

PRO 12 GRASS COLLECTION SYSTEM

MODEL 41721209 & 41721215 FERRIS IS 3100Z SERIES MOWER



OPERATOR'S MANUAL

ASSEMBLY • OPERATION • MAINTENANCE

MANUAL PART#: Q0406

\$10.00

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Safety

- 1. Read the operator's manual carefully and familiarize yourself with the proper use of your attachment. Do not allow anyone who is not acquainted with the Safety Instructions to use your attachment.
- Know the controls and how to stop quickly. READ THE OPERATOR'S MANUAL! 2.
- **3.** Do not allow children to operate the vehicle. Do not allow adults to operate it without proper instruction.
- 4. Be especially watchful of children and pets darting into the area while operating.
- 5. Keep your eyes and mind on your unit while mowing or operating your attachment. Don't let others distract you.
- 6. Do not attempt to operate your unit or mower when not in the driver's seat.
- 7. Always stop unit when emptying the container.
- 8. Stop unit, shut off deck attachment, set parking brake, shut off mower engine and remove spark plug wire before removing clogs, removing or replacing hose, boot, blower cone, or performing any maintenance.
- 9. Mow across the face of slopes (not steeper than 10 degrees); never up and down the face of the slope.
- **10.** It is recommended that the container be kept only half full when negotiating any slopes. Start mowing on slopes when the container is empty.
- **11.** Inspect your lawn and remove any foreign objects before mowing. Never deliberately run the mower across any foreign object.
- **12.** Wear ear protection if the noise level is offensive.
- **13.** Wear eye protection to prevent debris from damaging your eyes.

SAFETY

WARNING! NEVER operate the unit unless the discharge guard and either the deflector assembly or the vacuum collector adapter are fastened securely in place.

WARNING! Do not work around the mower deck boot or the blower area until you are certain that the mower blades and the blower impeller have stopped rotating.

WARNING! To avoid serious injury, perform maintenance on the vacuum collector; **ONLY AFTER STOPPING THE MOWER'S ENGINE AND WAITING FOR ALL MOVING PARTS TO COME TO A COMPLETE STOP.** Set the parking brake. Always remove the ignition key before beginning maintenance.

WARNING! For your own personal safety, **ALWAYS** mow **ACROSS** the face of slopes and **NEVER UP and DOWN** the face. **NEVER** attempt to mow excessively steep slopes, and use caution when turning on any slope.

Safety Alert Symbol



This Safety Alert Symbol means: **"ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!"**

This symbol is used to call attention to safety precautions that Should be followed by the operator to avoid accidents. When you see this symbol, carefully read the message that follows and heed its advice. Failure to comply with safety precautions could result in death or serious bodily injury.

Safety Signs

The signal words **DANGER, WARNING,** and **CAUTION** are used on the equipment safety signs. These words are intended to alert the viewer to the existence and the degree of hazard seriousness.



This signal word indicates a potentially hazardous situation which, if not avoided, will result in death or serious injury.

White letters on **RED**



Black letters on **ORANGE**



Black letters on YELLOW

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

It may also be used to alert against unsafe practices.

This signal word indicates a potentially hazardous situation exist which, if not avoided, will result in minor or moderate injury.

It may also be used to alert against unsafe practices.

PECO LIMITED WARRANTY FOR NEW PRODUCTS

A. WHAT IS UNDER WARRANTY?

PECO extends the following warranties to the original purchaser of each new PECO consumer product subject to the following limitations.

- 1. PRODUCT WARRANTY: Any part of any consumer product, which is defective in material or workmanship as delivered to the purchaser will be repaired or replaced, as PECO elects, without charge for parts or labor, if the defect appears within 12 months (On most products, see owners manual for specifics) from the date of delivery of the product to the original purchaser. ALL DEFECTIVE PARTS MUST BE RETURNED TO PECO FOR INSPECTION TO DETERMINE VALIDITY OF WARRANTY CLAIMS. Freight and mailing will be borne by the customer.
- 2. PARTS REPLACED DURING WARRANTY: Any new PECO part which is furnished in performance of this warranty and is defective in material or workmanship as delivered to the purchaser will be repaired or replaced, as PECO elects, without charge if the defect appears within 90 days from the date of installation of such part or before the expiration of the original warranty period, whichever is later.

B. SECURING WARRANTY ADJUSTMENTS.

Call PECO for Return Authorization. Damaged or broken parts other than engines or batteries, must be returned to New PECO Inc., 100 Airport Road, Arden, NC 28704 before any warranty adjustment can be authorized. At the time of requesting warranty adjustment, the purchaser must present evidence of the date of delivery of the product. The purchaser shall pay any charge for the product to and from Arden, NC.

C. ITEMS NOT COVERED BY PECO WARRANTY.

Engines and batteries attached to PECO products are covered under a separate warranty by the respective manufacturer.

D. UNAPPROVED ALTERATION OR MODIFICATION.

All obligations of New PECO, Inc. under this warranty shall be terminated if products are altered or modified in ways not approved by New PECO Inc.

E. ACCIDENTS AND NORMAL MAINTENANCE.

The warranty covers only defective material and workmanship. It does not cover depreciation or damage caused by normal wear, accident, improper use or abuse of products. The cost of normal maintenance and normal replacement of service items such as belts, cutting blades, hoses, etc., which are not defective shall be paid for by the purchaser.

F. NO REPRESENTATIONS ADDITIONAL WARRANTIES, DISCLAIMER.

Neither New PECO Inc. nor any company affiliated with it makes any warranties, representations or promises as to the quality of performance of its products other than those set forth herein. Except as described above, New PECO Inc. makes no other warranties **AND SPECIFICALLY DISCLAIMS ANY AND ALL IMPLIED WARRANTIES OF FITNESS AND MERCHANTABILITY.**

G. ANY MACHINE USED FOR RENTAL PURPOSES ARE GUARANTEED FOR 45 DAYS FROM DATE OF ORIGINAL SALE ONLY.

H. REMEDIED EXCLUSIVE.

The only remedies the purchaser has in connection with the breach or performance of any warranty on New PECO Inc. consumer products are set forth above. In no event will PECO be liable for special incidental or consequential damages.

1. NO SERVICE CENTER WARRANTY.

The selling Service Center makes no warranty on his own on any item warranted by New PECO Inc. unless he delivers to purchaser a separate written warranty certificate specifically warranting the item. The dealer has no authority to make any representation or promise on behalf of PECO or to modify the terms of this warranty in any way.

SECTION I INTRODUCTION AND DESCRIPTION

1-1 Introduction

We are pleased to have you as a PECO customer. Your collection system has been designed to give you a low maintenance, simple and effective way to collect the grass clippings from your mower. This manual is provided to give you the necessary instructions to properly mount and operate the collection system on your mower. Please read this manual thoroughly. Understand what each control is for and how to use it. Observe all safety decal precautions on the machine and noted throughout the manual.

Note: All references made to right, left, front, rear, top or bottom are as viewed from the normal operator's position on the mower.

1-2 Description

The collection system is designed for turf maintenance where there is a need to collect the grass clippings as the mower cuts the turf. It is also good for picking up leaves and twigs in pre-season and post-season cleanup.

The engine/blower/blade assembly, is mounted on the right side of the unit. The blower draws grass clippings from the discharge area of the cutter deck up to the aluminum container mounted over the rear portion of the frame. The operator can engage the engine/blower/blade assembly by starting the engine.

Once the container is full of clippings, the operator can easily push and raise the lift handle, releasing the container's rear door and the container will pivot towards the ground.

Section II PREPARATION FOR USE

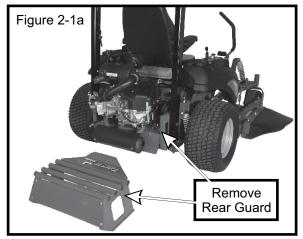
2-1 Preparation Of Mower

Carefully dismantle wooden shipping crate from around the components. Cut retaining straps and separate the parts. The collection system will have various parts located inside. Remove and sort all parts for easy identification.

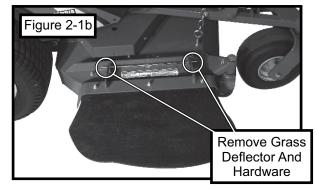
Note: Before each step of assembly it will help to study the exploded drawings on pages 11 thru 14.

Remove the rear guard from the mower. Remove the grass deflector and mounting hardware from the mower deck as shown in Figure 2-1a and 2-1b.

Rear Guard Removal

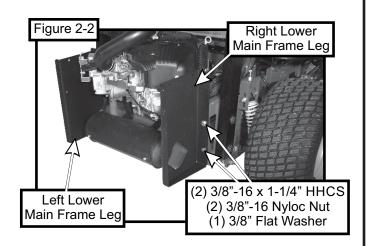


Grass Deflector Removal



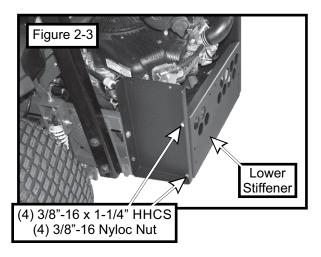
2-2 Lower Main Frame Leg Installation

Attach the left lower main frame leg P#(B0609) and the right lower main frame leg P#(B0610) to the rear frame of the mower using (2) 3/8"-16 x 1-1/4" HHCS P#(K1192), (1) 3/8" flat washer P#(K0047), and (2) 3/8"-16 nyloc nuts P#(K1216) PER LEG. Refer to Figure 2-2.



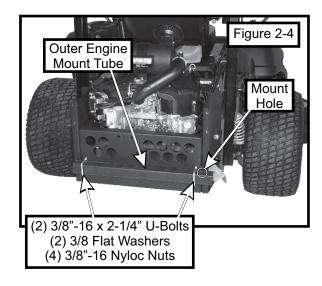
2-3 Lower Stiffener Installation

Attach the lower stiffener P#(B0611) to the left and right lower main frame legs, using (4) 3/8"-16 x 1-1/4" HHCS P#(K1192) and (4) 3/8"-16 nyloc nuts P#(K1216). Refer to Figure 2-3.



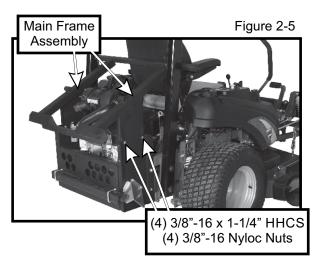
2-4 Outer Engine Mount Tube Installation

Fasten the outer engine mount tube P#(B1117) to the lower stiffener using (2) 3/8"-16 x 2-1/4" u-bolts P#(K1119), (2) 3/8" flat washers P#(K0047), and (4) 3/8"-16 nyloc nuts P#(K1216). Use the flat washers on the slotted mounting holes located on the lower stiffener. Position the engine mount arm assembly mount hole to the right side of the mower. Refer to Figure 2-4.



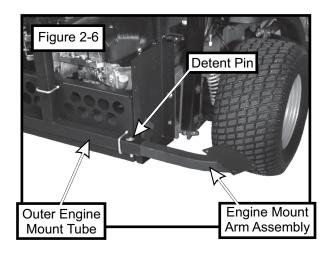
2-5 Main Frame Assembly Installation

Attach the main frame assembly P#(A1052) to the left and right lower main frame legs using (4) 3/8"-16 x 1-1/4" HHCS P#(K1192) and (4) 3/8"-16 nyloc nuts P#(K1216). Refer to Figure 2-5.



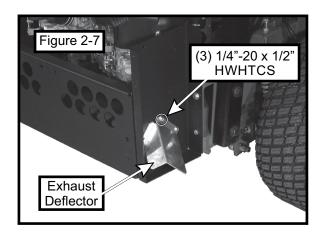
2-6 Engine Mount Arm Assembly Installation

Insert the engine mount arm assembly P#(A0138) into the outer engine mount tube P#(B3727), and fasten using (1) detent pin P#(J0248). Refer to Figure 2-6.



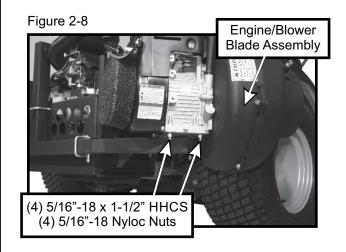
2-7 Exhaust Deflector Installation

Fasten the exhaust deflector P#(C0062) to the right lower main frame leg using (3) 1/4"-20 x $\frac{1}{2}$ " HWHTCS P#(K0353). Refer to Figure 2-7.



2-8 Engine/Blower/Blade Assembly Installation

Position the engine/blower/blade assembly on top of the engine mount arm assembly and secure using (4) 5/16"-18 x 1-1/2" HHCS P#(K1157) and (4) 5/16"-18 nyloc nuts P#(K1180). Refer to Figure 2-8.



2-9 Lift Handle Installation

The various parts of the handle assembly P#(A0574) must be attached to the container frame. PAGE 11 shows the orientation and location of the components. Slide the lift handle into the slot in the handle mount bracket P#(B1730) on the grass container. It may be necessary to remove the handle grip P#(J0522) to allow the handle to fit through the slot.

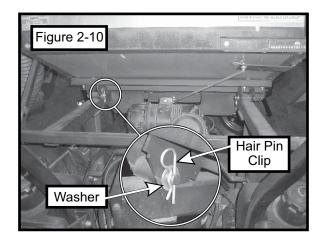
Before attaching the handle, hook one end of the spring P#(J0176) into the hole on the underside of the handle. Hook the other end of the spring into the open hole in the handle mount bracket. Fasten the handle to the grass container frame by using (1) 3/8"-16 x 2" HHCS P#(K1208) and (2) 3/8"-16 flange nuts P#(K1215). At this point the handle can pivot back and forth in the slot of the handle mount bracket. With the handle in place, fasten the ball joint P#(K1442) to the end of the latch rod P#(A0260) (PAGE 8). Tighten to approximately half way down the threads of the latch rod. Slide the ball joint into the hole on the latch hook P#(B1529). Use (1) 5/16"-24 hex nut P#(K1444) and (1) 5/16" lock washer P#(K0043) to fasten the ball joint to the latch hook. Attach the opposite end of the latch rod into the handle. Fasten the rod to the handle by using (1) 3/32" x 3/4" cotter pin P#(K0094). Adjust the rod to allow the hook to close the box door completely.

Refer to page 11 for exploded parts drawings and photographs of the complete assembly.

2-10 Aluminum Grass Container Installation

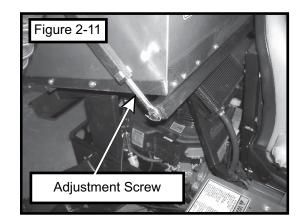
NOTE: It is recommended that (3) people assist in mounting the container.

With three people available, two can lower the container onto the frame while the third person inserts the pivot pins P#(K0172) through the holes. Insert the pins from the outside to the inside. Secure with (1) 5/8" washer P#(K0058) and (1) 5/32" x 2-5/8" hair pin clip P#(K0088) per pivot pin. Refer to Figure 2-10. Reattach the bottom ends of the door opening linkages to the main frame by using (1) Rue-Ring cotter pin P#(K1437) per side. To test the functionality of the dump mechanism, pull the lift handle away from the unit, and lift upward (Page 11). The door of the container should open and the box should pivot clockwise towards the ground.



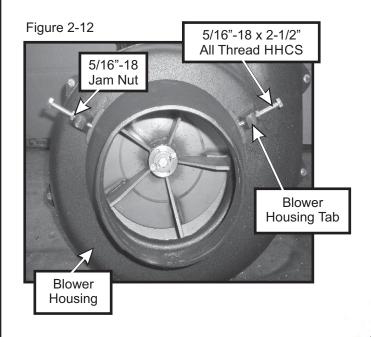
2-11 Dump Mechanism Adjustment

The linkage may be adjusted in two places, at the adjusting screw P#(K1435) and the latch assembly items. See page 11 for visual clarification. To change the door closure tightness, screw the adjusting screw (Figure 2-11) in or out. To adjust the latch, change the length of the latch rod by screwing the latch adjusting ball joint in or out. The latch hook pivot should be in the middle of the slot in the latch hook pivot plate. Slide the pivot back or forth and then re-tighten.



2-12 Blower Cone Installation

Thread (1) 5/16"-18 jam nut P#(K0120) onto each end of (2) 5/16"-18 x 2-1/2" HHCS P#(K0125). Now partially thread the bolts into each of the two tabs located on the blower housing. Place blower cone so the two tabs line up with the bolts then tighten completely. See Figure 2-12.



2-13 Impeller Blade Removal/Replacement

To Remove: First remove the 3/8"-16 x 1-1/2" HHCS P#(K1211) (#1), taper lock bushing washer P#(K0278) (#3) and spacer bushing P#(S3242) (#4) from the taper-lock bushing (#5). See Figure 2-13. Next remove the (2) 1/4"-20 x 1" HHCS (#2) and place them into the threaded holes of the taper-lock bushing P#(S4302) (#5). Gradually thread each bolt evenly into the taper-lock bushing, forcing the blade to break-away from the taper-lock bushing. If the impeller will not move, carefully hit the base of the impeller, between each vein, with a hammer, then try again.

<u>To Replace</u>: Place impeller blade over the engine shaft. Slide the taper-lock bushing (#5) on to the engine shaft and into the impeller blade, aligning the **non-threaded** holes of the taper-lock bushing to the threaded holes of the impeller blade. Fasten by using (2) 1/4"-20 x 1" HHCS (#2), (1) spacer bushing (#4) (1) taper lock bushing washer (#3), and (1) 3/8"-16 x 1-1/2" HHCS (#1). Torque to the proper specifications in the torque chart on the back of this manual. Next, rotate the impeller blade to ensure that the blade is clear of contact on all sides of the blower housing.

Figure 2-13

2-14 Throttle Cable Installation

To install the throttle cable kit P#(A0060 for 5.5HP) or P#(A0294 for 6.0 HP) to the box assembly, align the large end of the slot in the throttle base plate (Figure 2-14a) with the rivets located on the front of the box assembly frame (Figure 2-14b). Place the throttle base plate over the rivets, Slide the throttle cable kit to the right, moving the smaller end of the slot over the rivets. When positioned correctly, the throttle spring plate will snap into place (Figure 2-14c).

To remove the throttle cable kit, lift the throttle spring plate and slide the throttle kit to the left.

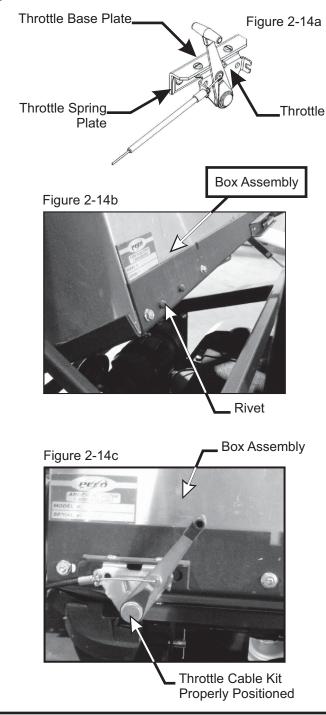
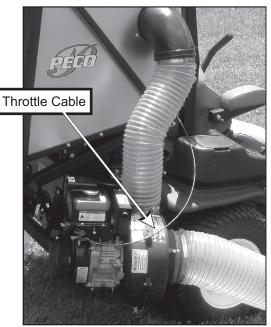
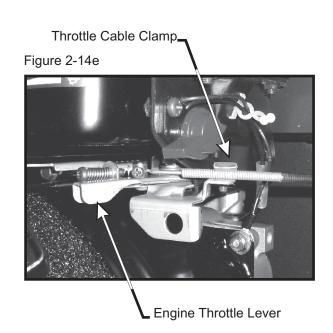


Figure 2-14d



To fasten the throttle cable end to the engine, place the throttle control lever into the "stop" position. Rotate the engine throttle lever to the "stop" position. Thread the wire end of the throttle cable into the engine throttle lever eyelet and tighten the screw. Fasten the throttle cable sleeve to the clamp on the engine throttle. Rotate the throttle control lever into the "fast" position to check for proper installation.

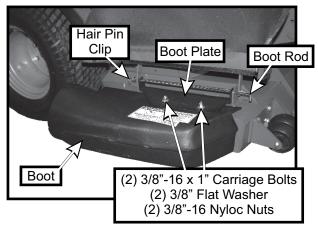
Note: Cable sleeve may need to be cut depending on the engine type. Once throttle cable is attached, pull the box handle to dump the box and be sure the cable does not alter the movement of the box.



2-15 Boot To Mower Deck Installation

Fasten the boot plate P#(B0612) to the boot P#(E2502) using (2) 3/8"-16 x 1" carriage bolts P#(K1182), (2) 3/8" flat washers P#(K0047), and (2) 3/8"-16 nyloc nuts P#(K1216). Insert the bolts from the inside of the boot to prevent grass clippings from collecting on the threads. Align the holes in the boot plate with the grass deflector mounting holes and secure the boot plate to the mower deck using (1) boot rod P#(B0348) and (1) hair pin clip P#(K0099). Refer to Figure 2-15.

Figure 2-15

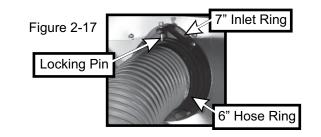


2-16 Length Of Hose Adjustment

The hoses in steps 2-17 and 2-18 must be cut to fit your mower. Follow steps 2-17 and 2-18, however, do not cut the hoses until you have tried to fit them on your mower. Remember that the hoses have to be long enough to allow for enough clamping surface between the inlet, blower assembly, and boot.

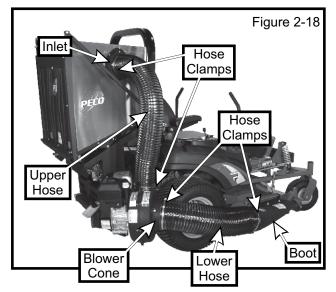
2-17 Upper Hose Installation

Slide (1) upper hose clamp P#(J0060) onto both ends of the 6" upper hose. Then slide one end of the 6" hose onto the 6" hose ring P#(E0007). Make sure there is about a two-inch overlap between the hose end and the hose ring. Lift the locking pin on the 7" inlet ring P#(V1152) and insert the hose ring. Secure the hose ring with the locking pin. Proceed to slide the opposite end of the 6" hose onto the outlet of the blower assembly and tighten hose clamp. See Figure 2-17 and 2-18 for details. Make sure both ends of the hose are clearly attached to the inlet and the blower assembly outlet. Tighten the hose clamps.



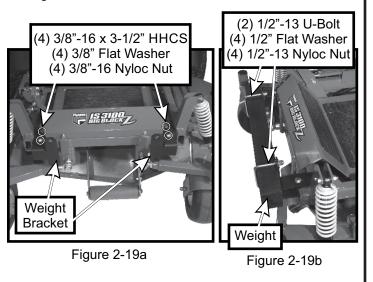
2-18 Lower Hose Installation

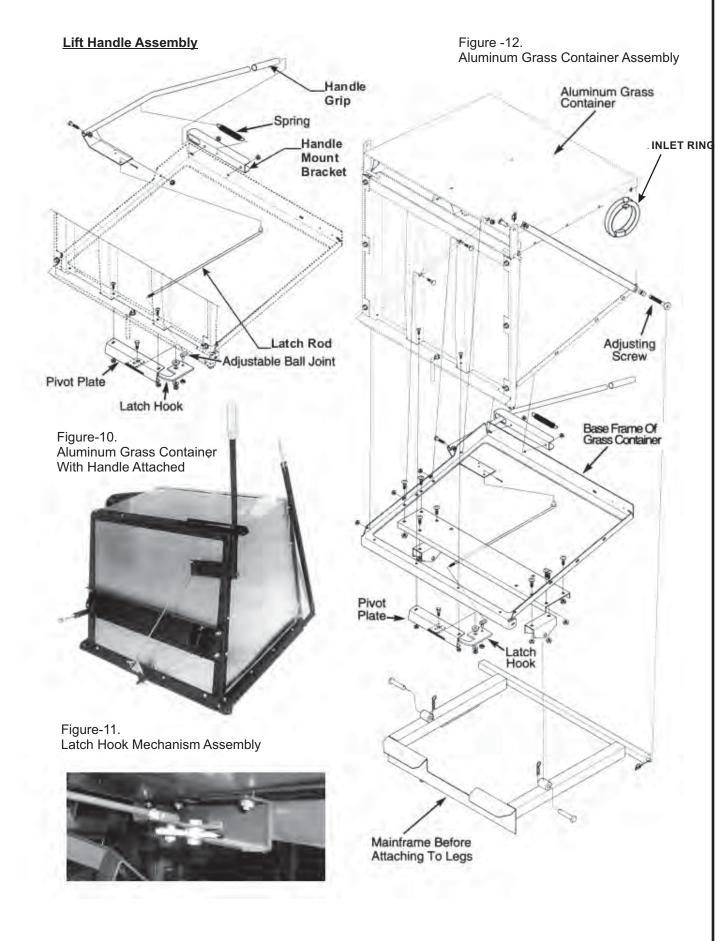
Slide a lower hose clamp P#(J0080) onto both ends of the 8" lower hose. Slide one end of the lower hose onto the blower cone, with 2" of the hose overlapping the cone, and tighten the clamp. Slide the other end of the lower hose over the boot, with 2" of the hose overlapping the boot, and tighten the clamp. Refer to Figure 2-18 for reference.

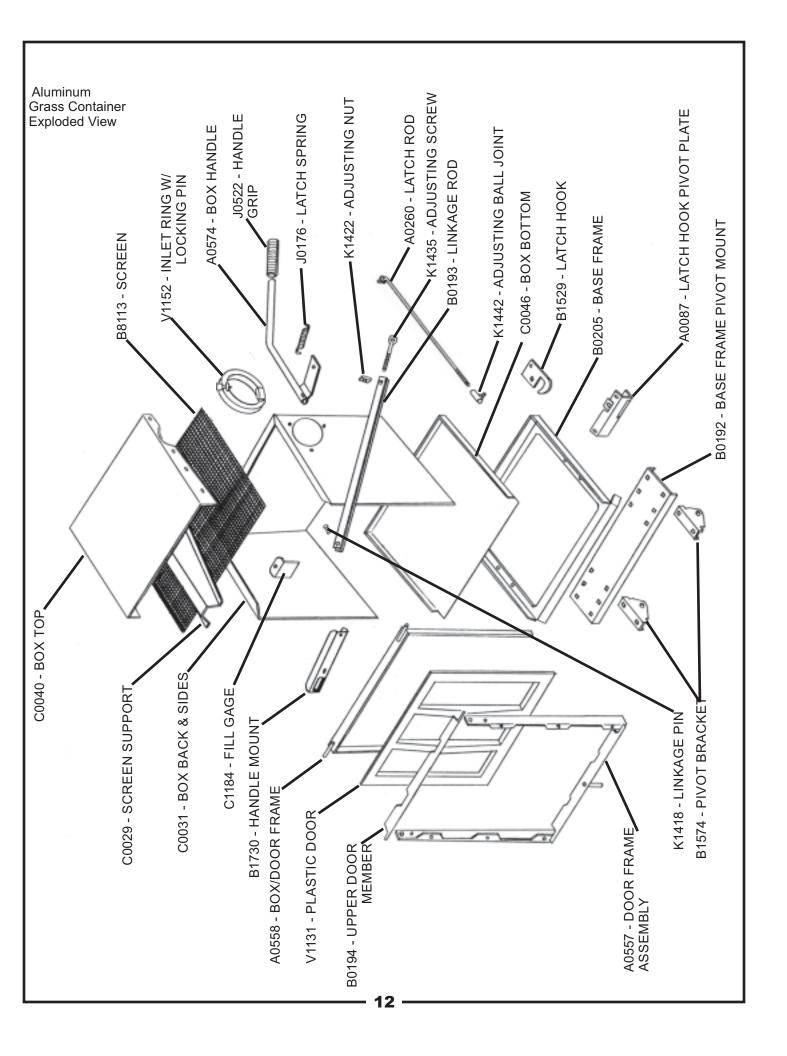


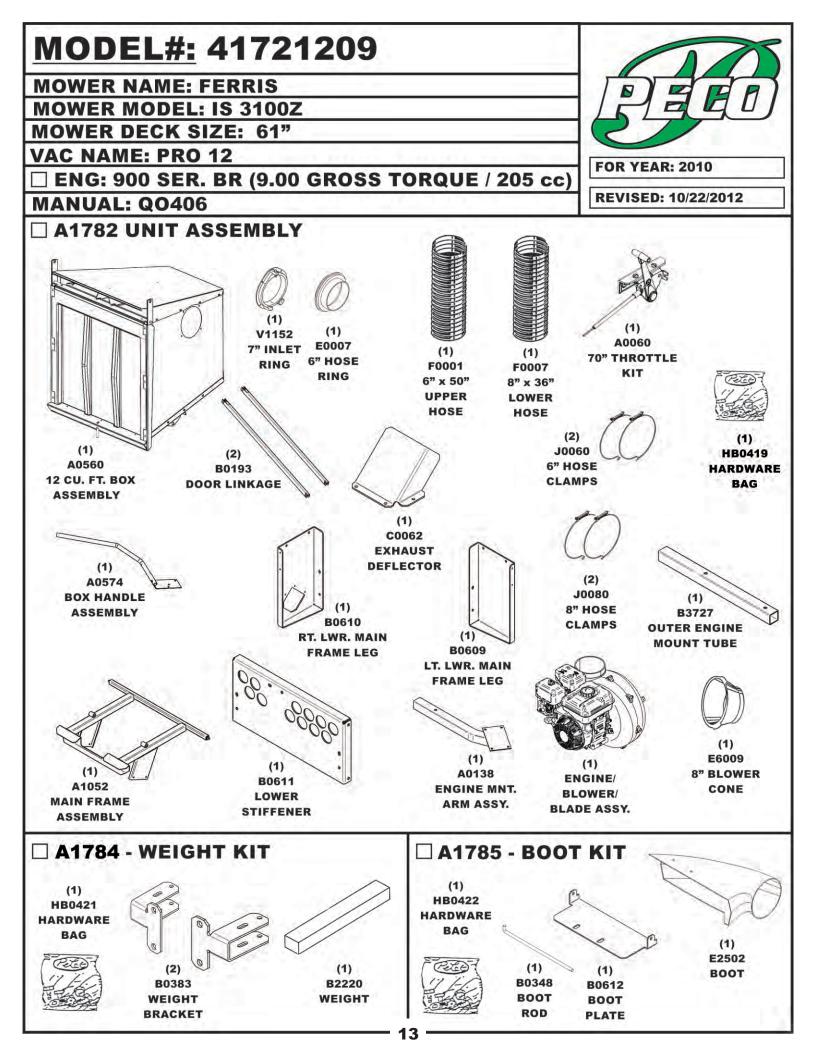
2-19 Weight Kit Installation

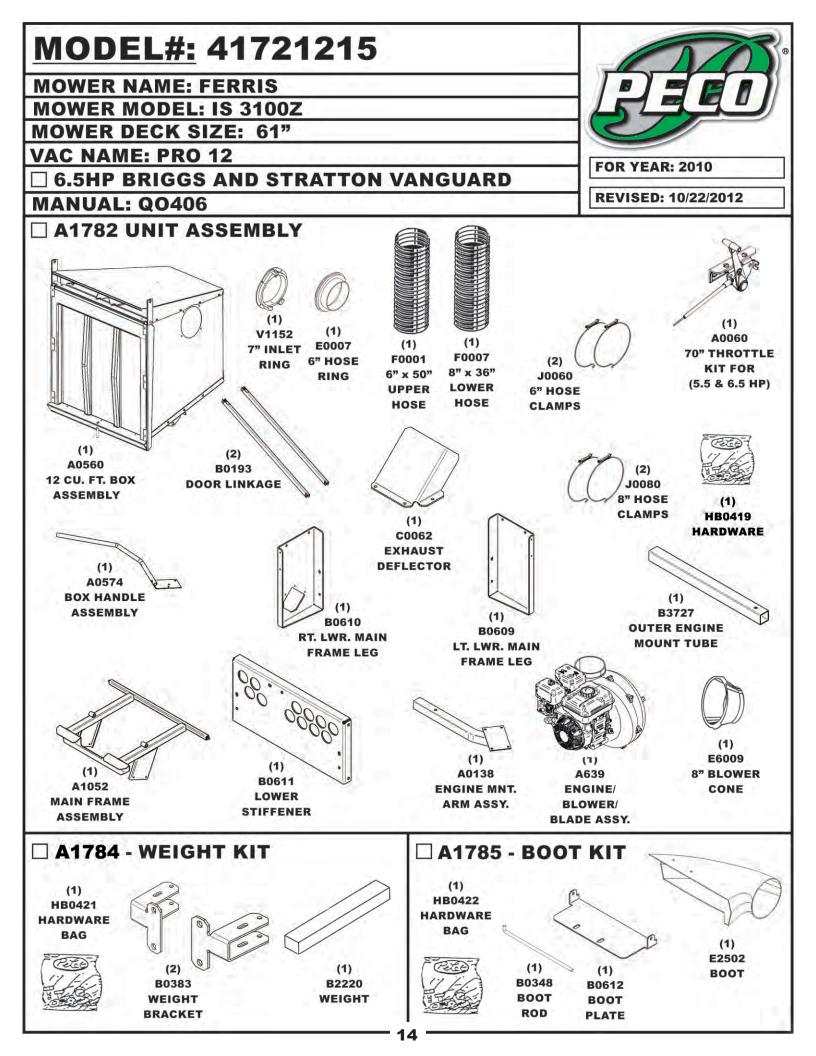
Fasten the (2) weight brackets P#(B0383) to the mower frame, using (4) 3/8"-16 x 3-1/2" HHCS P#(K1200), (4) 3/8" flat washer P#(K0047), and (4) 3/8"-16 nyloc nuts P#(K1216). Use the flat washers on the slotted mount holes in the weight bracket. After the weight brackets are securely fastened to the mower frame, lift the weight P#(B2220) into position, and secure the weight using (2) 1/2"-13 x 4-5/16" u-bolts P#(K0331), (4) 1/2" flat washers P#(K0055), and (4) 1/2"-13 nyloc nuts P#(K1247). Refer to Figures 2-19a and 2-19b.











SECTION III OPERATING INSTRUCTIONS

3-1 General Safety

Only qualified people familiar with this operator's manual and the mower's operator's manual should operate this machine.

3-2 Operation & Tips On Mowing

- A. Perform BEFORE EACH USE maintenance list in paragraph 4-1.
- B. Start the engine/blower/blade assembly.
- B. Start mower.
- C. With the mower at high idle speed, engage the mower deck.
- D. Proceed to operate the control levers of the mower.

Note: If the collection system does not appear to be collecting the grass clippings; disengage the deck, and blower, engage the parking brake and turn the mower off. Check the upper hose, lower hose, top screen and boot for clogs.

To obtain the maximum effectiveness from your collection system the tips listed below should be followed:

- * Watch your speed- Normal conditions will allow a speed of up to approximately 5 mph, but thick, heavy damp conditions will require reduced ground speed.
- * Mow with sharp blades- A sharp blade cuts cleaner.
- * Wet grass and leaves will decrease effectiveness and will increase horsepower requirements.
- * Mow at higher cutting heights- Remove and mulch no more than 2" of grass length with each mowing.
 (Experts recommend not cutting off more than 1/3 of the grass blade length at any given time.)
- * Mow twice, at different height settings, (high, then low), if grass is extra tall.
- * Remember that horsepower requirements will vary with the mowing conditions such as type and height of turf grass, moisture content, amount of leaves, whether the terrain is flat or hilly, etc.

3-3 Unloading The Collection System

Note: Press the tab, located behind the operator's left side, downward to feel if the collection system is full. If the container is full there will be resistance when depressing the tab.

- A. Stop the forward movement of the mower.
- B. Disengage the mower deck.
- C. Using the throttle cable slow the engine down to idle.
- D. Push the dump handle, on the left of the operator, away from the unit. While holding the handle pushed away, move the handle upward. The container door will swing upward and the container will rotate downward. The container will release its contents.
- E. Once the contents of the container have fallen out, the container is ready to move back into its normal operating position. With the handle in the 'away' position, pull the handle downward until it stops. Move the handle towards the center of the mower. This motion will allow the latch to lock back into collection position.

Note: If you do not hold the handle away from the mower as you pull the handle downward, the latch will not lock and the container can unexpectedly release the contents collected.

SECTION IV MAINTENANCE

4-1 Maintenance Checklist

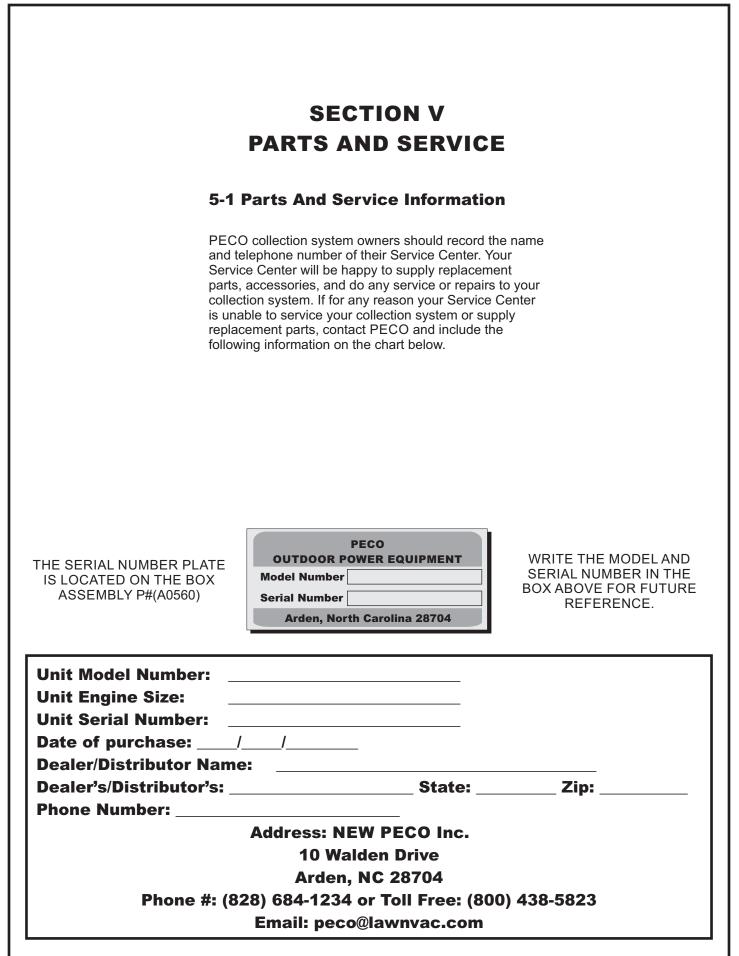
Before each use:

- Check blades and spindles to be sure that no foreign objects, such as wire or steel strapping bands, are wrapped around them.
- Inspect blades for wear. Replace if necessary. If it is necessary to sharpen the blades, remove the blades from the spindles before sharpening. DO NOT sharpen blades while still attached to the mower.
- 3. Make sure all shields are in place and in good condition. Repair or replace any missing or damaged shields.
- 4. Listen for abnormal sounds, which might indicate loose parts, damaged bearings, or other damage. Correct any deficiency before continuing operation.
- Check for wear or deterioration of the upper or lower hoses. If there are any portions of the hose that have been torn or worn through, replace with genuine PECO parts.

After Each Use:

- 1. Clean all debris from machine especially from the container, and off of safety decals. Replace any missing or illegible decals.
- 2. Clean all debris from the box screen.
- Inspect unit for worn or damaged components. Repair or replace before the next use. Any replacement component installed during repair shall include the components current safety decal specified by the manufacturers to be affixed to the component.

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SAFETY DECALS

To promote safe operation, PECO supplies safety decals on all products manufactured. Damage can occur to safety decals either through shipment, use or reconditioning. Contact your local Service Center for replacement decals.



	то	RQUE	SPECIFIC	ATIONS	i	
AME	RICAN		oque for American commended Torqu			
Bolt Hea	ld Markings	WRENCH SIZE (IN.) "A"	BOLT DIAMETER (IN.) "B" AND THREAD SIZE	SAE GRADE 2	SAE GRADE 5	SAE GRADE 8
		7/16	1/4 - 20 UNC	6 (7)	8 (11)	12 (16)
		7/16	1/4 - 28 UNF	6 (8)	10 (13)	14 (18)
		1/2	5/16 - 18 UNC	11 (15)	17 (23)	25 (33)
	SAE Grade 2	1/2	5/16 - 24 UNF	13 (17)	19 (26)	27 (37)
	(No Dashes)	9/16	3/8 - 16 UNC	20 (27)	31 (42)	44 (60)
		9/16	3/8 - 24 UNF	23 (31)	35 (47)	49 (66)
		5/8	7/16 - 14 UNC	32 (43)	49 (66)	70 (95)
		5/8	7/16 - 20 UNF	36 (49)	55 (75)	78 (106)
		3/4	1/2 - 13 UNC	49 (66)	76 (103)	106 (144)
		3/4	1/2 - 20 UNF	55 (75)	85 (115)	120 (163)
		7/8	9/16 - 12 UNC	70 (95)	109 (148)	153 (207)
	SAE Grade 5	7/8	9/16 - 18 UNF	79 (107)	122 (165)	172 (233)
	(3 Dashes)	15/16	5/8 - 11 UNC	97 (131)	150 (203)	212 (287)
		15/16	5/8 - 18 UNF	110 (149)	170 (230)	240 (325)
		1-1/8	3/4 - 10 UNC	144 (195)	266 (360)	376 (509)
	1	1-1/8	3/4 - 16 UNF	192 (260)	297 (402)	420 (569)
	Diameter "B"	1-5/16	7/8 - 9 UNC	166 (225)	430 (583)	606 (821)
	Diami	1-5/16	7/8 - 14 UNF	184 (249)	474 (642)	668 (905)
1		1-1/2	1 - 8 ŲNC	250 (339)	644 (873)	909 (1232)
		1-1/2	1 - 12 UNF	274 (371)	705 (955)	995 (1348)
Wrench Size "A"	SAE Grade 8	1-1/2	1 - 14 UNF	280 (379)	721 (977)	1019 (1381)
	(6 Dashes)	1-11/16	1-1/8 - 7 UNC	354 (480)	795 (1077)	1288(1745)
Ť		1-11/16	1-1/8 - 12 UNF	397 (538)	890 (1206)	1444 (1957)
		1-7/8	1-1/4 - 7 UNC	500 (678)	1120 (1518)	1817 (2462)
		1-7/8	1-1/4 - 12 UNF	553 (749)	1241 (1682)	2013 (2728)
		2-1/16	1-3/8 - 6 UNC	655 (887)	1470 (1992)	2382 (3228)
		2-1/16	1-3/8 - 12 UNF	746 (1011)	1672 (2266)	2712 (3675)
		2-1/4	1-1/2 - 6 UNC	870 (1179)	1950 (2642)	3161 (4283)
		2-1/4	1-1/2 - 12 UNF	979 (1327)	2194 (2973)	3557 (4820)
		Pr	oper torque for me Recommended			
METRIC	Bolt Bolt					

Diameter*b
Wrench Size "A" 8.8
Numbers appearing on bolt heads indicate ASTM class.

*Use 75% of the specified torque value for plated fasteners. Use 85% of the specified torque values for lubricated fasteners.

WRENCH SIZE (mm) "A"	BOLT DIA. (mm) "B"	ASTM 4.6	ASTM 8.8	ASTM 9.8	ASTM 10.9
8	5	1.8 (2.4)		5.1 (6.9)	6.5 (8.8)
10	6	3 (4)		8.7 (12)	11.1 (15)
13	8	7.3 (10)		21.1 (29)	27 (37)
16	10	14.5 (20)		42 (57)	53 (72)
18	12	25 (34)	74 (100)	73 (99)	93 (126)
21	14	40 (54)	118 (160)	116 (157)	148 (201)
24	16	62 (84)	167 (226)	181 (245)	230 (312)
30	20	122 (165)	325 (440)		449 (608)
33	22		443 (600)		611 (828)
36	24	211 (286)	563 (763)		778 (1054)
41	27		821 (1112)		1138 (1542)
46	30	418 (566)	1119 (1516)		1547 (2096)



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