OPERATION, MAINTENANCE, AND INSTALLATION MANUAL

FOR

RJ-250SC CE RATED UNITS



SELF-CONTAINED COMPACTOR CONTAINER



Marathon Equipment Company OMI Manual No. 0018-CE, Revision Date: May 2010 www.marathonequipment.com

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P.O. Box 1798 Vernon, AL 35592-1798 800-633-8974 205-695-9105 www.marathonequipment.com

EC Declaration of Conformity The Supply of Machinery (Safety) Regulations 2008

Pursuant to The Council of the European Communities Directive 2006/42/EC

The Machine/Installation: PRODUCT: Self-Contained Compactor/Container SERIAL NUMBER: YEAR OF MANUFACTURE:

The above has been developed, designed, and manufactured in accordance with the above relevant statutory provisions by:

Marathon Equipment Company 950 County Road 9 South Vernon, AL, USA 35592

The following harmonized standards have been applied:

BS EN ISO 12100-1:2003+A1:2009, Safety of machinery. Basic concepts, general principles for design.

Basic terminology, methodology

BS EN ISO 13850:2008, Safety of Machinery, Emergency Stop. Principals for Design.

- BS EN ISO 13857:2008, Safety of machinery. Safety distances to prevent hazard zones being reached by upper and lower limbs
- BS EN 60204-1:2006+A1:2009, Safety of Machinery, Electrical Equipment of Machines

BS EN 349:1993+A1:2008, Safety of Machinery, Minimum Gaps to Avoid Crushing Parts of the Human Body

BS EN 982:1996+A1:2008, Safety of machinery. Safety requirements for fluid power systems and their components. Hydraulics

BS EN ISO 14121-1:2007, Safety of machinery. Risk assessment. Principles

BS EN 953:1997+A1:2009, Safety of machinery. Guards. General requirements for the design and construction of fixed and movable guards

Technical documentation is available upon request.

The operating manual for the machine/installation is provided.

(*) in the language of the country of manufacture

(*) in the national language of the user

THIS DECLARATION WILL BECOME INVALID IF, FOLLOWING HAND OVER, THE MACHINE/INSTALLATION IS ALTERED IN ANY WAY.

DATE

SIGNATURE

PRINTED NAME & TITLE

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Installation and CE Procedure

- 1. Upon arrival on site ascertain site safety rules for contractors (some companies will insist on an induction course).
- 2. Upon commissioning of the machine, make a Noise Assessment of the machine and record the results on the form provided, return to Marathon Equipment Co.
- 3. Check that all items on the Risk Assessment checklist are carried out. If due to unforseen circumstances the risk assessments conclusion cannot be achieved, contact Marathon Equipment Co. for further instructions. If upon receipt of those instructions the conclusion of the risk assessment changes from that indicated on the RA checklist (i.e. an interlocked guard is changed to a fixed guard) then endorse the RA checklist with that change, return to Marathon Equipment Co.
- 4. Train the operators in the use of the machine using the operator's training manual. Check off each item on the operator training checklist as a check that all items are covered. Return checklist to Marathon Equipment Co.
- 5. Complete and sign the operator's training certificates, return copies to Marathon Equipment Co.
- 6. Once all of the above are complete, the machine Certificate of Acceptance must be completed in duplicate and signed by the customer and yourself, one copy left with the customer, the other returned to Marathon Equipment Co. The operating manuals should now be handed over to the customer.
- 7. Under no circumstances must the machine be left in an operational condition:
 - 1. If the installer is not in control and on site.
 - 2. Until the machine is fully commissioned.
 - 3. Until the CE mark has been affixed.
 - 4. Until the operators have been trained in the use of the machine.
 - 5. Until the machine has been handed over to the customer along with manuals and the Certificates of Acceptance have been completed.

Training Certification



THIS IS TO CERTIFY THAT:

NAME:_____ COMPANY:_____

HAS RECEIVED BASIC TRAINING ON THE OPERATION OF

MACHINE:

DETAILS: 1. General Description of Machine and Operator's Manual.

- 2. How to Start the Machine.
- 3. The Normal Mode of Operation of the Machine.
- 4. The Safety Procedures Emergency Stop, etc.
- 5. Normal Maintenance procedures and service intervals.
- 6. Simulated Faults and Remedies.

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Signeg.	Dale.
	2 0.10

Signed:	Date:	
for Marathon Equipment Company		

Certificate of Acceptance



CUSTOMER:	
SITE:	
MACHINE:	
SERIAL NO:	

The above mentioned plant has been delivered, erected, and commissioned in accordance with the contract and the requirements of the Supply of Machinery (Safety) Regulations 1992 (The Council of the European Communities Directive 89/392/EEC as amended).

Trial run has been completed and the plant has been tested with material.

Operating Staff have been trained and the Operating Manual has been handed over to the Customer.

The Customer's attention is drawn to the requirements of The Provision and Use of Work Equipment Regulations 1998.

GUARANTEE PERIOD COMMENCES ACCORDING TO THE CONTRACT.

Remarks:

Signature of Customer

Date

Signature of Marathon Equipment Co.

Date



Noise Assessment Procedure

At Point of Installation:

- Take ambient noise levels at points A, C, D, & E (refer to image on next page).
 1 metre distance from the machine, with the machine not running, at a height of 1.5 metres from the base of the machine.
- 2. Take noise levels at points A to E at 1 metre, 3 metres, and 10 metres distance from the machine with all the pumps on the machine running and the ram moving backwards and forwards. The readings are to be taken at a height of 1.5 metres from the base of the machine.
- 3. Give a brief description of the building including approximate size, height, type of materials used and any internal structures. If necessary, make a sketch.
- 4. If, due to the position of the machine in the building, it is not possible to take measurements at the points indicated, then please give reasons.
- 5. Take readings outside the building, if possible, noting the levels on the sketch below. Take into account any ambient or background noise.

Use the space below to record any of the additional details found during the procedure above. Please return this page and the noise assessment with the customer acceptance form to the Technical Department.

Noise Level Assessment

NOISE AT WORK REGULATIONS 1989 ASSESSMENT OF NOISE LEVELS (ON INSTALLATION)			
JOB No:	M/c No:	Date:	
MACHINE TYPE:		_ CHECKED BY:	
NOISE LEVEL dB(A)	Α	F	_
	В	G	_
	C	Н	
	D	I	_
	E	J	_
MACHINE TYPE:	A A B C D E	Date: F G H I J	

PROCEDURE

Measurements need to be taken 1 metre distance from the machine at a height of 1.5 metres from the base of the machine. The pump needs to be running and the ram moving backwards and forwards.



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Risk Assessment Checklist

MARATHON EQUIPMENT CO. CE RISK ASSESSMENT

EQUIPMENT MODEL:

DATE OF ASSEMBLY:

HAZARD	CONTROL MEASURES	ACTION REQUIRED
Contact with ram if machine is operated.	Equip with a ANSI complaint hopper or a hold-to run switch	Machine will be supplied with a hold-to-run switch
Unauthorized use of machine by untrained operators.	Key-switch controls to allow only authorized users	
Exposure to moving parts caused by absence of covers.	Make access covers removable by hand tools only. Provide decals to lock out and tag out power before servicing.	Replace decals with CE recognized warning symbols.
Electrical shock hazard	Provide instructions to lock out and tag out before servicing. Provide voltage warning decals. Provide cord and receptacle that requires power to be shut off prior to plug being disconnected.	Replace decals with CE recognized warning symbols.
Unintentional movement or operation of ram.	Emergency stop button	
Unauthorized access to inside of panel box	Limit access to inside of panel box.	Panel box supplied with keyed lock.
Entering machine for any reason could cause injury.	Do not enter decal	
Leakage around dump door	Wipe off seal after dumping decal	
Movement of container or tailgate	Stand clear of container and tail- gate decal	
Inadvertent use of controls	Identity all controls	
Operation of underage personnel	Decal Federal Law Prohibits use under age of 18	

See the next page for a blank risk assessment checklist. If more copies are needed, remove this blank and make duplicates.

|--|

Risk Assessment Checklist

MARATHON EQUIPMENT CO. CE RISK ASSESSMENT

EQUIPMENT MODEL:

DATE OF ASSEMBLY:

HAZARD	CONTROL MEASURES	ACTION REQUIRED

If more copies are needed, remove blank and make duplicates.

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OPERATION

Introduction

Thank you for purchasing a Marathon Self-Contained Compactor/Container.

This compactor is designed to give you reliable and superior performance for many years to come. The purpose of this manual is to provide the owner and operator(s) the necessary information to properly and safely install, operate, and maintain your self-contained compactor. Also included are sections regarding troubleshooting and service procedures. The manual is not intended as a primary training source, but as a reference guide for authorized, trained personnel. Each person involved in the operation, maintenance and installation of the machine should read and thoroughly understand the instructions in this manual and follow ALL warnings.

The employer(s) involved in the operation, maintenance, and installation of the compactor should also read and understand the most current version of the following applicable standards:

ANSI Standard No. Z245.2, "Stationary Compactor Safety Requirements"

A copy of this standard may be obtained from ANSI (www.ansi.org) at:

25 West 43rd Street New York, NY 10036

OSHA Title 29 CFR, Part 1910.147

"The Control of Hazardous Energy (Lock-Out and Tag-Out)" (www.osha.gov)

Any service or repair instructions contained in this manual should be performed by factory authorized personnel only.

If you should need assistance with your equipment, please contact your distributor. When contacting your distributor, you will need to provide:

- Serial Number:______
- Installation Date:
- Electrical Schematic Number:

If you have any safety concerns with the equipment, or need further information, please contact us at 1-800-633-8974 or:

Marathon Equipment Company Attn: RamJet[®] Service Department P.O. Box 1798 Vernon, AL 35592-1798

Specifications



General	
Charge Box Capacity (Mfg Rating)	1.3 cu meter
Charge Box Capacity (per WASTEC)	1 cu meter
Clear Top Opening	1014 mm x 1473 mm
Total Capacity	15 cu meters
Performance Characteristics	
Cycle Time	30 seconds
Total Normal Force	177 kN
Total Maximum Force	220 kN
Normal Ram Face Pressure	189 kPa
Maximum Ram Face Pressure	235 kPa
Ram Penetration	140 mm
Electrical Equipment	
Motor 10/50/400V	7.46 kW
Control Voltage	24 VDC
Hydraulic Equipment	
Hydraulic Pump Flow	42 LPM
Normal Pressure	128 bar
Maximum Pressure	159 bar
Hydraulic Cylinder	102mm Bore x 64mm Rod x 803mm Stroke
Dimensional	
Overall Length	5734 mm
Overall Height	2473 mm
Overall Width	2161 mm
Shipping Weight	4318 kg

Pre-Operation Instructions

Federal regulation prohibits the use of this equipment by anyone under 18 years of age.



STAY CLEAR OF ALL INTERNAL PARTS OF THE SELF-CONTAINED COMPACTOR/CONTAINER DURING OPERA-TION. FAILURE TO DO SO COULD RESULT IN SERIOUS INJURY OR DEATH!

NEVER ENTER ANY PART OF THE COMPACTOR UNLESS THE DISCON-NECT SWITCH HAS BEEN LOCKED-OUT AND TAGGED-OUT. See "Lock-Out & Tag-Out Instructions" on page 2-1 in the Maintenance section. Before starting the compactor, be sure no one is inside. Be certain that everyone is clear of all points of operation and pinch point areas before starting.



THE EMPLOYER SHOULD ALLOW ONLY AUTHORIZED AND TRAINED PERSONNEL TO OPERATE THIS COMPAC-TOR. This compactor is equipped with a key operated locking system. The key(s) should be in the possession of only authorized personnel.

DO NOT REMOVE ACCESS COVERS EXCEPT FOR SERVICING. Only authorized service personnel should be allowed inside. All access doors on the compactor body should always be secured in place when the unit is operating. See Lock-Out & Tag-Out instructions in the Maintenance section.



ONLY AUTHORIZED PERSONNEL SHOULD BE ALLOWED INSIDE THE MOTOR CONTROL PANEL. The motor control panel contains high voltage com-

The motor control panel contains high voltage components. See Lock-Out & Tag-Out Instructions in the Maintenance section.

If the compactor is equipped with a security gate or doghouse with security door, **BE SURE THAT THE SECURITY GATE OR DOOR IS CLOSED BEFORE THE COMPACTOR IS STARTED.**

Control Panel



Control Descriptions

- 1. **Keyed Start Switch** This switch requires a key for operation. Insert the key and turn clockwise to the start position. Depress and hold the key for one to two seconds and release. The compactor will cycle one time (complete extension and retraction of the ram) and stop. After use, turn the key to the counterclockwise position and remove the key.
- 2. **Emergency Stop** When depressed, this pushbutton will stop all powered operation of the compactor.
- 3. **Reverse Pushbutton** This pushbutton will reverse the compaction ram when depressed. The Keyed Start Switch must be energized for the REVERSE button to operate. See the *Manual Override Instructions* on the next page for details of the operation.

Operating Instructions (Standard Models)

- 1. First, place the material to be discarded into the compactor. Note: If you are loading the compactor through a door or gate, close it before starting the compactor.
- 2. Insert the key into the key switch. Turn it clockwise and depress for 1 to 2 seconds and release.



- 3. Repeat, if necessary, after the compactor has stopped.
- 4. When you have finished using the compactor, remove the key from the key switch.

IN CASE OF EMERGENCY: Push the large red button to STOP

MANUAL OVERRIDE INSTRUCTIONS (Ram Stop Rear Only Machines)

If the ram is stopped in any position:

- To move the ram forward, turn the key switch clockwise and depress.
- To move the ram rearward, depress and hold the Reverse button, turn and depress the key switch, release the key switch, then release the Reverse button.

While the ram is moving:

- To reverse the ram while it is moving forward, press the Reverse button.
- To cause the ram to move forward while it is moving rearward, depress the key switch.

NOTE: Refer to "Optional Controls for Manual Override" on Ram Stop Forward Machines.

Optional Controls

- SUSTAINED MANUAL PRESSURE CONTROL BUTTON (Hold-To-Run, Release-To-Stop) - This option requires the compactor operator to remain at the pushbutton station while the compactor is in use. Actuation requires depressing the "Hold-To-Run" and "Start" buttons. After the unit has started, the "Start" button is released. If the "Hold-To-Run" button is released, the unit will stop instantly.
- 2. **ADVANCE WARNING / CONTAINER FULL LIGHT** When the light starts flashing (ADVANCE WARNING), then 1400 kPa is left before the pressure switch is activated to shut the unit off and container is full (unit will run when light flashes). When the light stays on continuously (CONTAINER FULL), the container is full and is ready to be emptied before its next use. To deactivate the light, depress the illuminated emergency stop button (The unit will not run while the light is continuously on).
- 3. **RAM STOP FORWARD** When a machine with this option has been stopped, the ram automatically begins to move rearward when restarted. To move the ram forward (when it is stopped), hold the forward button down, turn the key switch clockwise, depress and release the key switch, then release the forward button. To reverse the ram while it is moving forward, depress the key switch. To cause the ram to move forward while it is moving rearward, press the forward button.
- 4. **ACCESS INTERLOCK** This is optional with units equipped with doors, chutes, or access gates. It prevents the unit from operating while a door or gate is open.
- 5. **PHOTOELECTRIC CYCLE CONTROL** (Photocell) Consists of an LED light source and a reflector. It can be mounted on a hopper or chute. Two holes, located so as to prevent any hazard, are located on opposite walls of the chute. When the light beam is blocked for 15 seconds, the compactor is activated and will continue to run until the obstruction has been cleared.
- 6. **AUTOMATIC SHUTDOWN** Used with the Photoelectric Cycle Control. If a blockage in the charge chamber causes the compactor to continue cycling, the timer will shut the compactor down after the preset time has passed. To deactivate the timer, the illuminated pushbutton is pressed after clearing the blockage.
- THERMOSTATICALLY CONTROLLED OIL HEATER This option is installed in the oil reservoir. The thermostat is adjustable so the heater will heat the oil when the oil temperature goes below a specified level. It is recommended to set the thermostat between 21° - 38°C.

Decals

Warning Decal Requirements

When your compactor leaves the factory, several warning decals are installed for your protection. These labels are subject to wear and abuse due to the nature of operation. The FOLLOWING DECALS MUST BE MAINTAINED. Additional decals may be purchased through your distributor or from Marathon Equipment Company by either calling the parts department at **1-800-633-8974** or going to **www.parts1stop.com** to place an order online.

When ordering replacement decals, match the reference numbers in the chart below with the drawing on the next page. Refer to "Decal Images" on page 1-9.

Part #	Description	Quantity
05-0325	1/8 X 1/2 ALUM	4
06-0429	DO NOT REMOVE GUARD - CE	2
06-3459	DANGER DO NOT ENTER	3
06-0072	QUICK CLEAN TANK	1
06-3460	FIRE HOSE PORT ENG/SWEDISH	2
06-3454	NOTICE WIPE OFF SEAL	2
06-3455	NOTICE FEDERAL REGULATIONS	2
06-0124	CYCON	2
06-0430	ELECTRICAL LOCKOUT- CE SP	2
06-0468	COMPACTOR SERIAL NUMBER	1
06-1839	AMERICAN FLAG	3
06-3456	WARNING STAND CLEAR OF CONTAINER	3
06-0002	RAM-JET	4
06-3480	CONFINED SPACE - CE	3
06-0418	ELECTRIC SHOCK - CE SP	2
06-3482	BODY CRUSH/FORCE FROM SI	2
06-3481	EXPLOSION/RELEASE OF PRE	2
06-0426	STAND CLEAR - CE SP	4
06-0419	READ MANUAL - CE SP	2
06-0420	READ SERVICE MANUAL - CE	2
06-0422	EYE PROTECTION - CE	2
06-0423	EAR PROTECTION - CE	2
06-0421	SAFETY GLOVES - CE	2
06-0424	HOT SURFACE - CE	2

Decal Placement

Match reference numbers to the chart on the previous page. The next page shows the decal images.



Decal Images



Lock-Out & Tag-Out Instructions



WARNING: This machine contains multiple lockouts (1 for the AC circuit and 2 each for the DC circuits). All must be locked out before service or maintenance can be performed.

Before entering any part of the compactor, be sure that all sources of energy have been shut off, all potential hazards have been eliminated, and the compactor is locked-out and tagged-out in accordance with OSHA and ANSI requirements.

If the ram is pressing against a load, move the ram rearward before shutting the compactor down. The specific lock-out and tag-out instructions may vary by company. The following instructions are provided as minimum guidelines.

Instructions

- 1. Move the main disconnect lever to the OFF position.
- 2. Padlock the disconnect lever with a keyed padlock and take the key with you.
- Along with the padlock, place an appropriate, highly visible, warning tag on the disconnect lever. The tag should provide a warning such as: "Danger: Do not operate equipment. Person working on equipment." Or: "Warning: Do not energize without the permission of ______."
- 4. Move each of the battery disconnect switches to the OFF position.
- 5. Padlock each disconnect switch with a keyed padlock and take the keys with you.
- 6. After locking and tagging the compactor, try to start and operate the compactor to make sure the lock-out and tag-out is effective. If so, remove the key from the key-switch and take it with you.



ELECTRICAL: The panel box contains high voltage components. Only authorized service personnel should be allowed inside the panel only after ALL the lock-out and tag-out procedures have been completed.

HYDRAULIC: Stored hydraulic energy must be removed from the compactor hydraulic circuit for complete lock-out and tag-out. Make sure that this energy has been relieved by manually depressing the solenoid valve pin located in the center of the coil end of the directional control valve.



Periodic Maintenance

WARNING: Ram speed accelerates as the Ram retracts. Never enter any part of the self-contained compactor/container until the unit has been Locked-Out and Tagged-Out.

Monthly

- 1. Check external hoses for chafing, rubbing, or other deterioration and damage.
- 2. Check for any obvious unsafe conditions in the compactor area.
- 3. Check oil level in hydraulic reservoir. Level should be 3/4 of sight gauge.
- 4. Clean out or wash out debris from behind the compactor ram.
- 5. Lubricate the ram guidance tracks using the grease fittings on the compactor side (for guided ram machines only), and check guide shoes for wear.

Three Months

- 1. Check functional operation of controls and options (stop button, timers, lights, and so on).
- 2. Check hydraulic cylinder, internal hoses, and connections for leakage. Check hoses for chafing and wear.
- 3. Lubricate the container door hinges.

Annually

1. Lubricate electric motor bearings annually per the manufacturers instructions.

Filter Maintenance

- 1. The hydraulic filter should be cleaned at regular yearly intervals.
- 2. The filter may be removed from the unit by disconnecting the union on the suction side of the pump, removing the four bolts retaining the cover plate, and lifting the filter from the reservoir.
- 3. Care should be exercised in cleaning the filter to ensure that the element is not torn. Clean the element with a soft brush and standard industrial solvent.
- 4. Replace the filter after cleaning and tighten the union securely. Pump noise and a "crackle" sound is most often caused by air entering the pump suction line. Tightening the suction fittings will usually eliminate the problem.

Recommended Oils for the Hydraulic System

- 1. Union Unax-46, Unax-AW46
- 2. Gulf Harmony 47, Harmony 48-AW
- 3. Exxon Teresstic 46, Nuto 46
- 4. Texaco Rando 46
- 5. Chevron AW 46
- 6. Shell -Turbo 46, Tellus 46
- 7. Quaker State Dextron II (ATF)
- 8. Citgo Pacemaker 46, Tellus AW46
- 9. Amoco (Rycon)

Hydraulic System Pressure Settings

Pressure Settings

When the hydraulic cylinders used in the RamJet Self-Contained compactor are fully extended or retracted, they bypass internally. This makes it impossible for the hydraulic system to reach relief pressure. Follow the recommendations below for proper pressure setting.

- 1. Disconnect and lock-out power per the procedure on page 2-1.
- 2. Using the quick disconnects, disconnect the hydraulic hoses from the compactor.
- 3. Remove the 6.35 mm plug from the check valve and install a 0-20.7 MPa pressure gauge.
- 4. Loosen the lock nut on the relief valve and turn the adjustment screw several turns counterclockwise.
- 5. Remove the lock-out provisions and turn the disconnect to the ON position. Start the power unit using the Operating Instructions (Operations section).
- 6. With the hoses disconnected, the power unit will build pressure. Adjust the relief pressure up by turning the relief adjustment screw clockwise. Adjust the relief valve to the desired pressure setting and tighten the lock nut. See chart below.
- 7. Press the EMERGENCY STOP button to stop the power unit, and relieve the stored hydraulic energy as described at the bottom of page 2-1.
- 8. Disconnect and lock-out power as described in Step 1.
- 9. Remove the pressure gauge and replace the 6.35 mm plug in the check valve.
- 10. Reconnect the hydraulic hoses, and remove the lock-out provisions.

Pressure Setting Chart

Model #	KW	LPM	Relief Valve Setting	Res. Cap.	Cylinder Bore	Cylinder Rod	Cylinder Str
RJ-250SC	7.46	41.8	128 Bar	76 L	102	64	803

Notes:

- On units with the Advance Warning Light, set the pressure 1400 KPa below the pressure switch setting.
- Includes HT units & SL units.

PLC - Layout and Description

The following pages describe functions and procedures for models that have a PLC (Programmable Logic Controller) in the panel box.



Ref #	Description
1	Retractable mounting feet.
2	Screw terminal block for the power supply.
3	LCD, 4 lines, 18 characters
4	Screw terminal block for inputs
5	Screw terminal block for 0-10 Volt analog inputs usable in discrete mode on some models
6	Connector for backup memory or PC connection cable
7	Shift key
8	Selection and validation key (Menu / Ok)
9	Relay output screw terminal block
10	Arrow keys or after first configuring them, Z pushbuttons



Ref #	Description
1	Input status display
2	Display of the operating mode (RUN/STOP) and programming mode (LD/FBD)
3	Display of the date (day and time for products with clock)
4	Output status display
5	Contextual menus / pushbuttons / icons indicating the operating modes

PLC - Procedures

Steps	Directions
1	Press the Menu Button
2	Press the Down Arrow Button
3	Press the Menu Button
4	Press the > Arrow Button twice until the $P=0003$ is flashing
5	Press the Up or Down Arrow Button to select cycle count*
6	Press the Menu Button
7	Press the Menu Button with the Yes blinking
8	Press the Menu Button
9	Press the < Arrow Button to return to the normal operation.

Multi-Cycle Counter Selection - (Manual Mode Only)

*NOTE: 4 is the maximum number of cycles that can be selected.

Ram Stop Forward Option

Steps	Directions
1	Press the Z1 Button & hold to display the ram selection.
2	Press the Z1 Button to change the ram selection.

NOTE: Ram Stop Forward will require changing the legends as follows:

- 1. 03-0375 (START/FORWARD) will be replaced with 03-0376 (START/REVERSE).
- 2. 03-0154 (REVERSE) will be replaced with 03-0377 (FORWARD).

PLC procedures are continued on the next page.

Auto Shutdown Timer Selection

Steps	Directions
1	Press the Menu Button
2	Press the Down Arrow Button until you get tho RUN/STOP
3	Press the Menu Button twice
4	Press the Down Arrow Button
5	Press the Menu Button
6	Press the Up Arrow Button Until TTC is flashing
7	Press the > Arrow Button to the $T=5.00$ at the bottom (flashing)
8	Press the Up or Down Arrow Button to select the time*
9	Press the > Arrow Button to confirm
10	Press the Menu Button
11	Press the Menu Button with YES blinking
12	Press the Menu Button twice to return to normal operation.
13	Press the Down Arrow to RUN/STOP
14	Press the Menu Button twice to return to normal operation

*NOTE: 30 minutes is the maximum amount of time that can be selected. ***TC is the AUTO SHUTDOWN TIMER which is set at 5 minutes.

Advance / Retract Timer Selection

Steps	Directions
1	Press the Menu Button
2	Press the Down Arrow Button until you get to RUN/STOP
3	Press the Menu Button twice
4	Press the Down Arrow Button
5	Press the Menu Button
6	Press the Up Arrow Button until the desired timer is flashing*
7	Press the > Arrow Button to the $T=12.00$ (ex.) at the bottom (flashing)
8	Press the Up or Down Arrow Button to select the time
9	Press the > Arrow Button to confirm
10	Press the Menu Button
11	Press the Menu Button with YES blinking
12	Press the Menu Button twice.
13	Press the Down Arrow Button to RUN/STOP
14	Press the Menu Button twice to return to the normal operation.

*T1 is the EXTEND Timer & T3 is the RETRACT Timer.

Principles of Operation

Standard System Operating Characteristics (5 HP)

The system uses special cylinders to move the ram and a PLC (programmable logic controller) to control the operation of the ram. When the hydraulic cylinders used in the self-contained compactors are fully extended or retracted, they bypass internally. This makes it impossible for the hydraulic system to reach relief pressure.

Description Of Operation

The system uses special cylinders to move the ram and two timers to control the operation of the ram. When the hydraulic cylinders used in the self-contained compactors are fully extended or retracted, they bypass internally. This makes it impossible for the hydraulic system to reach relief pressure. The sequence of operation for this system is as follows:

Upon startup, a contact is made that energizes the motor starter, starting the electric motor and at the same time energizing T1 timer coil. When T1 is energized, the valve solenoid shifts the valve so that the hydraulic oil is directed to extend the cylinder which extends the ram. When T1 timer times out, the contacts reverse causing T3 timer to energize and the solenoid to shift the valve into the reverse position. In this position, the valve directs the hydraulic oil into the front end of the cylinder causing the cylinder to retract, therefore causing the ram to retract. When T3 timer times out, the motor starter contact is opened causing the motor starter to shut down, therefore causing the motor/power unit to shut down.

Cylinder Removal Instructions

Note: Lock Out and tag Out per the instructions on page 2-1.

- 1. Remove access covers from compactor.
- 2. Remove hoses (4 for 88SC and 250SC, 2 for the 250 Ultra).
- 3. Remove cylinder pins.
- 4. Remove cylinders (2 each for the 88SC, 250SC, and 250 Ultra).
- 5. To install the cylinders, reverse the above steps.

Tailgate Seal Replacement

When the door/tailgate seal becomes damaged or worn, replace the seal.

WARNING: For units with hydraulic tailgates, before performing any inspection or maintenance on the seal, support the raised tailgate with a crane, forklift, or other positive maintenance prop.

- When removing the old seals (top & bottom), mark the position of the seal joints. Pry the seal retainer up slightly to allow removal of the old seals.
- When installing the new seals, join the seals at the same positions.



Electrical Charts

Timer Settings

	Ram St	op Rear	Ram Stop Forward		
Model #	T1	Т3	T1	T2	
RJ-250SC	12 sec	10 sec	10 sec	12 sec	

Fuses and Circuit Breakers

Motor Size	VAC	Full Load Amp	Dual Element Fuse Max Size	Circuit Breaker Max Size	Service Dis- connect Amps
5 HP	208	22.0	50	80	60
1 Phase	230	20.8	45	70	60
	208	13.8	30	40	30
5 HP	230	13.4	25	40	30
3 Phase	460	6.7	15	20	30
	575	5.4	10	15	30

Wire Sizes

THW Copper 75°C (165°F)

Motor Size	VAC	Length To 100'	Length To 200'	Length To 300'
5 HP 1 Phase	208	8	6	4
	230	8	6	4
	208	10	6	4
5 HP	230	10	8	6
3 Phase	460	12	12	10
	575	12	12	12

Motor Starters and Heater Elements

Motor Size	VAC	Starter Size	A-B	Heater Element
5 HP 1 Phase	208	2	W-61	2452
	230	2	W-60	2451
	208	1	W-55	2447
5 HP	230	1	W-55	2446
3 Phase	460	1	W-46	2438
	575	1	W-44	2435

Panel Box Configuration



Power Unit - Standard 10 HP

Match the reference numbers below with the chart on the following page for parts identification.

Note: The right-hand side-mounted power unit shown varies from left-hand models and set-ups with remote power units.





Power Unit Reference Chart - 10 HP

Match reference numbers with the drawing on the previous page. To order replacement parts call our parts department at **1-800-633-8974** or order online at **www.parts1stop.com**.

Part #	Ref #	Description	Qty
05-0663	1	SPRING GAURD F/ 3/4 HOSE	2
02-0050	2	FILTER SUCTION 1 13 GPM 100 ME	1
02-0065	3	PLUG 1/4 NPT SOCKET HEAD	1
02-1042	5	VALVE CHECK 3/4 NPTM X 3/4 NPT	1
02-0197	6	BREATHER 3/4 FILLER	1
02-0267	7	PUMP 10 GPM GEAR	1
02-0214	8	VALVE RELIEF 20 GPM CART PILOT	1
02-0215	9	GAUGE SIGHT LEVEL 5 INCH	1
02-0218	10	FLANGE SUCTION 1 PIPE	1
02-0219	11	CLEAN OUT COVER 6	1
02-0238	12	ELL 1 NPTM X 1 NPTF 90 SCH 40	2
02-0239	13	UNION 1 NPT	1
02-0240	14	NIPPLE 1 NPT CLOSE	1
02-0326	16	HOSE END 3/4 WB X 3/4 NPTM	2
02-0363	17	PIPE 1 SCH 40 X 10 1/4	1
02-0366	18	PIPE 1/2 SCH 40 X 9 RETURN	1
02-1041	19	SUBPLATE 05 1 STN 1/2 NPTF R O	1
03-5209	20	MOTOR 10HP 208/230/460V 60HZ 3	1
05-0016	21	WASHER 3/8 FLAT	2
05-0096	22	BOLT 3/8-16 X 1 HHCS	4
05-0105	23	NUT 5/16-18 HEX SELF-LOCKING	2
05-0155	24	BOLT 3/8-16 X 3/4 HHCS	4
05-0159	25	WASHER 3/8 LOCK	6
05-0225	26	SCREW 5/16-18 X 3/4 ST TYPE 23	4
05-0662	27	BOLT 5/16-18 X 3 1/2 SHCS	2
06-0011	28	DECAL MOTOR ROTATION 3/4 X 4	1
29-1958	29	3/8 PL X 9 3/8 X 25 1/16	1
02-0327	30	HOSE 3/4 2 WB 3100 PSI	2.29
02-5259	31	Valve, Control 24 VDC	1

Electrical Schematic



Hydraulic Schematic - Typical



Troubleshooting Chart

Problem	Possible Cause	Solution
UNIT WILL NOT START	 (1) No electrical power to unit (2) No electrical power to control circuit (3) No electrical power to motor 	 (1A) Turn on main disconnect. (1B) Replace fuses/reset breakers (2A) Check primary and secondary sides of transformer. (2B) Check for correct voltage. Check control fuses. (2C) Check stop button. (2D) Check start button to be sure contact closes when depressed. (3A) Check overload resets.
UNIT WILL NOT CONTINUE RUNNING WHEN START BUT- TON IS RELEASED	 (1) Motor starter is in-operative. (2) Motor starter auxiliary contacts are inoperative (3) Reverse Button is inoperative (4) Secondary contact on start button is inoperative 	 (1A) Check motor starter coil & wiring. (2A) Check motor starter contacts and wiring (3A) Check reverse button to be sure contacts are closed (3B) Check wiring (4A) Check contact (wired black & orange) to be sure it is operating properly (4B) Check wiring
MOTOR RUNS BUT RAM DOES NOT MOVE NORMALLY	 (1) Insufficient oil in reservoir (2) Low relief pressure (3) Oil leakage in cylinder (4) Defective pump (5) Oil leakage from hose fittings (6) Low voltage (7) Pump may be driven in the wrong direction of rotation (8) Shaft broken, or shaft key sheared (9) Intake pipe from reservoir blocked, or oil viscosity too heavy to prime (10) Intake air leaks (foam in oil or sounds like gravel in pump) (11) Units shift slowly (12) Valve response sluggish 	 (1A) Fill reservoir with oil (2A) Check relief pressure (refer to PROCEDURES-HYDRAULIC PRESSURE CHECK and PRESSURE SETTINGS for correct pressure. (2B) Clean orifice in relief valve and reset pressure (2C) Check 'O" rings on relief valve for damage or leakage (3A) Check cylinder for bypassing (3B) Replace seal kit, inspect rod and cylinder tube for scoring/nicks (3C) Replace cylinder (4A) Replace pump (5A) Tighten hose fittings (6A) Check voltage (7A) Stop immediately to prevent sei- zure. Check direction of drive rotation (proper rotation direction is indicated by arrow on motor) (8A) Visually inspect motor and pump shaft and hub couplings for damage. Replace if necessary. (9A) Drain system. Add clean fluid of proper viscosity and specifications. Filter as recommended. Check system filter for cleanliness. (10A) Check intake connections. Tighten securely (11A) Flow control valve (restrictor) clogged, remove\clean orifice. (12A) Contaminated oil-drain and flush system. (12B) Inadequate voltage, check volt- age, check coil

Problem	Possible Cause	Solution
UNIT WILL NOT REVERSE	(1) Solenoid valve is in-operative(2) Reverse button in-operative	(1A) Check coil in solenoid valve(2A) Check reverse button contacts.
PUMP MAKES NOISE-SOUNDS LIKE GRAVEL	 (1) Partly clogged intake strainer or restricted intake pipe (2) Defective bearing (3) Air leak at pump intake pipe 	 (1A) Pump must receive intake fluid freely or cavitation results. Drain sys- tem, clean intake pipe and clean or re- place strainer (2A) Replace pump (2A) Tichten initia as required
PUMP SHAFT SEAL LEAKING	(1) Seal worn or damaged	(1A) Replace seals or pump.
EXCESSIVE HEAT	 (1) Continuous running (2) Undersized hydraulic lines (3) High ambient temp in relation 	 (1A) When over 140 degrees F or hot in comparison with circuit lines, pump should be shut down immediately. Be- fore restarting, insure that fluid cooling capacity is adequate to remove system generated heat. (1B) Install oil cooler (air or water type) (1C) Install oil temperature shut down switch (1D) Check to be sure CYCON Power Pack has not been exchanged for Pres- sure Shifting Power Pack. (2A) Replace with larger hydraulic lines (3A) Use lower viscosity oil
	(4) Excessive system leakage	(4A) Check system for bypassing or leaks
RAPID WEAR	 (1) Abrasive matter in the hy-draulic oil being circulated through pump (2) Viscosity of oil too low at working conditions (3) Pressure too high (4) Air recirculation causing pump noise 	 (1A) Install adequate filter or clean. (1B) Replace oil more often and clean tank (2A) Replace oil with factory recommended . (3A) Reduce pump pressures to factory specifications. (4A) Tighten all fittings.
ERRATIC OPERATION	 (1) Valve sticking or binding (2) Viscosity of oil too high (3) Air in system (4) Low oil (5) Low voltage 	 (1A) Disassemble & clean as necessary (2A) Change oil to factory recommended viscosity (3A) Check for leaks, tighten fittings (4A) Fill reservoir with oil (5A) Check primary & secondary sides of transformer for correct voltage.
OVERLOADS TRIP FREQUENTLY		 (1A) Check for correct voltage (incoming power.) (1B) Check fuses or breakers at disconnect (1C) Check heater elements to be sure they are tight (1D) Check wiring from starter to motor-make sure all connections are tight (1E) Check motor leads to be sure all connections are tight surges or voltage NOTE: Excessive overload tripping and/or motor or coil failures may occur if voltage surges or voltage drops are frequent in your area. This circumstance can be remedied by the installation of phase protectors which drop power to the motor if surges are present.
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INSTALLATION

Concrete Pad Requirements

CAUTION: Review this manual before making the installation. Study the job site and installation requirements carefully to be certain all necessary safeguards and or safety devices are provided to protect all personnel and equipment during the installation and as a completed system. Special attention is directed to the most current extract from American National Standards Institute Z245.2.

These operating instructions are not intended as a substitute for training and experience in proper use and safety procedures in operating this equipment.

Marathon Equipment Co. does not assume responsibility for the installation procedures of this equipment. Conformance to applicable local, state, and federal laws concerning installation rests with the customer.

Concrete Pad

- Preferred dimensions of the concrete pad are 305 cm wide and a length of 153 cm greater than the length of the compactor/container. It should be level with a minimum 20700 KPa concrete steel reinforced, 15 cm thick. It is preferred that the concrete pad be flush with the surrounding ground level. Note: Units with four ground rollers must be installed on a level pad.
- To provide accessibility, the concrete pad should be positioned to allow 61 cm between the machine and building wall if installed parallel with the building. Allow a minimum of 14 m of clear space from end of pad for the container handling vehicle.

Note: The clearances given are minimums. Your installation may require greater clearances, depending on the site and the hauling equipment that will be used.

Container Guides

If container guides (optional) are used with the self-contained units, the guides should be anchored to the concrete pad using 19 mm x 15 cm anchor bolts. These bolts should be concrete anchors or expansion type anchor bolts. To allow for construction variations, it is best if these holes are drilled in the concrete after pre-locating the container guides in their desired location. Drill holes and place anchor bolts in each location provided on the guides. When the guides have been placed in position, and the anchor bolts have set, securely tighten all nuts.

Steel Installation Procedures

Dock Installation

If the appropriate accessories are ordered from Marathon Equipment Co., the compactor/container will be furnished with either a four-sided hopper or a three-sided hopper with a hinged gate. **These accessories should not be altered as they are manufactured in accordance with those standards which prevail at the time of manufacture.**

If the compactor/container cannot be directly abutted to the dock or if there is any difference in height between the dock and the compactor/container, an appropriately sturdy transition section should be provided by the customer and securely affixed to the dock. Along with the transition section, a compactor/container guidance/stop mechanism should be installed to assure that the unit does not bottom out against the transition section or dock during dock placement (See ANSI Z245.2 Safety Standards). Optional container guides with stops are available from Marathon and are recommended for proper dock placement of the compactor/container.

Chute-Fed Installation

Compactors installed in this arrangement are normally fed "through-the-wall". The lower edge of the access hole in the wall should be a MINIMUM of 1.07 m (and, if possible, not more than 1.47 m) from the inside floor level. A security door (in accordance with local code) should be installed in the wall opening. In the absence of a local code, this door should be constructed of 5 mm thick steel or of steel hollow core design and be lockable from the inside of the building.

Decals

Be certain that the appropriate decals are in their proper locations at all times on the machine. For decal locations, see "Decals" on page 1-7 and "Decal Placement" on page 1-8 in the Operation section of this manual.

Note: Installation is not complete until all decals are in place.

Electrical and Hydraulic Installation



The motor control panel contains high voltage components. Only authorized service personnel should be allowed inside. See "Lock-Out & Tag-Out Instructions" on page 2-1 in the Maintenance section.

A lockable fused disconnect switch (customer furnished) must be installed and be within sight of the compactor motor control panel location, not to exceed 15 m from the compactor. This fused disconnect switch should be sized in accordance with the compactor (see Fuse and Circuit Breaker Chart).

Grounding Instructions

Warning: All equipment should be grounded per National Electric Code.

This appliance must be connected to a grounded, metal, permanent wiring system; or an equipment grounding conductor must be run with the circuit conductors and connected to the equipment grounding terminal or lead on the appliance.

If there is any doubt whether the equipment is properly grounded, a qualified electrician should be consulted.

Start-Up Instructions

1. With the ram fully retracted, check to be sure the oil reservoir is full to the 3/4 level on the sight gauge (Refer to the maintenance chart for hydraulic oil recommendations). The hydraulic system pressure has been factory set and the entire unit has been operated prior to shipment.

Caution: Make sure persons and material are clear of the charge box area.

2. Depress the start button and check the pump shaft for proper rotation.

Caution: If the pump rotates backward, stop immediately. The pump will be damaged if it is operated in reverse even for short periods. Reversing any two incoming power lines will change the motor/pump rotation.

Caution: Make sure that the operators are trained in the proper use of this equipment.

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HAULER INFORMATION

General Hauler Instructions

Before hauling to the landfill:

- 1. Disconnect electrical connections (if applicable) between the power unit and the compactor. Make sure they are placed in an area where they will not get damaged.
- 2. Close and secure any hopper doors or gates.
- 3. Make sure that the container door safety chain is secured in the keyhole on the latch side of the container floor.
- 4. If the unit is a Streamline model (SL), disconnect any drain hose(s) connected to the unit and plug all ports.
- 5. Make sure that the hoist lifting the unit is compatible with the understructure on the unit.

Note: Hold-downs should be used to secure the front and rear of the of the container under-structure to the hoist.

At the landfill:

See the next page for door and latch operation instructions.

1. To prevent leakage, the door seal and mating surface should be wiped clean and inspected after the unit has been emptied. When cleaning the seal on units with the hydraulic tailgate option, inspect for damage and replace if necessary.

WARNING: Never place any part of your body between the tailgate and the container. Use a mop or similar cleaning device with a long handle to clean the seal. Close inspection of the seal should be done only after the container has been lowered to a level position and the raised tailgate has been supported with a crane, forklift, or other positive maintenance prop.

After returning from the landfill:

- 1. After setting the unit down, reconnect electrical connections (if applicable) to the compactor. Make sure they are not laying across sharp corners or any abrasive surface.
- 2. Close and secure any hopper doors or gates.
- 3. Make sure that the container door safety chain is secured in the keyhole on the latch side of the container floor.
- 4. If the unit is a Streamline model (SL), connect any drain hose(s) to the unit.

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Door/Latch Operation



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