
D
12
13
14
15
W
P
B
5
R/W
Br
3
P
T
W/B
T/R
Br
R
Br
W
17
85
87
86
30
P/R
P
P/B
3
6
2
5
16
19
10
8
Gr
Gr
B/Y
W/L
W
B
W
W/L
W
B
7
9
6
T
SI
A
B
20
11
2
B
R
1
1
1
18

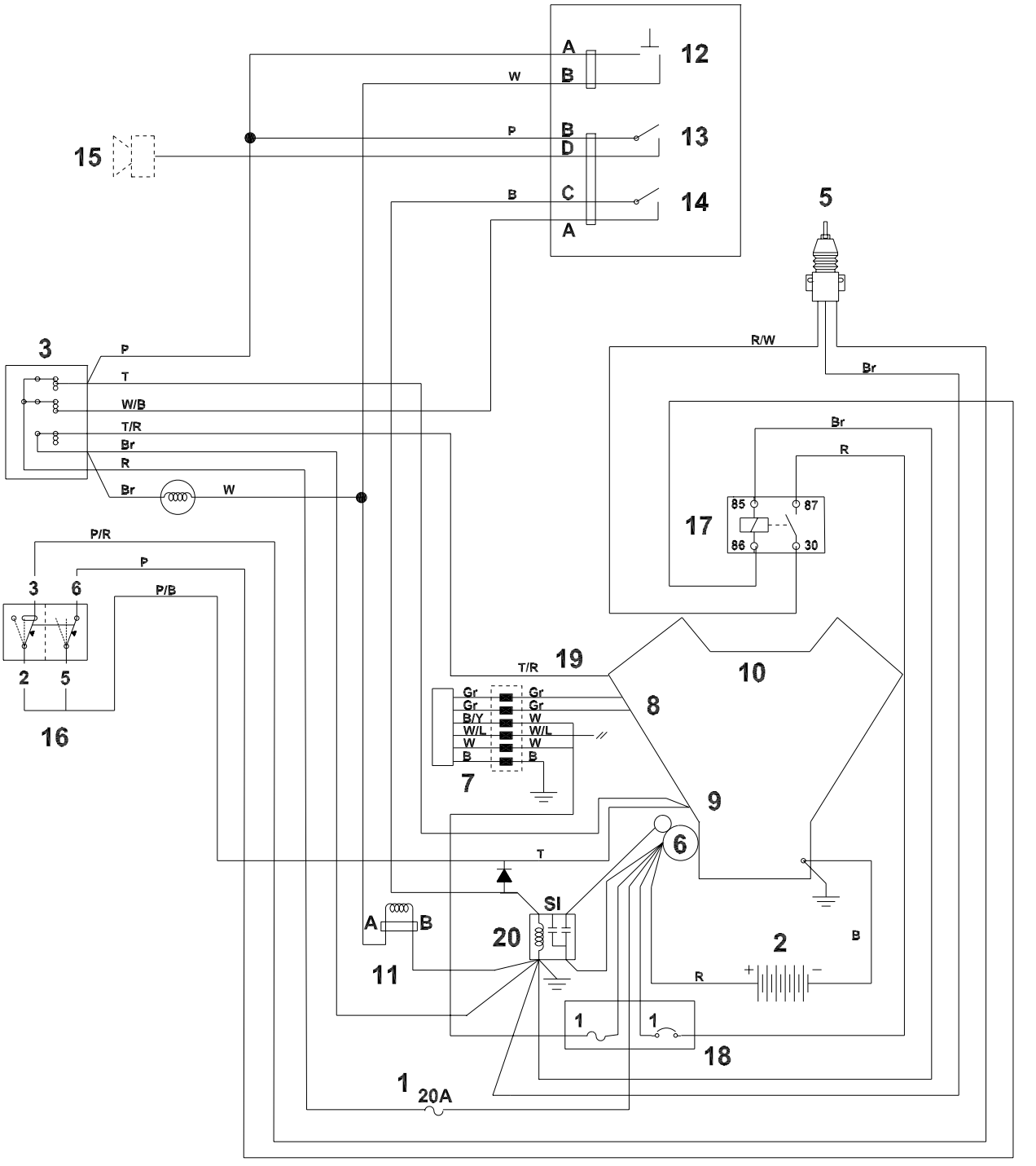
wc_gr001498

5.33 Electrical Schematic (RD11A) Revisions 117 & higher

See Graphic: wc_gr000210

Ref.	Description	Ref.	Description
1.	20 Amp fuse	11.	Exciter Manifold
2.	Battery	12.	Vibration Switch
3.	Key Switch	13.	Forward/Reverse Control
4.		14.	Neutral Safety Switch
5.	Throttle Solenoid	15.	Backup Alarm (optional)
6.	Starter	16.	Throttle Switch
7.	Regulator / Rectifier	17.	12VDC Relay
8.	Alternator	18.	20 Amp Circuit Breaker
9.	Anti-backfire	19.	Magneto kill
10.	Engine	20.	Starter Relay

Wire Colors							
B	Black	R	Red	Y	Yellow	Or	Orange
G	Green	T	Tan	Br	Brown	Pr	Purple
L	Blue	V	Violet	Cl	Clear	Sh	Shield
P	Pink	W	White	Gr	Gray	LL	Light Blue


A
B
C
D
12
13
14
15
W
P
B
B
A
5
R/W
Br
3
P
T
W/B
T/R
Br
R
Br
W
Br
R
85
87
86
30
17
P/R
P
3
6
P/B
2
5
16
T/R
19
10
Gr
Gr
B/Y
W/L
W
B
Gr
Gr
W
W/L
W
B
8
7
9
6
T
SI
A
B
20
11
2
B
R
1
1
18
1
20A

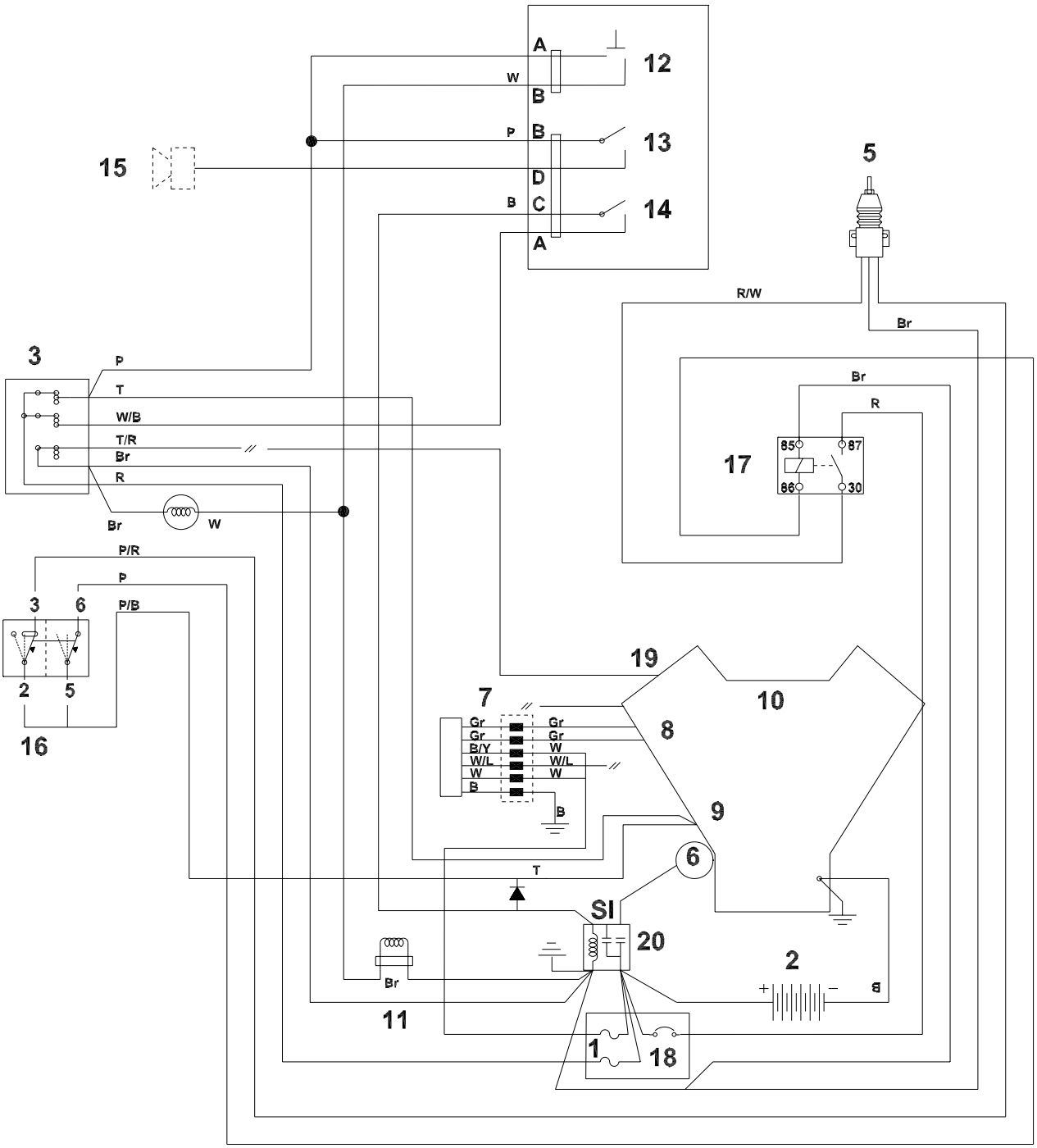
wc_gr000210

5.34 Electrical Schematic (RD11V)

See Graphic: wc_gr000209

Ref.	Description	Ref.	Description
1.	20 Amp fuse	11.	Exciter Manifold
2.	Battery	12.	Vibration Switch
3.	Key Switch	13.	Forward/Reverse Control
4.		14.	Neutral Safety Switch
5.	Throttle Solenoid	15.	Backup Alarm (optional)
6.	Starter	16.	Throttle Switch
7.	Regulator / Rectifier	17.	12VDC Relay
8.	Alternator	18.	20 Amp Circuit Breaker
9.	Anti-backfire	19.	Magneto Kill
10.	Engine	20.	Starter Relay

Wire Colors							
B	Black	R	Red	Y	Yellow	Or	Orange
G	Green	T	Tan	Br	Brown	Pr	Purple
L	Blue	V	Violet	Cl	Clear	Sh	Shield
P	Pink	W	White	Gr	Gray	LL	Light Blue


A
W
B
P
B
D
B
C
A
12
13
14
15
5
R/W
Br
3
P
T
W/B
T/R
Br
R
Br
W
Br
R
17
85
87
86
30
P/R
P
3
6
P/B
2
5
16
19
10
7
8
Gr
Gr
B/Y
W/L
W
B
Gr
Gr
W
W/L
W
B
9
6
T
SI
20
2
B
Br
11
1
18

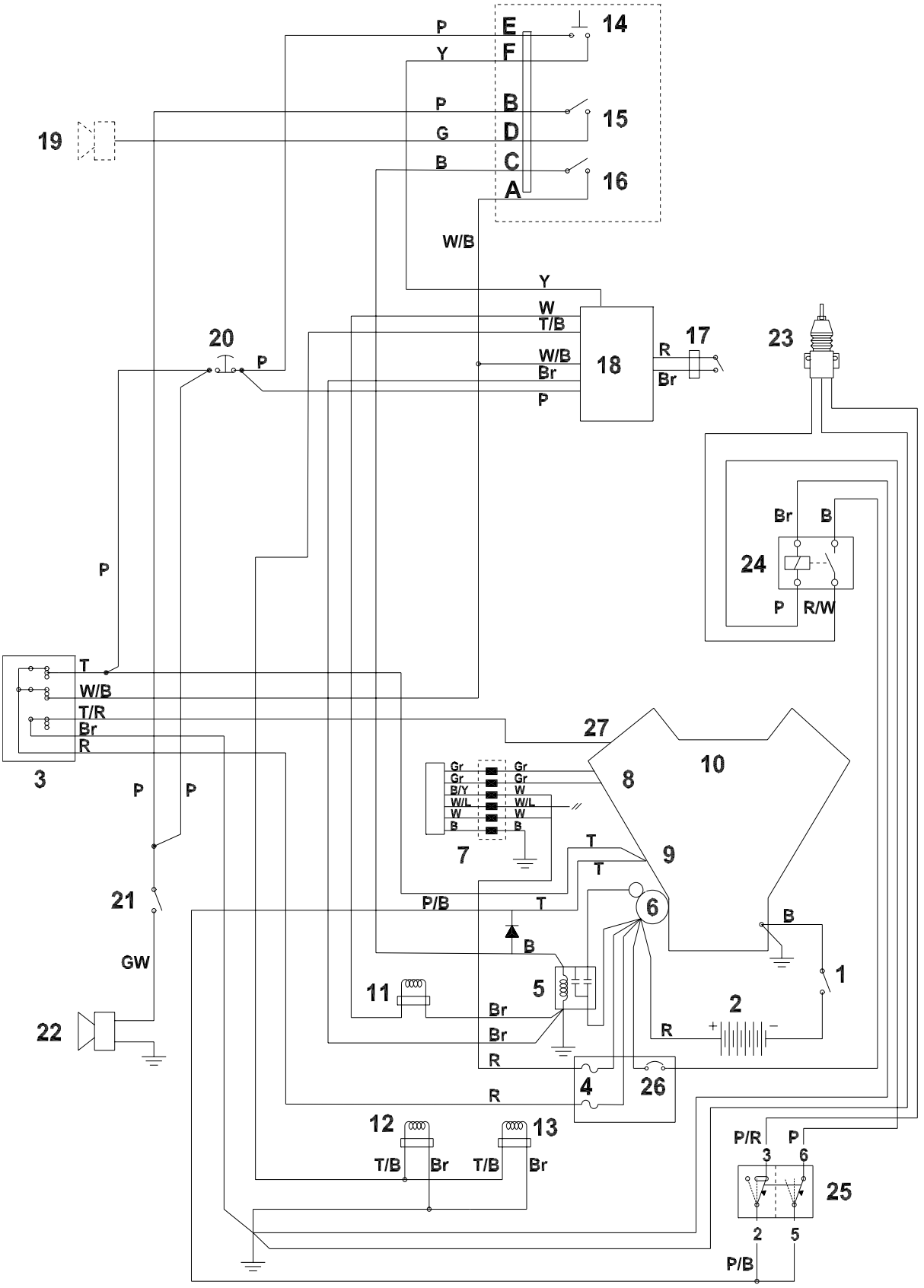
wc_gr000209

5.35 Electrical Schematic (RD11AEC) Revisions 125 & lower

See Graphic: wc_gr001497

Ref.	Description	Ref.	Description
1.	Battery Disconnect	15.	Forward/Reverse Control
2.	Battery	16.	Neutral Safety Switch
3.	Key Switch	17.	Seat Switch
4.	20 Amp fuse	18.	Seat Switch Delay and Neutral Start Module
5.	Starter Relay	19.	Backup Alarm (Optional)
6.	Starter	20.	Emergency Stop Pushbutton
7.	Regulator / Rectifier	21.	Horn Switch
8.	Alternator	22.	Horn
9.	Anti-Backfire	23.	Throttle Solenoid
10.	Engine	24.	12VDC Relay
11.	Exciter Manifold	25.	Throttle Switch
12.	Brake Manifold	26.	20 Amp Circuit Breaker
13.	Brake Bypass (Towing Valve)	27.	Magneto Kill
14.	Vibration Switch		

Wire Colors							
B	Black	R	Red	Y	Yellow	Or	Orange
G	Green	T	Tan	Br	Brown	Pr	Purple
L	Blue	V	Violet	Cl	Clear	Sh	Shield
P	Pink	W	White	Gr	Gray	LL	Light Blue


P
Y
P
G
B
19
E
F
B
D
C
A
14
15
16
W/B
Y
W
T/B
W/B
Br
P
18
20
P
17
R
Br
23
Br
B
24
P
R/W
P
T
W/B
T/R
Br
R
3
P
P
27
10
8
Gr
Gr
B/Y
W/L
W
B
7
T
T
9
21
P/B
T
6
B
B
GW
11
5
1
2
22
Br
Br
R
R
4
26
12
13
T/B
Br
T/B
Br
P/R
P
3
6
25
2
5
P/B

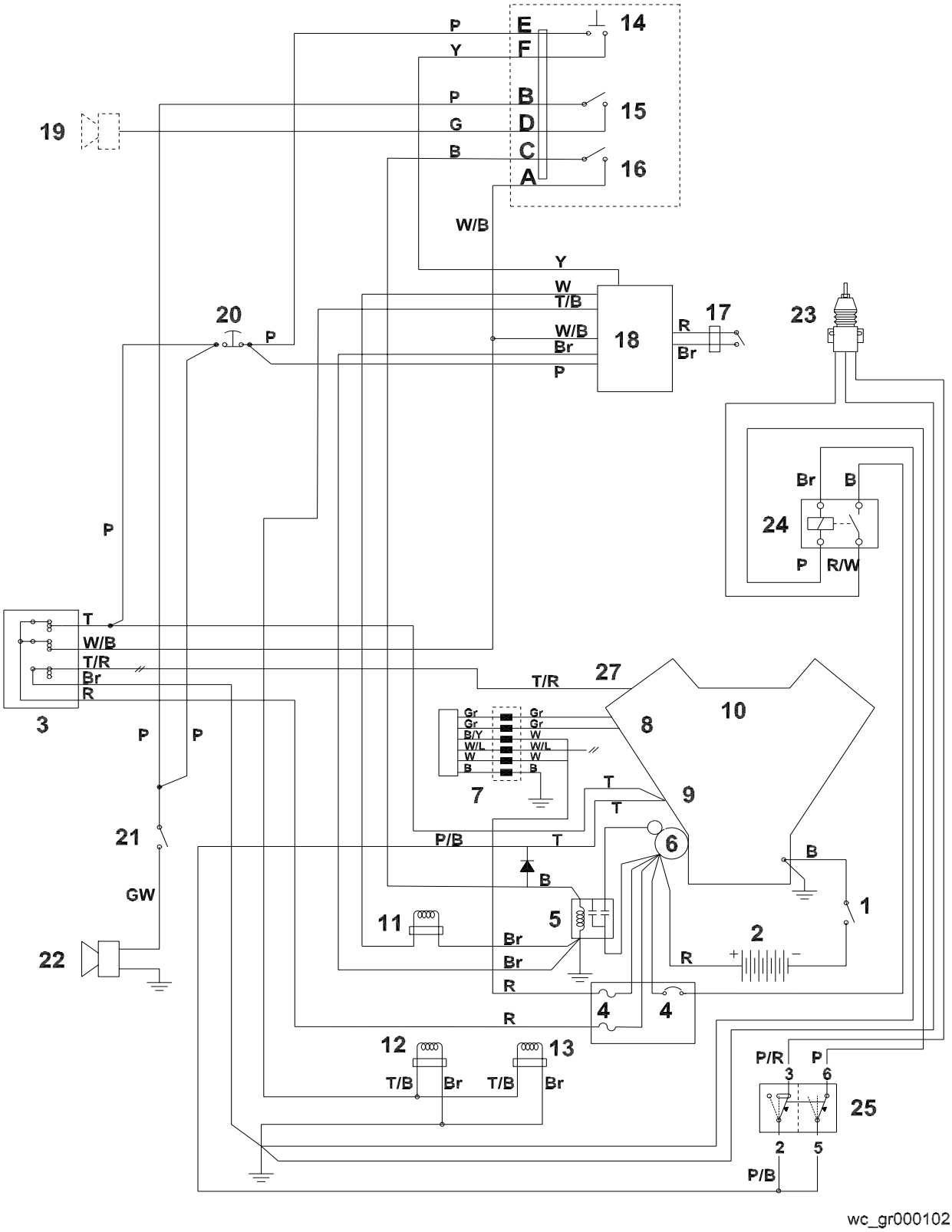
wc_gr001497

5.36 Electrical Schematic (RD11AEC) Revisions 126 & higher

See Graphic: wc_gr000102

Ref.	Description	Ref.	Description
1.	Battery Disconnect	15.	Forward/Reverse Control
2.	Battery	16.	Neutral Safety Switch
3.	Key Switch	17.	Seat Switch
4.	20 Amp fuse	18.	Seat Switch Delay and Neutral Start Module
5.	Starter Solenoid	19.	Backup Alarm (Optional)
6.	Starter	20.	Emergency Stop Pushbutton
7.	Regulator / Rectifier	21.	Horn Switch
8.	Alternator	22.	Horn
9.	Anti-Backfire	23.	Throttle Solenoid
10.	Engine	24.	12VDC Relay
11.	Exciter Manifold	25.	Throttle Switch
12.	Brake Manifold	26.	20 Amp Circuit Breaker
13.	Brake Bypass (Towing Valve)	27.	Magneto Kill
14.	Vibration Switch		

Wire Colors							
B	Black	R	Red	Y	Yellow	Or	Orange
G	Green	T	Tan	Br	Brown	Pr	Purple
L	Blue	V	Violet	Cl	Clear	Sh	Shield
P	Pink	W	White	Gr	Gray	LL	Light Blue


P
Y
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G
B
E
F
B
D
C
A
14
15
16
19
W/B
Y
W
T/B
W/B
Br
P
18
17
R
Br
20
P
23
Br
B
24
P
R/W
P
T
W/B
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Br
R
3
T/R
27
10
Gr
Gr
B/Y
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B
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P
21
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6
B
B
GW
11
5
1
2
22
Br
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4
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12
13
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P
3
6
25
2
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wc_gr000102

5.37 Troubleshooting (RD11A / RD11V)

Problem / Symptom	Reason / Remedy
ENGINE DOES NOT START	• Fuel tank empty. • Wrong type of fuel. • Old fuel. Drain tank, change fuel filter and fill with fresh fuel. • Fuel system not primed. • Fuel filter restricted or plugged. Replace filter. • Battery connections loose or corroded. Battery dead. • Air cleaner element plugged. • Starter motor defective. • Fuel solenoids on engine inoperative. • Starter relay inoperative. • Electrical connections loose or broken. • Key switch defective.
ENGINE STOPS BY ITSELF	• Fuel tank empty. • Fuel filter plugged. • Fuel lines broken or loose. • No spark.
NO VIBRATION	• Defective switch or poor connection. • Solenoid on vibration valve damaged or disconnected. • Exciter assembly damaged. • Exciter motor coupling damaged or broken. • Exciter motor damaged. • Exciter pump damaged.
NO TRAVEL or TRAVEL ONLY IN ONE DIRECTION	• Pin sheared on control lever. • Control cable loose or broken. • Drive motor damaged. • Drive pump damaged. • Defective relief valve or valves.
NO STEERING	• Steering cylinder damaged. • Steering unit damaged. • Steering relief valve stuck or damaged. • Articulation joint lockarm engaged.

5.38 Troubleshooting (RD11AEC)

Problem / Symptom	Reason / Remedy
ENGINE DOES NOT START	• Fuel tank empty. • Wrong type of fuel. • Old fuel. Drain tank, change fuel filter and fill with fresh fuel. • Fuel system not primed. • Fuel filter restricted or plugged. Replace filter. • Battery connections loose or corroded. Battery dead. • Air cleaner element plugged. • Starter motor defective. • Fuel solenoids on engine inoperative. • Starter relay inoperative. • Electrical connections loose or broken. • Key switch defective. • Battery disconnect switch disengaged. • Forward/Reverse Control not in neutral.
ENGINE STOPS BY ITSELF	• Fuel tank empty. • Fuel filter plugged. • Fuel lines broken or loose. • No spark.
NO VIBRATION	• Defective switch or poor connection. • Solenoid on vibration valve damaged or disconnected. • Exciter assembly damaged. • Exciter motor coupling damaged or broken. • Exciter motor damaged. • Exciter pump damaged. • Emergency Stop activated.
NO TRAVEL or TRAVEL ONLY IN ONE DIRECTION	• Pin sheared on control lever. • Control cable loose or broken. • Drive motor damaged. • Drive pump damaged. • Defective relief valve or valves. • “Operator Present” seat switch deactivated. • Emergency Stop activated.
NO STEERING	• Steering cylinder damaged. • Steering unit damaged. • Steering relief valve stuck or damaged. • Articulation joint lockarm engaged.

ROLLER COMPACTOR

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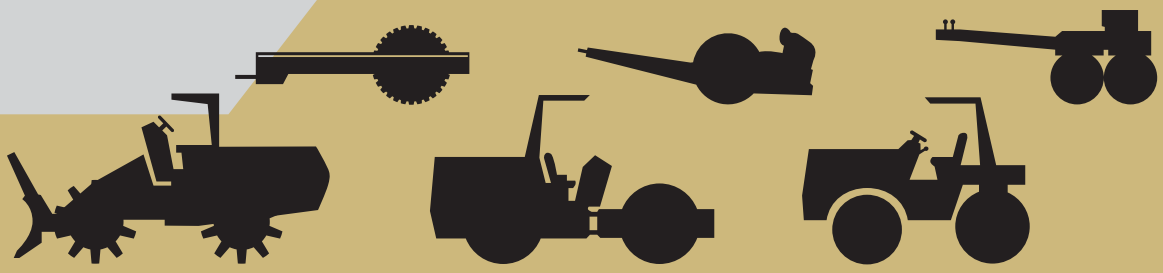
ASSOCIATION OF AEM EQUIPMENT MANUFACTURERS

SAFETY MANUAL

FOR OPERATING AND MAINTENANCE PERSONNEL



SAFETY ALERT SYMBOL

This Safety Alert Symbol means ATTENTION is involved!

The Safety Alert Symbol identifies important safety messages on machines, safety signs, in manuals, or elsewhere. When you see this symbol, be alert to the possibility of personal injury or death. Follow the instructions in the safety message.

Why is SAFETY important to YOU?

3 BIG REASONS:

- **Accidents KILL or DISABLE**
- **Accidents COST**
- **Accidents CAN BE AVOIDED**

Revised 6/02, 9/04

WORD OF EXPLANATION

The following is a partial list of reference material on safe operating practices:

U.S. Department of Labor publishes safety and health regulations and standards under the authority of the Occupational Safety and Health Act for the general construction and mining industries. Its address is: U.S. Department of Labor, 200 Constitution Avenue, NW, Washington, DC 20210.

SAE - Society of Automotive Engineers, Inc., 400 Commonwealth Drive, Warrendale, PA 15096, publishes a list, "Operator Precautions," SAE J153 MAY, 1987.

Association of Equipment Manufacturers, 111 East Wisconsin Avenue, Milwaukee, WI USA 53202, publishes the Roller Compactor Safety Manual and other safety-related material.

WORD OF EXPLANATION

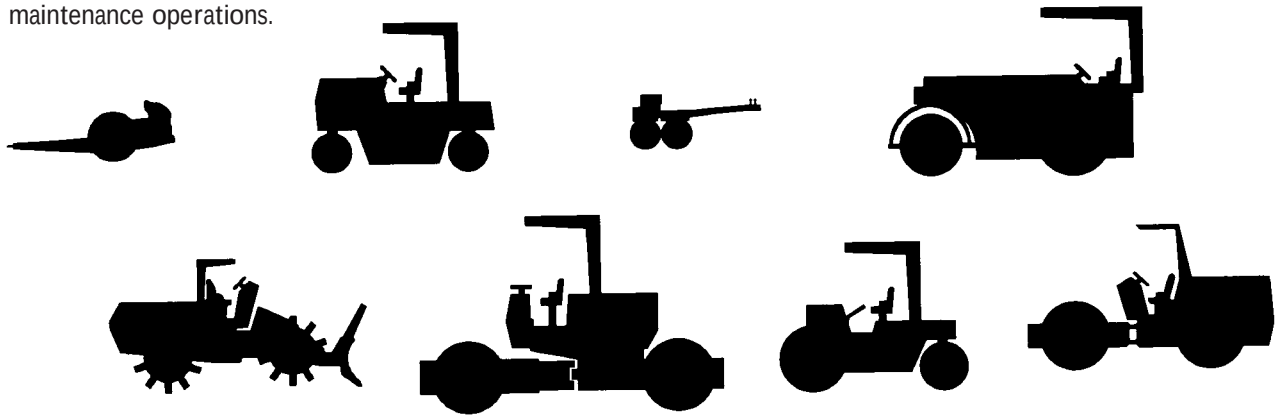
This Safety Manual covers many different types of roller compactors … including steel wheel rollers, vibratory rollers, rubber-tired rollers, segmented pad/sheepsfoot soil compactors and landfill compactors. These may be either self-propelled ride-on, walk-behind or towed rollers. They may be used for the compaction of asphalt, soil, landfill or other materials. Excluded from coverage are vibratory plates and hand rammers.

Regardless of which machine you operate, it is YOUR responsibility to study and understand this Safety Manual, and to see that a copy remains with your machine. The manual begins with your "safety homework," takes you step-by-step through your working day, and ends with maintenance operations.

Manufacturers produce machines with many built-in safety features. Employers provide accident prevention programs. Yet, the ultimate responsibility to operate and maintain your machine with the skill, care and knowledge essential for safety is YOURS.

Do not operate your machine until you have been trained in the use of all operating controls and understand the handling characteristics of the machine.

REMEMBER — SAFETY … YOURS AND THAT OF THOSE AROUND YOU … IS UP TO YOU!



FOREWORD

This safety manual is intended to point out some of the basic situations which may be encountered during the normal operation and maintenance of your machine, and to suggest possible ways of dealing with these conditions.

Additional precautions may be necessary, depending on application, machine type, configuration and attachments used, and conditions at the work-site or in the maintenance area. The manufacturer has no direct control over machine application, operation, inspection, lubrication or maintenance. Therefore, it is your responsibility to use good safe practices in these areas.

The information provided in this manual supplements the specific information about your machine that is contained in the manufacturer's manual(s). Other information which may affect the safe operation of your machine may be contained on safety signs, or in insurance requirements, employer's safety programs, safety codes, local, state/provincial and federal laws, rules and regulations.

If you do not understand any of this information, or if errors or contradictions seem to exist, consult with your supervisor before operating your machine.

IMPORTANT: If you do not have the manufacturer's manual(s) for your particular machine, get a replacement manual from your employer, equipment dealer, or manufacturer of your machine. Keep this safety manual and the manufacturer's manual(s) with your machine.

Unauthorized modifications of machines create hazards. Machines should not be modified or altered unless prior approval is obtained from the manufacturer.

It is your responsibility to read and understand this safety manual and the manufacturer's manual(s) before operating your machine. This safety manual takes you step-by-step through your working day.

Remember that **YOU are the key to safety.** Good safety practices not only protect you but also protect the people around you. Study this manual and the manufacturer's manual(s) for your specific machine. Make them a working part of your safety program. Keep in mind that this safety manual is written for only this type of machine. Practice all other usual and customary safe working precautions, and above all — (FIG. 1)

REMEMBER — SAFETY IS UP TO YOU

YOU CAN PREVENT SERIOUS INJURY OR DEATH

FIG. 1

FOLLOW A SAFETY PROGRAM

KNOW THE RULES

Every employer is concerned about safety. Safe operation and proper maintenance of your machine can prevent accidents. KNOW the rules — LIVE by them. (FIG. 2)

When starting work at a new site, check with the designated safety coordinator for specific safety instructions. DON'T LEARN SAFETY THE HARD WAY.

Know the meaning of all hand signals, signal flags, signs and markings.

Know the traffic rules used at the work site. Know who the signal person is; watch and obey their signals.

Know where the fire extinguishers and first aid kits are kept and how to use them. Know where to get proper aid and assistance when needed.

Use common sense to avoid accidents. If an accident does occur, be prepared to react to it quickly and effectively. NEVER PANIC.

Know how to use the emergency communications system to summon help when necessary.

FIG. 2

KNOW WHAT IT IS?

Consult your supervisor for specific instructions on a job, and the personal safety equipment required. For instance, you may need:

- Hard Hat
- Safety Shoes
- Eye Protection
- Face Protection
- Heavy Gloves
- Reflector Vests
- Hearing Protection
- Respirators

Do not wear loose clothing or any accessory — flopping cuffs, untied shoelaces, dangling neckties and scarves, rings, wrist watches, or other jewelry — that can catch on protruding or moving parts or controls. Long hair should be securely bound to prevent entanglement with moving parts. (FIG. 3)

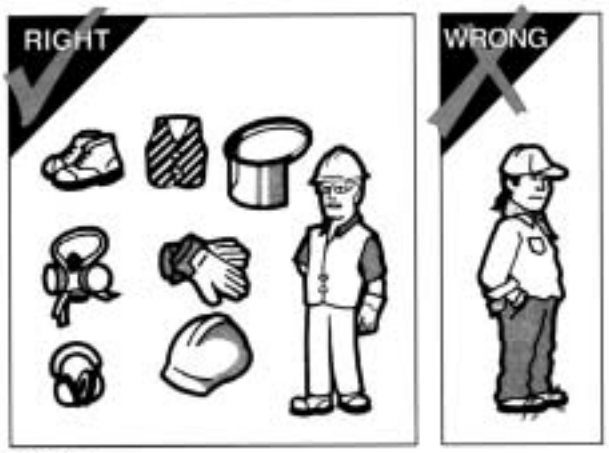


FIG. 3

FOLLOW A SAFETY PROGRAM

BE ALERT!

Know where to get assistance. Know how to use a first aid kit and fire extinguisher or fire suppression system. (FIG. 4)

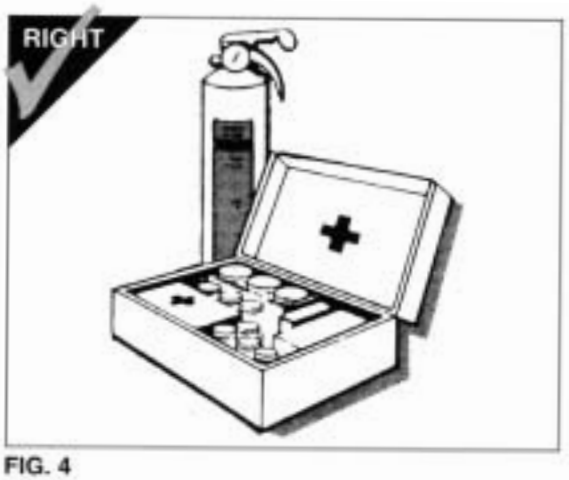


FIG. 4

BE AWARE!

Take advantage of training programs offered.

Safety programs require that one person at each jobsite be assigned the overall responsibility and authority for safety. Know who that person is, and COMMUNICATE.

Know what the jobsite rules are, and FOLLOW THE RULES. Be safety conscious, responsible and reliable. Think about safety BEFORE something happens.

Report unsafe conditions to a supervisor immediately!

BE CAREFUL!

Human error is caused by many factors: carelessness, fatigue, overload, preoccupation, incompatibility between operator and the machine, drugs, and alcohol to name a few. Eliminate these factors BEFORE accidents occur. Damage to the machine can be fixed in a short period of time, but injury, or death has a lasting effect.

FOR YOUR SAFETY AND SAFETY OF OTHERS, ENCOURAGE YOUR FELLOW WORKERS TO ACT SAFELY.

LEARN TO BE SAFE

READ the operator's manual. If one has not been provided, GET ONE AND STUDY IT BEFORE OPERATING THE MACHINE. If you have any questions contact the manufacturer.

Know the positions and understand the functions of all controls before attempting to operate a machine. Know the meaning of all identification symbols on your controls and gauges. (FIG. 5)

Know the location of the emergency shut-down control if the machine is so equipped.

Know the capabilities and limitations of the machine … such as speed, breaking and steering.

Know the operational and transport dimensions of your machine to avoid inadvertently hitting something during operation or transporting.

Carefully read and follow the instructions on all safety signs on the machine. Keep safety signs in good condition. Replace missing or damaged safety signs.

FIG. 5

NEVER operate a machine which is new to you without first being instructed in its proper operation.

CHECK IT OUT!

Always conduct a pre-shift inspection before operating any machine. Know what safety devices your machine is equipped with … and see that each item is securely in place and in operating condition. (FIG. 6)

For example:

- Safety Blocks and Locks
- Other Locking Devices
- Lights
- Alarms
- Horn
- Guards and Shields
- Shut-Down Devices
- First Aid Kit
- Fire Extinguishers

FIG. 6

PREPARE FOR SAFE OPERATION

TIRES

Inspect pneumatic tires (if so equipped) for damage, wear, and proper inflation. Never operate with over-inflated or under-inflated tires. (FIG. 7)

Check that all wheel lug nuts are present and tight.

NEVER START OR OPERATE A MACHINE KNOWN OR SUSPECTED TO BE DEFECTIVE OR MALFUNCTIONING.

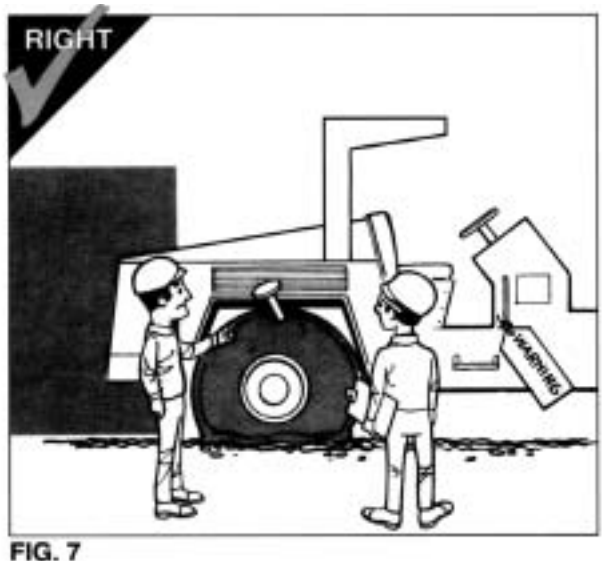


FIG. 7

KNOW YOUR MACHINE

Never operate a machine for which you are not trained or qualified.

Familiarize yourself with pedals, controls and instruments – their locations and function.

To handle controls without slipping, wipe them clean of oil and grease.

Remove tools, supplies and other materials from the working areas and machine walkways – and keep these areas free of trash.

Make sure the items you do carry are not loose or in the way.

ARE REPAIRS MADE?

If your daily check uncovers any item that needs attention – repair, replacement, or adjustment – report it to your supervisor and tag the machine on the start switch and/or other appropriate, prominent location. A minor malfunction could be a sign of a more serious problem if the machine is operated.

FIRE PREVENTION

Never allow flammable fluids or materials to contact hot surfaces.

Never refuel:

- When engine is running
- While smoking
- Near open flames or sparks
- In poorly ventilated area

Never overfill fuel tank or fluid reservoirs. Clean up spills immediately.

Replace fuel cap securely after filling.

Check for fuel, oil and hydraulic fluid leaks. Replace worn or damaged hoses/tubes. After repairs are made, clean the machine before you operate it.

Inspect electrical wiring for worn or damaged insulation. Install new wiring if wires are damaged.

Because ether or other starting fluids are flammable, do not smoke when using them. Always follow the instructions on the container and in the operator's manual for your machine. (See page 19.)

Batteries produce explosive gases. Keep open flame or sparks away. See the manufacturer's instructions when servicing the batteries, when using jumper cables or when using a battery charger. (See pages 36 and 37.)

Remove all trash or debris from the machine. Make sure that oily rags or other flammable material are not stored on the machine. (FIG. 8)

FIG. 8

PREPARE FOR SAFE OPERATION

PREPARING TO ROAD THE MACHINE

Know what conditions you will likely encounter:

- Insufficient clearances
- Traffic congestion
- Type of surface
- Steep grades
- Restricted visibility

Determine appropriate warnings to be used. (FIG. 9) Know whether you will need to be escorted.

If the machine is to travel on a road or highway, refer to the manufacturer's manual(s) for instructions. Become familiar with local laws and ordinances affecting driving on highways. Use "slow moving vehicle" emblem. Make sure flags, lights, and warning signs are in place.

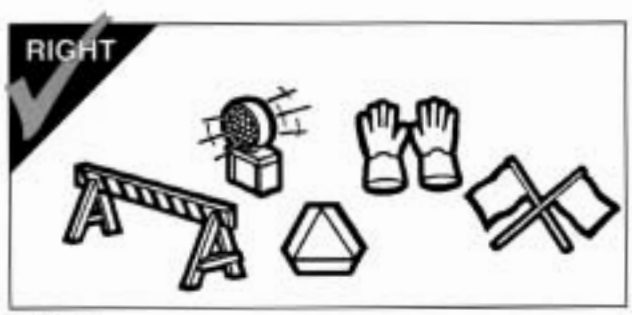


FIG. 9

Select the proper gear before negotiating steep grades. (FIG. 10)

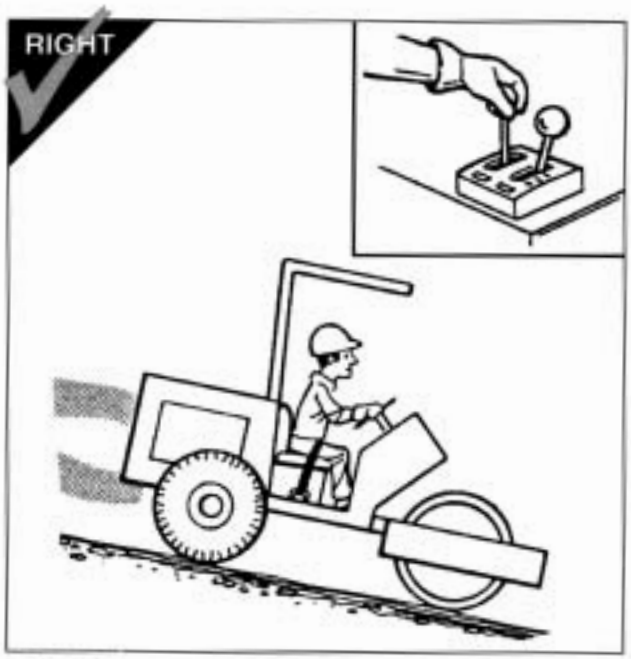


FIG. 10

Before starting, carefully inspect your machine for any evidence of physical damage such as cracking, bending or deformation of plates or welds. Check for cracking or flaking of paint, which may indicate an excessive strain or dangerous crack in the material below. Check for loose, broken or missing parts such as Roll-Over Protective Structure (ROPS) support brackets, vibration isolators, and nuts and bolts. If potentially serious problems are found, do not operate the machine until appropriate repairs are completed.

Check the level of all fluids … brake, transmission, power steering, engine coolant, hydraulic system, and others. Fill low reservoirs only to the proper level.

Check the various systems (hydraulic, cooling, etc.) for leaks. (FIG. 11) Inspect all plugs, filler caps and fittings for tell-tale signs of leaks. ALWAYS use a flashlight or shielded trouble light when checking … Never an open flame. Repair any leaks, or have them repaired by authorized service personnel. (See pages 28 through 42 for additional service cautions.)

Check the fuel level and, if low, fill the tank with the proper grade of clean fuel before extended operation (following the instructions on page 34).

A stalled or faltering engine can result in a real hazard when operating on grades, in traffic or in heavily congested areas.

NEVER smoke when checking fuel level or refueling.

FIG. 11

BE SURE THE WORK AREA IS SAFE

Before beginning operation, thoroughly check the area for any unusual conditions that could be dangerous. (FIG. 12) Check for hidden holes, drop-offs or overhead obstacles that could be dangerous. Check the clearance under overhead power and phone lines. LOOK UP AS WELL AS DOWN.

Be observant of other workmen, bystanders and other machines in the area. Be especially careful if trenches, lightpoles, tiles, buildings, etc. are within the effective range of a vibratory compactor. IMPROPER OPERATION COULD RESULT IN DAMAGE OR INJURY.

Remember, the danger of sliding and/or tipping on steep slopes is always present … regardless of how heavy or "stable" your machine may appear to be. When operating under these conditions, the use of ROPS and seat belts reduces the hazard to operating personnel.

FIG. 12

Walk around your machine once more just prior to mounting it – checking for people and objects that might be in the way – then MOUNT PROPERLY USING STEPS AND HANDHOLDS PROVIDED.

Always use seat belts if your machine is equipped with a ROPS.

Just before starting, check all controls … such as forward and reverse, steering, transmission and throttle to be sure they are in the correct start-up position. (FIG. 13) The parking brake should be applied during the start-up operation.

Check for proper functioning of all operating and shut-down controls.

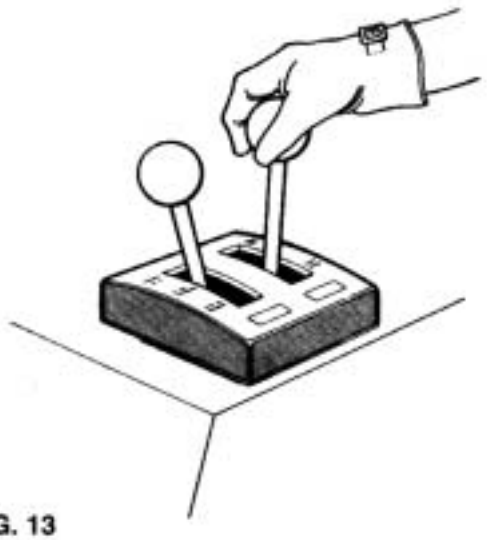


FIG. 13

START CORRECTLY

Know the PROPER starting procedure for your machine. Follow the manufacturer's operation manual … to the letter.

Then, start your engine.

IMMEDIATELY AFTER STARTING THE ENGINE ...

- Observe gauges, instruments, and warning lights to ensure that they are functioning and their readings are within the normal operating range. (FIG. 14)
- Be sure work area is safe for test operation of the various controls and attachments.
- Operate all controls: make certain they operate properly, and "feel" right. Accustom yourself to the "feel" of your machine.
- Listen for any unusual noises; smell for any unusual odors; look for any signs of trouble.
- Check all warning and safety devices and indicators.
- If safety-related defects or malfunctions are detected, shut down the machine. Correct it, or notify your supervisor. DO NOT OPERATE UNTIL CORRECTED.

Check operation of service and parking brakes on level ground if possible.

Check service brakes (including hydrostatic brakes, if so equipped) in both forward and reverse operation (FIG. 15) ACCORDING TO THE MANUFACTURERS INSTRUCTIONS.

If an unsafe condition cannot be remedied immediately, notify your supervisor and tag the machine on the start switch and/or other appropriate, prominent location. (See page 28 for Lockout/Tagout procedure.) No machine should be operated if any part is not in safe operating condition. Make certain that any unsafe condition has been satisfactorily remedied.

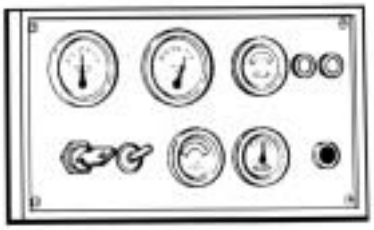


FIG. 14

FIG. 15

COLD WEATHER OPERATION

Consult the engine manufacturer's operation manual for proper cold weather starting procedure.

When using cold weather starting aids, be sure to follow the engine manufacturer's instructions. (FIG. 16)

After starting, operate all systems slowly and gently until properly warmed up.

FIG. 16

BOOSTER CABLE INSTRUCTIONS

1. Connect positive (+) cable to positive post of discharged battery.
2. Connect other end of same cable to same marked post of booster battery.
3. Connect negative (-) cable to other post of booster battery.
4. Make final connection on stalled vehicle away from battery, either on vehicle frame or engine block.
5. Start vehicle and remove cables in reverse order of connection.

WORK SAFELY

REMEMBER THESE RULES

When roading or operating a machine, always stay in the operator's station. NEVER mount or dismount a machine that is moving. Maintain control of your machine at all times.

ALWAYS operate your machine slowly until fully familiarized with it's operation.

Constantly check your total work area for potential hazards.

Never JUMP on or off your machine. Use the steps and handholds provided to mount or dismount safely. Maintain three point contact when mounting or dismounting.(FIG. 17)

- Never use controls or levers as hand holds.
- Never jump off the machine.

Look, listen and smell for possible malfunctions. If malfunctioning controls or erratic operation are detected, correct or report them immediately. DO NOT OPERATE THE MACHINE UNTIL CORRECTED.

Prevent asphyxiation. If you must operate in a building or other enclosed area, or if your machine is equipped with an enclosed cab, be certain there is adequate ventilation.

Use extra care when refueling. (See page 34 for special precautions.)

FIG. 17

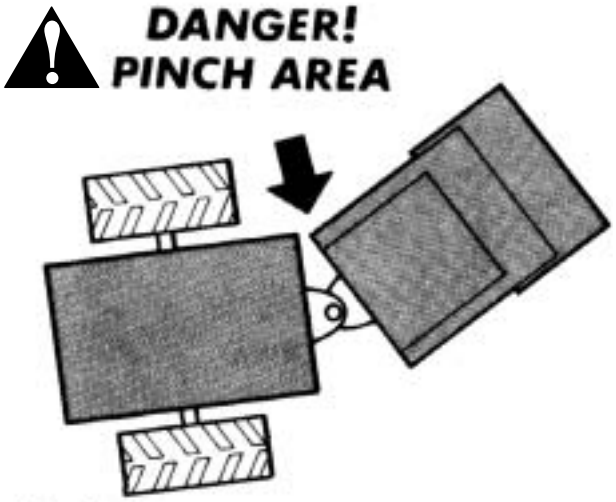


FIG. 18

For maximum safety on machines with more than one operator's position, operate from the position giving the greatest visibility of potential hazards.

NEVER allow unqualified or unauthorized personnel to operate your machine.

NEVER allow other personnel to ride on your machine unless appropriate seating is provided … and then only if authorized to do so.

NEVER abuse your machine. Misuse or abuse can cause an accident.

NEVER enter or place any part of your body in the "hinge area" or other "pinch" areas of an articulated machine while the engine is running, or when there is any chance another person might start the machine. (FIG. 18)

Give the right-of-way to loaded equipment on haul roads. Maintain a safe distance from personnel, motor vehicles and other machines.

Your safety, and the safety of those around you, is determined by the care and judgment YOU use while operating your machine.

WORKING ON SLOPES

When working on slopes, avoid sidehill travel whenever possible … rather operate up and down the slope. (FIG. 19 & 20) Remember the danger of sliding and/or tipping on steep slopes is always present … regardless of how heavy or "stable" your machine may appear to be.

ALWAYS use seat belts IF your machine is equipped with a ROPS.

NEVER allow the engine or machine to overspeed.

When climbing or descending steep grades, ALWAYS select the proper gear BEFORE starting on the slope, to assure adequate power or engine breaking.

If your machine has a gear shift, select a low gear. If your machine has a hydrostatic drive, the speed control should be in the slow travel position, close to neutral … NEVER in the fully displaced position.

On machines that have a gear shift AND a hydrostatic control, BOTH controls must be in their slow travel position.

ALWAYS be sure that manually operated gear type transmissions are fully engaged BEFORE starting onto a grade. DO NOT attempt to change the gear selection while traveling on a grade. See the manufacturer's manual for specific instructions.

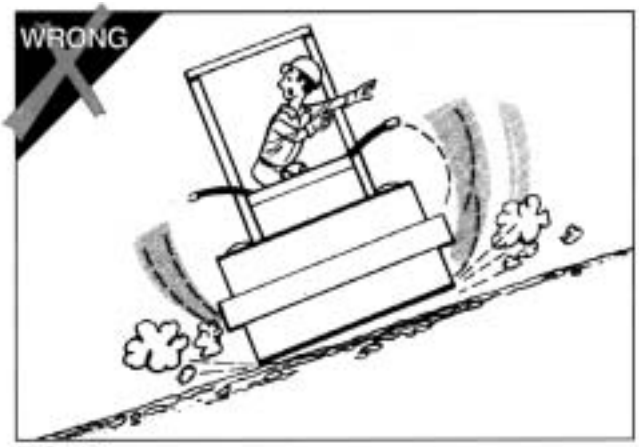


FIG. 19

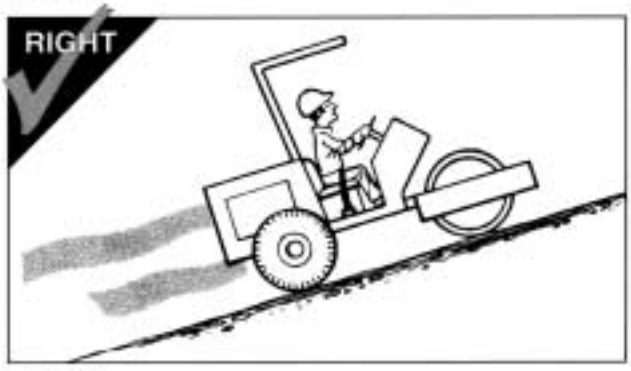


FIG. 20

FIG. 21

Avoid operating your machine too close to an overhang, deep ditch or hole. If your machine inadvertently gets close to a tipping condition or drop-off, STOP and get off the machine after applying the parking brake … plan your moves carefully before proceeding. Reversal is often the best move.

Be alert to potential caving edges, falling rocks and slides.

Check for overhead obstacles that could be dangerous. LOOK UP AS WELL AS DOWN. (FIG. 21)

Be alert to obstacles and excessively rough terrain. Back away from them and go around.

Always travel slowly over rough terrain and hillsides. Maintain a speed consistent with the working conditions.

When traveling on a public road, obey all traffic regulations and be sure that the proper clearance flags, lights and warning signs … such as the "slow moving vehicle" emblem … are used. (FIG. 22)

NEVER speed … and NEVER coast in neutral.

When roading the machine know your approximate stopping distance at any given speed.

NEVER turn corners at excessively high speeds. (FIG. 23)

Always look in all directions before reversing your direction of travel.

Use EXTRA caution when working in close quarters or when traveling through congested areas. Courtesy pays off.

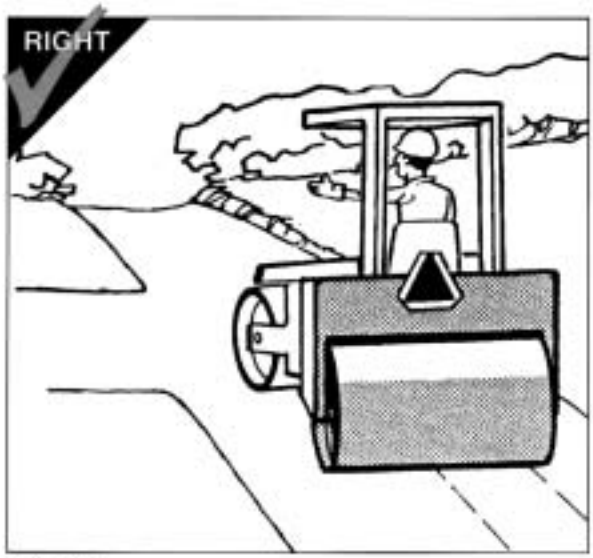


FIG. 22

FIG. 23

PARK SAFELY

Park in an off the road area, out of traffic, or as instructed. If necessary to park in a traffic lane, use the appropriate flags, barriers, flares, lights and warning signals. Provide advance warning signals in the traffic lane to warn approaching traffic.

Park on level ground whenever possible. (FIG. 25) When not possible, position the machine at right angles to the slope. Make sure the machine is on a firm footing, and that there is no danger of sliding. Do NOT leave your machine until you are sure it is safely blocked in both directions and parking brakes firmly applied. (FIG. 24)

Lower the blade and all other hydraulically operated attachments (if so equipped) to the ground.

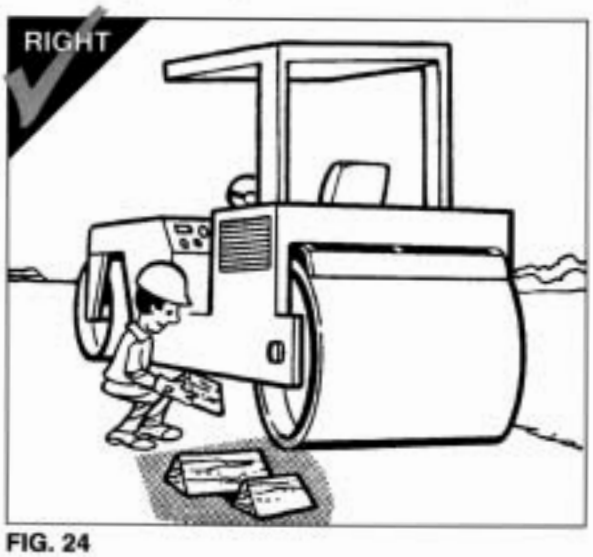


FIG. 24

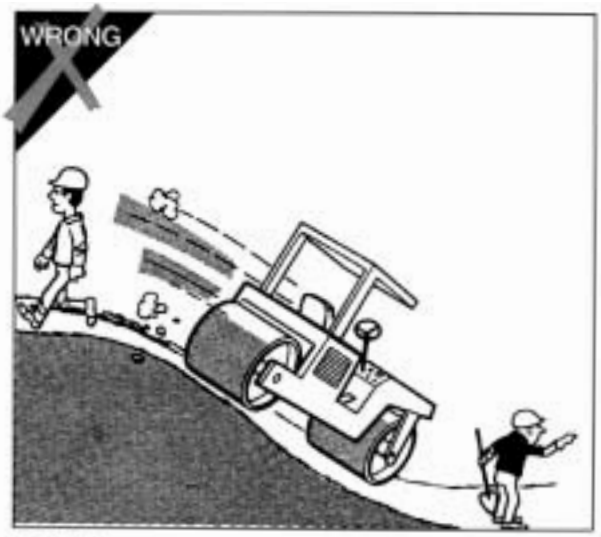


FIG. 25

PARK AND SHUT DOWN SAFELY

SHUT DOWN PROPERLY

Know the proper shut-down procedure for your machine. As with the starting procedure, this varies with the type and model of machine.

Follow the manufacturer's operation manual for YOUR machine. Remove the key(s) to prevent unauthorized starting and movement, and position and lock any antivandalism devices.

DISMOUNT PROPERLY

NEVER dismount from your machine until it is fully stopped and the engine is shut off.

NEVER jump off your machine. (FIG. 26) After stopping, use the steps and handholds provided to dismount safely. Maintain three point contact when dismounting.

FIG. 26

Loading and unloading machines always involves potential hazards. EXTREME CAUTION SHOULD BE USED.

Know the correct loading and unloading procedures for your machine.

All machines are not loaded and unloaded the same way. The procedures recommended by the manufacturer should always be followed.

Several precautions are applicable to all machines:

- NEVER load or unload machine by yourself.
- Keep all non-essential personnel clear of loading and unloading area.
- Load and unload on a level surface.
- ALWAYS use ramps of adequate size and strength. Be sure ramps are sufficiently wide, and long enough to provide a safe loading slope.
- NEVER use ramps that are cracked, damaged, or of questionable strength. (FIG. 27)
- Be sure that the ramps are securely positioned and fastened, and that the two sides are at the same level as one another.
- The ramp surface must provide adequate traction. Be sure the surface is clean and free of grease, oil, ice, and loose material.
- The hauling vehicle should be blocked to prevent movement during loading or unloading of the machine.
- For proper tie-down instructions, see the manufacturer's manual.

FIG. 27

TRANSPORTING SAFELY

GENERAL

When towing a machine on a trailer, or a machine equipped with "portability or transport wheels", ALWAYS use a hauling vehicle of sufficient weight, horsepower and braking capacity to maintain proper control.

NEVER attempt to tow a trailer or machine if the hitching devices are of insufficient or questionable capacity, improperly matched in size or shape, or positioned at improper heights.

When towing a machine equipped with portability or transport wheels, ALWAYS follow the manufacturer's towing instructions.

BEFORE TOWING

When connecting a trailer to a hauling vehicle, block under the trailer's tongue before attempting to make the connection. NEVER attempt to lift heavy tongues or move heavy trailers by hand. NEVER get any part of your body under the tongue when hitching or unhitching.

ALWAYS make sure the hitch is properly and securely locked.

ALWAYS use safety chains between the hauling vehicle and tailer or towed machine. Be sure the chains are properly and securely connected … at BOTH ends. Cross the chains under the tongue when connecting to the hauling vehicle.

ALWAYS make sure electrical and other connections between the hauling vehicle and trailer or towed machine are properly and securely made. After connecting, check the lights for proper operation. If the towed trailer or machine is equipped with brakes operable from the hauling vehicle, check to make sure they are operating properly.

ALWAYS be sure the portability or transport wheels, on machines so equipped, are LOCKED in the lowered position.

Check ALL tires for proper pressure, excessive or abnormal wear, and potentially dangerous cuts, bruises or bulges. Have any problems corrected before proceeding.

TOWING

ALWAYS use EXTRA care when towing a trailer or machine… when maneuvering in tight places, when backing (visibility is reduced, and jackknifing must be avoided), and when towing on steep grades.

Know and obey all local, state and federal laws and regulations.

NEVER travel at speeds above those recommended by the manufacturer.

NEVER allow anyone to ride on a trailer or towed machine. (FIG. 28)

When necessary to disconnect and park a trailer or towed machine, ALWAYS select a location that is level and, if possible, one where children are unlikely to be present. BEFORE disconnecting a trailer, chock the front AND rear of the wheels, and block under the tongue.

See pages 23 through 24 for parking, shut-down procedures and roading machine for transport.

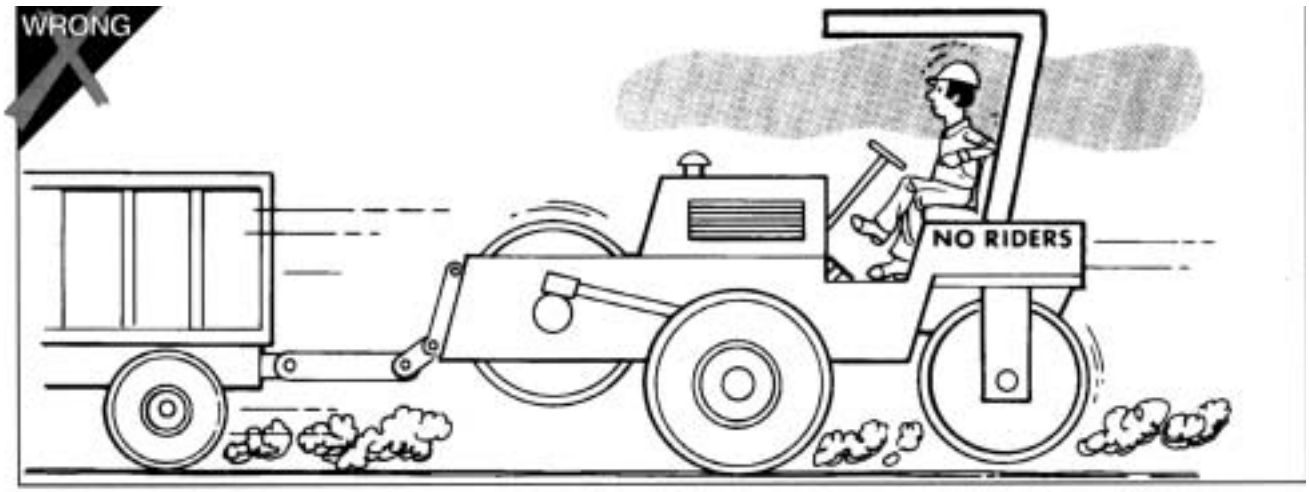


FIG. 28

PERFORM MAINTENANCE SAFELY

GENERAL

Maintenance work can be **hazardous** if not done in a careful manner. All personnel should realize the hazards and strictly follow safe practices.

NEVER perform any work on the equipment unless authorized to do so. (FIG. 29) Before performing any maintenance or repair work, consult the Instruction Manual. Follow the manufacturer's recommended procedures.

BEFORE any maintenance work is begun, review LOCKOUT/TAGOUT procedures. LOCKOUT controls and/or energy source and place a warning label to alert workers of shutdown.

PRIOR to removal of LOCKOUT/TAGOUT, the equipment must be fully operational and all personnel accounted for. Except in cases of emergency, the removal of the LOCKOUT/ TAGOUT should be done by the initiating person prior to the return to start-up.

BEFORE doing any major work, or work on the electrical system, disconnect the batteries.

REPLACE all missing or broken guards and panels.

USE proper nonflammable cleaning solvents. Follow solvent manufacturer's instructions.

ALWAYS remove all flammable materials in the vicinity of welding and/or burning operations.

BURNING OR WELDING in the vicinity of acoustical material may release hazardous fumes.

FIG. 29

CLOTHING AND PERSONAL PROTECTIVE ITEMS

Keep hands and clothing well away from engine fan and moving parts while engine is running.

ALWAYS wear appropriate safety glasses, goggles or face shield when working. (FIG. 30) Proper eye protection can keep flying particles from grinding, drilling or hammering operations, or fluids such as fuel, solvents, lubricants and brake fluids, from damaging your eyes. Normal glasses do NOT provide adequate protection.

ALWAYS wear a hard hat and safety shoes. (FIG. 30) ALWAYS wear hearing protectors when exposed to high noise levels for extended periods. ALWAYS wear a respirator when painting or exposed to dusty conditions. ALWAYS keep your pockets free of loose objects which can fall out and drop into machinery. (FIG. 31) Heavy gloves should be worn for many operations.

FIG. 30

FIG. 31

EXHAUST FUMES

Engine exhaust fumes can cause sickness or death. If it is necessary to run an engine in an enclosed area, use an exhaust pipe extension. If you do not have an exhaust pipe extension, be positive the area is adequately ventilated. (FIG. 32)

FIG. 32

HEAVY PARTS

Handle tools and heavy parts sensibly – with regard for yourself and other persons. Lower items – don't throw or drop them.

ALWAYS use proper hoisting equipment for lifting heavy loads.

PERFORM MAINTENANCE SAFELY

- Keep machine in proper adjustment at all times. Serious injury could result if adjustments are neglected.
- Whenever possible, AVOID working on a machine with the engine running. If the engine must be run to make checks or adjustments, put the transmission in neutral, set the parking brake and chock the drum and wheels securely ... front and rear ... to prevent movement in either direction.
- Personnel can be caught by moving parts when the **guards are removed** for access in making repairs. A repair or maintenance job is not complete until guards, plates and other safety devices have been replaced.
- NEVER put your fingers in open gears or reach through the spokes of a gear.
- Before working on the fuel system, close the fuel shut-off valve. NEVER smoke or use open flames near the machine while working on the fuel system.
- **Remove and store** all tools before resuming operation.
- Before working in the pivot or "pinch" area of an articulated machine, securely attach the steering frame lock to prevent the machine from turning. (FIG. 33) Enter this area only when necessary.
- Connect any other safety locks provided before proceeding with the work.

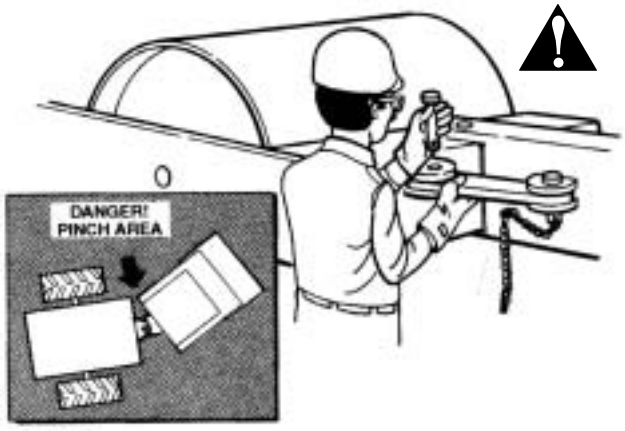


FIG. 33

Before beginning welding or burning operations, drain fuel lines and tank and move all flammable material to a safe distance, and be certain a fire extinguisher is readily available. When welding fuel tanks, either gasoline OR diesel, ALWAYS drain the tank, fill with water, and leave cap off during the welding operation.

All guards, plates and other safety devices must be properly replaced before the machine is returned to service or serious injury to you or other personnel may result.

AVOID burning or welding near acoustical material whenever possible, as **hazardous** fumes may be released. If unavoidable, make sure the area is adequately ventilated, and that a fire extinguisher is ready available.

ALWAYS use authorized replacement parts that meet the machine manufacturer's specifications.

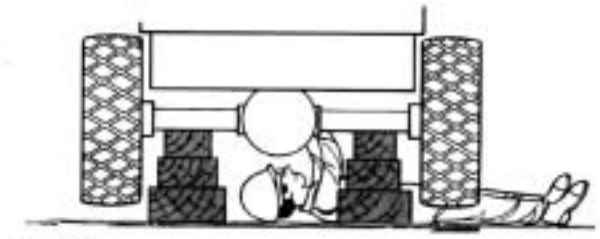


FIG. 34

JACKING AND BLOCKING

ALWAYS lower all movable attachments to the ground or to their lowest position before servicing a machine.

If a machine must be raised for servicing or repairs, ALWAYS block the machine securely. Use axle stands or other rigid supports of ample capacity. NEVER rely solely on the jacks for support. If necessary to work under a machine, be absolutely certain it is adequately supported. (FIG. 34)

WARNING: Never use concrete blocks for supports. They can collapse under even light loads.

When jacking up a machine, use a SUITABLE jack, placed in the proper position, on a solid foundation.

Before working on a machine, chock the drum and wheels securely … front and rear … in such a manner as to prevent movement in EITHER direction. Securely attach the steering frame lock to prevent the machine from turning.

PERFORM MAINTENANCE SAFELY

FIRE PREVENTION

Whenever possible use a nonflammable solvent to clean parts. Do not use gasoline or other fluids that give off harmful vapors.

If flammable fluids, such as diesel fuel, must be used, extinguish open flames or sparks and do not smoke.

Store dangerous fluids in a suitable place, in approved containers which are clearly marked. NEVER smoke in areas where flammable fluids are used or stored. (FIG. 35)

Use proper nonflammable cleaning solvents. Follow solvent manufacturer's instructions for use.

Always remove all flammable material in the vicinity of welding and/or burning operations.

ALWAYS keep the floor in the work area clean and dry. Oily, greasy floors can easily lead to falls. Wet spots, especially near electrical equipment, can be hazardous. (FIG. 35)

Know where fire extinguishers are kept – how they operate – and for what type of fire they are intended.

Check readiness of any fire detectors and fire suppression systems.

FIG. 35

FIRE PREVENTION CHECKLIST (FIG. 36)

- Remove debris such as rags, coal dust, oil, leaves, pine needles.
- Check and repair fuel and hydraulic leaks.
- Check and repair damaged wiring.
- Prevent hose and electrical wire harness abrasion.
- Tighten loose clamps and fittings.
- Secure loose wiring.
- Make sure guards and protective covers are in place.
- Make sure fire extinguisher is available and operable.

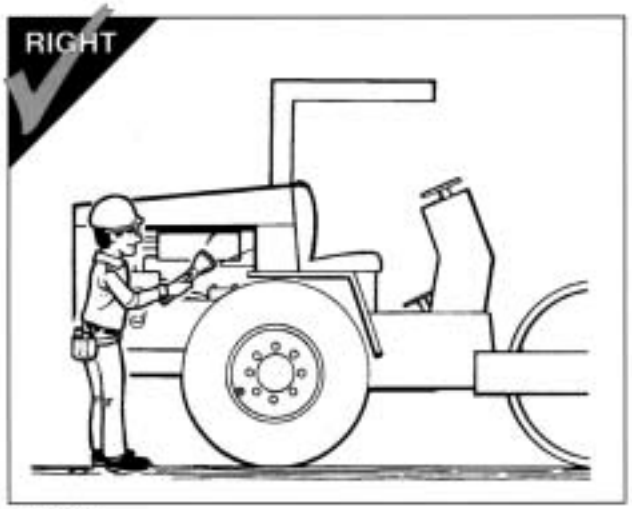


FIG. 36

PERFORM MAINTENANCE SAFELY

REFUELING (FIG. 37)

Precautions

When refueling, the following precautions must be followed:

- Add proper type and grade of fuel only when machine is not running and machine is parked with no one in the cab.
- Fuel in a well-ventilated area.
- Turn off all electrical switches.
- Turn off cab heaters.
- Open lights, lighted smoking materials, flames, or spark producing devices shall be kept at a safe distance while refueling.
- Keep fuel nozzle in contact with tank being filled, or provide a ground to prevent static sparks from igniting fuel.
- Do not spill fuel on hot surfaces.
- Any spillage shall be cleaned immediately.
- Do not start engine until fuel cap is secured to the fuel tank and people are clear of the machine.
- ALWAYS make sure fuel, oil, hydraulic fluid and water are added to their proper tanks.

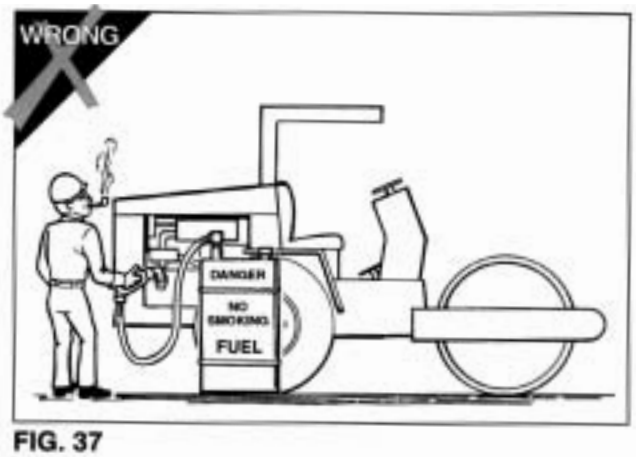


FIG. 37

SERVICING COOLING SYSTEM

When checking coolant level:

- Stop the engine and let the engine and radiator cool before checking. (FIG. 38)

If an overheated engine requires a shutdown:

- **Wait for the radiator to cool.** The hot pressurized coolant can cause burn injuries. Never add coolant to an overheated system.
- **Overheating is a symptom of trouble.** Stop the engine and have the trouble corrected before serious damage occurs.
- If it is necessary to check an overheated engine use a heavy cloth, gloves, heavy clothing and safety glasses or goggles to protect yourself. Stand to the side, turn your face away, and slightly loosen the cap. Wait until the sound stops before removing the cap.

FIG. 38

PERFORM MAINTENANCE SAFELY

SERVICING BATTERIES

Always wear safety glasses and gloves when working with batteries.

Before removing a battery, turn off all electrical equipment, then disconnect the negative (-) battery cable first. Before installing a battery, turn off all electrical equipment, then connect the positive (+) battery cable first.

To prevent sparking at the posts when using a battery charger, always turn the charger off or disconnect it from its power source before connecting or disconnecting charger leads to battery posts. Caps on all cells should be left on and the vent caps would be covered with a wet cloth.

Do not short across the battery terminals. The spark **could** ignite the gases.

BOOSTER CABLE INSTRUCTIONS (FIG. 39)

1. Connect positive (+) cable to positive post of discharged battery.
2. Connect other end of same cable to same marked post of booster battery.
3. Connect negative (-) cable to other post of booster battery.
4. Make final connection on stalled vehicle away from battery, either on vehicle frame or engine block.
5. Start vehicle and remove cables in reverse order of connection.

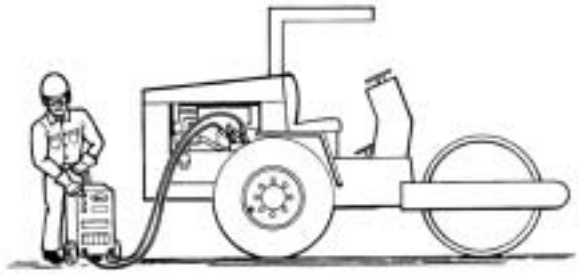


FIG. 39

BATTERY SERVICING

To prevent a battery explosion: (Fig. 40)

- **Maintain** the electrolyte at the recommended level. Check level frequently. Add distilled water to batteries only before starting up, never when shutting down. With electrolyte at the proper level, less space is available for gases to accumulate in the battery.
- **Use a flashlight** to check the electrolyte level. Never use a flame. (Fig. 41)
- **Do not short** across the battery terminals. The spark could ignite the gases.

Battery acid will **burn skin**, eat holes in clothing, and may **cause blindness** if splashed into eyes. If you spill acid on yourself flush skin immediately with lots of water. Apply baking soda to help neutralize the acid. If acids gets in your eyes, flush immediately with large amounts of water and seek proper medical treatment immediately.

When servicing batteries, remember that a lead-acid storage battery generates (when charging or discharging) hydrogen and oxygen – a very explosive mixture. A spark of flame could ignite these gases.

FIG. 40

FIG. 41

PERFORM MAINTENANCE SAFELY

HYDRAULIC SYSTEMS

NOTE: Hydraulic Systems have "special features". Some of the features affecting your safety are listed below.

Pressure can be maintained in hydraulic and air circuits long after the engine has been shut down. This pressure can cause hydraulic fluid or items such as pipe plugs to "shoot out" at high speed if pressure is not released correctly. **Release system pressure** before attempting to make adjustments or repairs.

Consult the manufacturer's instructions for correct procedure.

Before disconnecting **hydraulic fluid** lines, be sure you:

- Shut off engine.
- Always release any air pressure (supercharge) on the hydraulic reservoir.
- Move pedals and control levers repeatedly through their operating ranges to relieve all pressures.

Pressurized hydraulic fluid can penetrate the skin and **cause serious injury**. Therefore, be sure all connections are tight and that lines, pipes, and hoses are in good condition before starting the engine.

Fluid escaping from a small hole can be almost invisible. Use a piece of cardboard or wood, instead of your hands, to search for suspected leaks. (FIG. 42)

FIG. 42

HYDRAULIC SYSTEMS (CONT'D)

If you are struck by escaping **hydraulic fluid under pressure**, serious injury can occur if proper medical treatment is not administered immediately.

During operation, hydraulic fluid and air in an **unvented hydraulic tank** becomes heated and will tend to expand. This will raise the pressure inside an unvented hydraulic tank. If the filler cap is removed rapidly, the pressure in the tank can force the oil out of the tank very rapidly. **The hydraulic fluid may be very hot and may cause severe burns.** Always relieve tank pressure before removing the cap completely. Consult the manufacturer's instructions for the correct procedure.

When adding fluid to any system, be sure to use the fluid recommended by the manufacturer. Certain fluids, when mixed, may destroy seals causing loss of control and possible personal injury.

Keep hydraulic relief valve settings set to the manufacturer's recommendations. **Excessive pressures** could result in structural or hydraulic failures. Low pressure could result in loss of control. Either condition could cause **personal injury or death**.

Be sure the engine is stopped and machine is properly locked out and controls tagged, before working on a machine. Only run engine when it is essential, as in the case of pressure adjustments, lubrication, or tests. Follow the manufacturer's recommendations when making adjustments. Never resume operation until satisfactory adjustments have been made. **The operator must** follow the mechanic's instructions when adjustments are being made or machine is being serviced.

PERFORM MAINTENANCE SAFELY

TIRE INSPECTION

Recommended air pressure **must be maintained** in every tire. Daily checks assure that inflation is correct. If your periodic check discloses a tire that is continuously losing air, a leak is indicated and must be repaired. (FIG. 43)

During your pressure checks, also inspect for:

- Objects wedged between or embedded in tires.
- Missing valve caps and wheel lugs.
- Cuts, tears, and breaks that may need repair.
- Abnormal or uneven wear.
- Damaged or poor fitting rim or rim flanges.
- Projecting body hardware, loose fender bolts, spring clips – anything that could contact a tire.

Do not burn or weld on wheels or rims.

FIG. 43

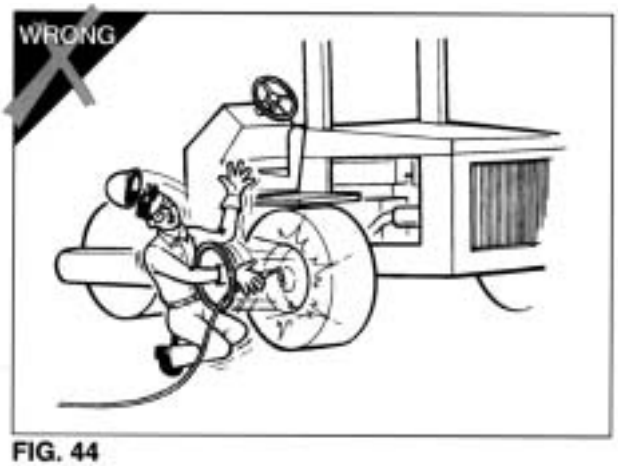


FIG. 44

PNEUMATIC TIRES

Changing tires or adding air can be a hazardous business. Special tools and procedures are required for changing off-highway tires.

Explosion and separation of a tire and/or rim parts can cause serious injury or death. (FIG. 44) Always follow the manufacturer's recommendations or see your tire supplier.

TIRE PRESSURE

Check tire pressure before starting operation. An air pressure rise during operation is normal and should NOT be reduced. Overloads or over-speeds may produce increased tire pressures due to heat. Never bleed tires. Reduce your load – or speed – or stop until tires cool.

ADD AIR

From a distance – with air chuck clipped on the tire valve – and with extension hose that permits you to stand behind tread. (FIG. 45) Always use a tire cage or equivalent for protection.

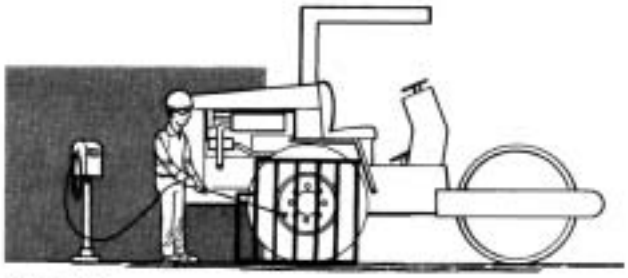


FIG. 45

PERFORM MAINTENANCE SAFELY

ROPS (Roll-Over Protective Structures)

Periodically inspect ROPS for cracks and loose mounting hardware.

Replace all missing, deteriorated or worn rubber parts.

If it becomes necessary to remove a ROPS, reinstall it only on the same machine, in its original position. (FIG. 46)

NEVER alter the ROPS in any way without the written approval of the manufacturer.

NEVER cut holes in or weld on ROPS without the manufacturer's approval.

NEVER attempt to repair a damaged ROPS – it must be replaced with a new unit, approved for that machine.

Periodically inspect seat belts for wear, tear, deterioration or excessive dirt. Replace them if necessary.

AIR CONDITIONERS

NEVER attempt to weld on or near air conditioners. Poisonous gas may be formed when refrigerant gas is exposed to a flame or excessive heat.

Maintenance and repair of air conditioners … except for very minor repairs or servicing … must be done only by an experienced air conditioner or refrigeration technician. (FIG. 47)

FIG. 46

FIG. 47

PARKING AND TRANSPORTING

ALWAYS select a level area to park in and, if possible, one where children are unlikely to be present. ALWAYS chock the front AND rear of the roller … even if leaving the machine unattended for short periods.

ALWAYS use EXTRA care when towing a roller … when maneuvering in tight places, when backing (visibility is reduced, and jackknifing must be avoided), and when operating on grades. NEVER operate a towed roller on steep grades or side slopes, as the possibility of tipping or loss of control is greater when towing a roller.

NEVER allow anyone to ride on a towed roller. And, unless absolutely necessary, never permit anyone in the "pinch" area between the towing vehicle and the towed roller.

When necessary to disconnect and park a towed roller, ALWAYS select a location which is level and, if possible, one where children are unlikely to be present. BEFORE disconnecting, ALWAYS chock the front AND rear of the roll, and block under the tongue.

Extreme care should be exercised when loading or unloading a walk-behind roller. It is generally best to stand behind and to one side rather than directly behind a machine being propelled up or down a ramp.

If the roller is designed to hang from the tailgate of a vehicle when being transported, ALWAYS be certain the hook brackets meet the roller manufacturer's specifications.

Special precautions must also be exercised when loading or unloading, transporting or servicing a towed roller. Consult your manufacturer's manual for specific details.

SPECIAL OPERATING AND MAINTENANCE PRECAUTIONS

FOR TOWED ROLLERS

Most general safety precautions covered earlier in this manual are also applicable to towed roller operation. Many other SPECIAL precautions must, however, be taken. Study your manufacturer's manual(s) relative to special considerations when towing. If you have questions or concerns, consult the manufacturer or your dealer.

ALWAYS use a tow tractor of sufficient weight, drawbar horsepower and braking capacity to properly control the towed roller. Proper weight balance and distribution is also essential.

ALWAYS block under the tongue of the towed roller BEFORE attempting to connect it to the towing vehicles or machine. NEVER attempt to lift heavy tongues or move towed rollers by hand. NEVER get any part of your body under the tongue when hitching or unhitching.

ALWAYS make sure the hitch pin is of the proper size, and securely locked in place before towing. (FIG. 48) If safety chains are provided, make sure they are properly and securely connected … at BOTH ends. Cross the chains under the tongue when connecting to the towing vehicle. If electrical or hydraulic connections are required, make sure the connections are properly and securely made.

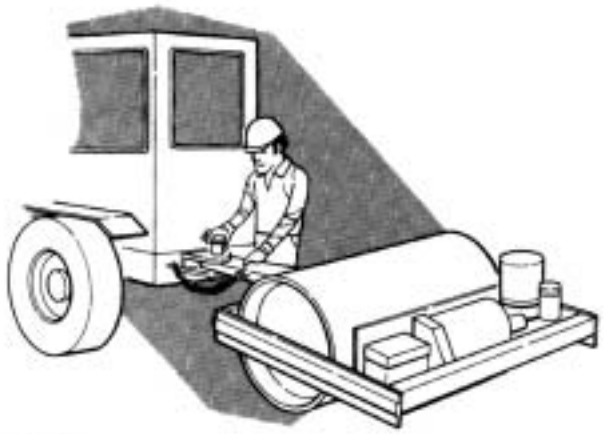


FIG. 48

FOR LANDFILL COMPACTORS

General

Operators of landfill compactors should carefully handle fill materials that could be picked up and thrown by the wheels, become lodged in the machine, or that are highly flammable.

Frequent checks should be made for wire, cable or other material wound around the axle members. Remove them immediately.

Travel with the blade as low as possible.

Maintain good operator visibility – keep all mesh and windows free of accumulated materials that reduce visibility.

When parking the machine, ALWAYS lower the blade.

FIRE PROTECTION

Maintain fire extinguishers and fire protective systems in good working order. ALWAYS recharge extinguishers, or replace with a fully charged unit immediately after use.

Check for, and remove, any waste material accumulation above belly pans and behind protective doors and grills. Accumulations are a fire hazard. (FIG. 49)

FIG. 49

SPECIAL OPERATING AND MAINTENANCE PRECAUTIONS

FOR WALK-BEHIND ROLLERS

Start-Up

NEVER attempt to operate a walk-behind roller before being thoroughly familiar with the manufacturer's operating instructions. If you have any questions or uncertainty, consult the manufacturer and/or his dealer BEFORE attempting to operate it.

ALWAYS follow the manufacturer's instructions for starting the engine. All controls MUST be in the correct position BEFORE attempting to start the engine (for example, the shift lever must be in neutral).

Starting fluid is NOT recommended when hand starting an engine. The engine may kick back.

OPERATION

When operating a walk-behind roller, ALWAYS exercise extreme care to avoid having your feet or clothing caught under the dolly wheels or roll. When possible, stand behind and to one side of the machine rather than directly behind it. Particular care must be exercised when operating near obstructions, on slippery surfaces, grades and side slopes. (ALWAYS wear slip resistant safety shoes or boots.)

NEVER ride on a walk-behind roller unless it is designed to accommodate riders and an appropriate seat is provided.

NEVER attempt to shift on a grade if the roller has a mechanical transmission.

NEVER operate a walk-behind roller in unshored trenches or near steep, unsupported banks. The vibrations could cause a cave-in.

Uneven grades can cause the handle to raise or lower unexpectedly, striking the unwary operator. (FIG. 50)

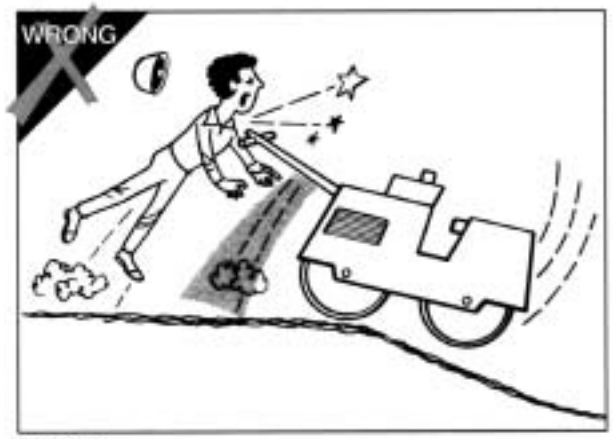


FIG. 50

Do you understand this AEM SAFETY MANUAL AND ITEMS SUCH AS …

- Your safety program?
- Your machine manufacturer's manual(s)?
- Proper clothing and personal safety equipment?
- Your machine's controls, warning signs and devices, and safety equipment?
- How to properly inspect, mount, and start your machine?
- How to check your machine for proper operation?
- Your work area and any special hazards that may exist?
- Proper operating procedures?
- Proper parking, shutdown, and dismounting procedures?
- Proper maintenance procedures?
- Proper loading and unloading procedures for transporting?
- Under what conditions you should not operate your machine?

If you do not understand any of these items, consult with your supervisor BEFORE operating your machine!

A FINAL WORD TO THE USER

Remember that YOU are the key to safety. Good safety practices not only protect you but protect the people around you.

You have read this safety manual and the manufacturer's manual(s) for your specific machine. Make them a working part of your safety program. Keep in mind that this safety manual is written for only this type of machine.

Practice all other usual and customary safe working precautions, and above all –

REMEMBER
SAFETY IS UP TO YOU

YOU CAN PREVENT SERIOUS INJURY OR DEATH

This manual is another in a series on the safe operation of machinery published by AEM.
For additional publications visit our web site at www.aem.org.

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FORM RC-80-3

EC DECLARATION OF CONFORMITY
CE-KONFORMITÄTSERKLÄRUNG
DECLARACIÓN DE CONFORMIDAD DE LA CE
DÉCLARATION DE CONFORMITÉ C.E.

WACKER CORPORATION, N92 W15000 ANTHONY AVENUE, MENOMONEE FALLS, WISCONSIN USA

AUTHORIZED REPRESENTATIVE IN THE EUROPEAN UNION BEVOLLMÄCHTIGTER VERTRETER FÜR DIE EUROPÄISCHE GEMEINSCHAFT REPRESENTANTE AUTORIZADO EN LA UNIÓN EUROPEA REPRÉSENTANT AGRÉÉ AUPRÈS DE L'UNION EUROPÉENNE	**WACKER CONSTRUCTION EQUIPMENT AG** **Preußenstraße 41** **80809 München**

hereby certifies that the construction equipment specified hereunder / bescheinigt, daß das Baugerät / certifica que la máquina de construcción / atteste que le matériel :

1. Category / Art / Categoría / Catégorie

Vibrating Ride-On Rollers
Fahrergesteuerte Vibrationswalzen
Rodillos Vibrantes con Conductor Montado
Rouleaux Compacteurs Vibrants à Conducteur Porté

2. Type / Typ / Tipo / Type **RD 11AEC**

3. Item number of equipment / Artikelnummer / Número de referencia de la máquina / Numéro de référence du matériel :

0007695

4. Net installed power / Absolute installierte Leistung / Potencia instalada neta / Puissance installée nette :

13,4 kW

Has been sound tested per Directive 2000/14/EC / In Übereinstimmung mit Richtlinie 2000/14/EG bewertet worden ist / Ha sido ensayado en conformidad con la norma 2000/14/CE / A été mis à l'épreuve conforme aux dispositions de la directive 2000/14/CEE :

Conformity Assessment Procedure / Konformitätsbewertungsverfahren / Procedimiento para ensayar conformidad / Procédé pour l'épreuve de conformité	Name and address of notified body / Bei folgender einbezogener Prüfstelle / Oficina matriculadora / Organisme agrée	Measured sound power level / Gemessener Schall-leistungspegel / Nivel de potencia acústica determinado / Niveau de puissance acoustique fixé	Guaranteed sound power level / Garantierter Schallleistungspegel / Nivel de potencia acústica garantizado / Niveau de puissance acoustique garanti
Annex VIII	**BSI, 389 Chiswick High Road, London W4 4AL United Kingdom**	**103 dB(A)**	**109 dB(A)**

and has been produced in accordance with the following standards:
und in Übereinstimmung mit folgenden Richtlinien hergestellt worden ist:
y ha sido fabricado en conformidad con las siguientes normas:
et a été produit conforme aux dispositions des directives européennes ci-après :

2000/14/EC
2002/88/EC
89/336/EEC
98/37/EEC
EN 500-1
EN 500-4

William Lahner
Vice President of Engineering

Greg Orzal
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03.01.05
Date / Datum / Fecha / Date

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