



INSTRUCTIONS

KEEP FOR REFERENCE.

Read manual 308490 or 308552 for important warnings and instructions.

First choice when quality counts.™

Mark V and Ultra 1500

Pressure Control Retrofit Kit

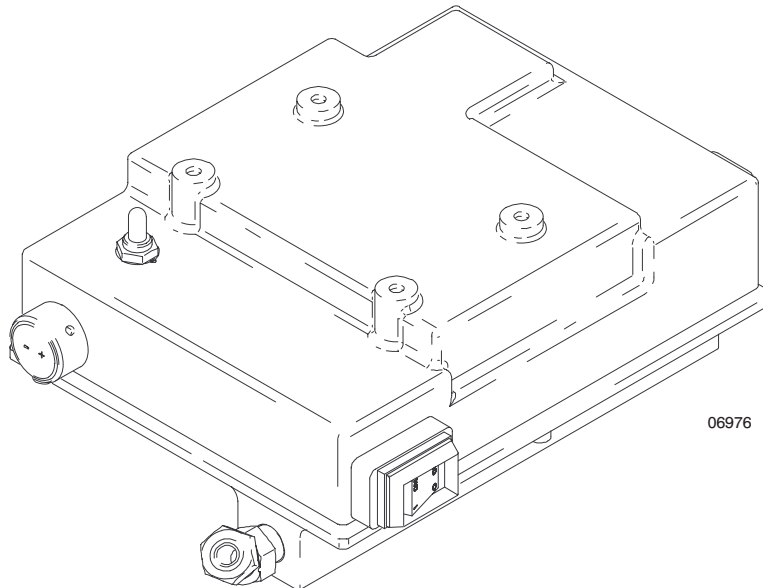
3000 psi (210 bar) Maximum Working Pressure

Model 239294

For kits ordered from Belgium distribution

Model 239667

For kits ordered from U.S. distribution



06976

Mark V Removal

NOTE: See page 11 for Ultra 1500 removal instructions.

Pressure Relief Procedure

WARNING



INJECTION HAZARD

The system pressure must be manually relieved to prevent the system from starting or spraying accidentally. Fluid under high pressure can be injected through the skin and cause serious injury. To reduce the risk of an injury from injection, splashing fluid, or moving parts, follow the **Pressure Relief Procedure** in your sprayer manual whenever you:

- are instructed to relieve the pressure,
- stop spraying,
- check or service any of the system equipment,
- or install or clean the spray tip.

1. Flush the system. See **How to Flush** in manual 308490.

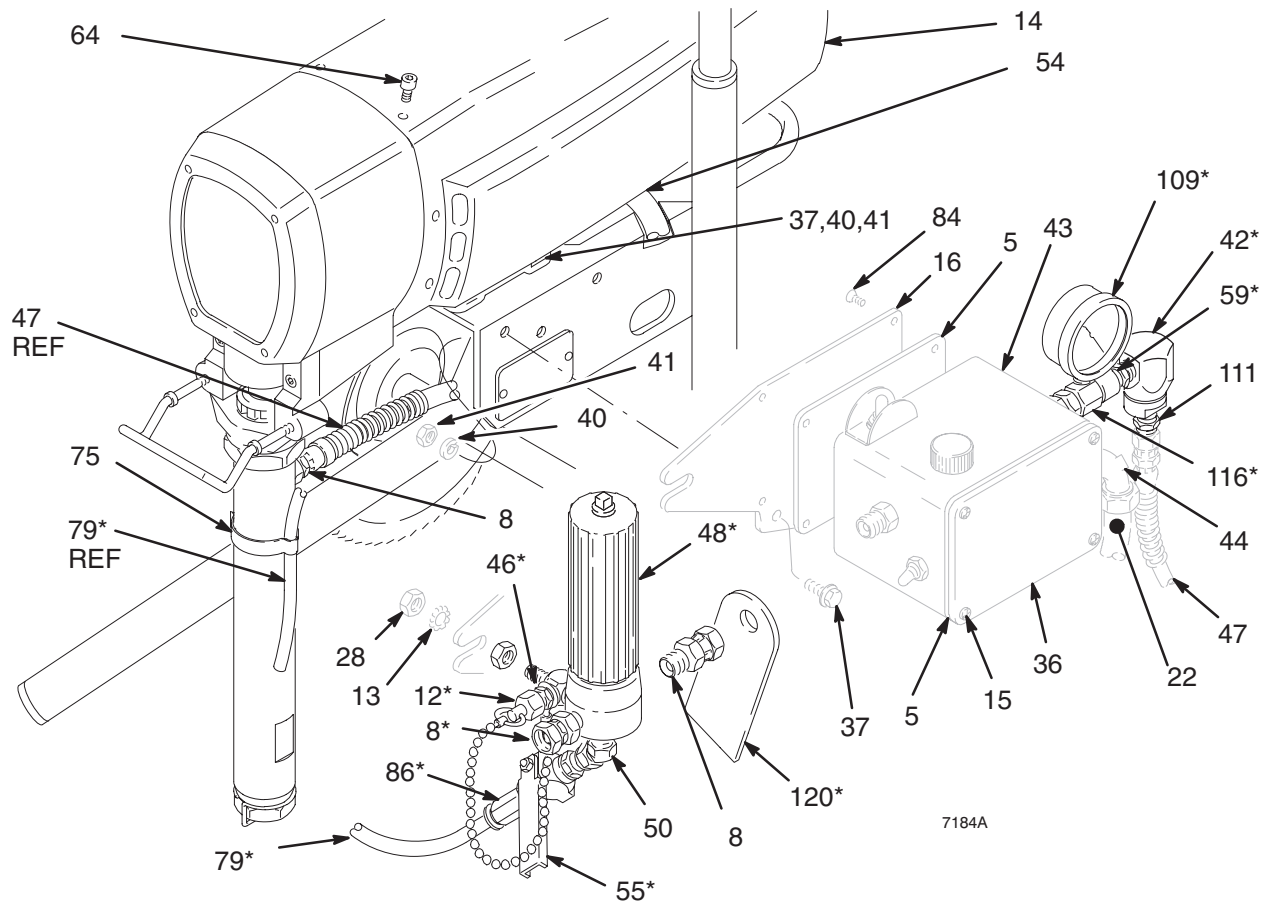
2. Relieve pressure. See **Pressure Relief Procedure** in manual 308490.

Remove Old Pressure Control Parts

NOTE: Refer to Fig. 1 for old parts (1 thru 120).

1. Remove screws (15), control cover (36), and gasket (5).
2. Disconnect the four motor leads.
3. Unfasten conduit fitting (44), and remove electrical conduit (22) and motor wires from pressure control (43). Discard fitting and conduit.
4. Remove conduit fitting (54) from motor (1).
5. Remove ten screws (64) and motor shield (14).
6. Disconnect hose (47) and discard.
7. Remove bypass tube (79) from spring clip (75).
8. Remove screws (37), washers (40), and nuts (41), and remove pressure control and filter as an assembly.
9. Disassemble and save indicated parts for re-installation of new pressure control.

Mark V Removal



Mark V Removal Parts List

Ref. No.	Part No.	Description	Qty	Ref. No.	Part No.	Description	Qty
5	187656	GASKET, pressure control	2	46*	162453	NIPPLE, 1/4 npsm x 1/4 npt, 1-3/16" long	1
8*	155665	UNION, adapter; 3/8" npsm swivel x 3/8 npt(m) (save one only)	1	47	222516	HOSE, 3/8 npsm(f) x 14-1/2"	1
12*	220285	CAP	1	48*	235724	FLUID FILTER	1
13	100322	LOCKWASHER, ext., 7/16"	1	50	110195	UNION, swivel, 45°	1
14	183204	MOTOR SHIELD	1	54	108460	FITTING, conduit	1
15	110885	SCREW, pnh; 10-24 type C x 3/8"	4	55*	237469	DRAIN VALVE	1
16	185539	BRACKET, mounting	1	59*	156849	NIPPLE, pipe	1
22	065099	CONDUIT, electrical	1	64	108865	SCREW, 8-32 x 3/8"	10
28	150513	NUT, jam; 7/16"	2	75	186490	CLIP, spring	1
36	186918	COVER, pressure control	1	79*	190339	TUBE, bypass	1
37	110963	CAPSCREW, flange head, 5/16-18 x 3/4"	7	84	106078	SCREW, flat hd; 10-24 x 3/8"	4
40	100214	LOCKWASHER, spring; 5/16"	7	86*	112790	CONNECTOR, tube	1
41	100188	NUT, heavy hex; 5/16-18 unc-2a	7	109*	102814	GAUGE, pressure	1
42*	223125	CHECK VALVE	1	111	162485	NIPPLE, adapter	1
44	102932	FITTING, conduit, 90°	1	116*	237475	CONNECTOR, adapter	1
				120*	178034	TAG, warning	1

* Save these parts for re-use.

Fig. 1

Mark V Motor Check

CAUTION

Do not install the pressure control until motor is checked. A defective motor may damage the pressure control. Make sure to test the motor prior to pressure control installation.

Motor Test

With motor shield off and four motor leads disconnected:

1. Check continuity with multimeter from each black motor lead to ground (one at a time). Any reading less than infinite resistance – even very high resistance – means motor is shorted to ground. Replace motor.

CAUTION

A motor that is shorted to ground will damage the pressure control.

2. Remove fan cover from motor.
3. Remove pump pin (See **Displacement Pump** section in manual 308490).
4. With black motor leads not connected, use motor fan to spin motor quickly. Motor should spin freely in both directions. If not, replace motor.
5. Connect black motor leads together.
6. Use motor fan to turn motor. It should be much harder to turn than in step 4. If there is uneven or no resistance to turning, check brushes and replace if necessary.
7. If there is still uneven or no resistance to turning, replace motor.
8. Install pump pin and fan cover.

Mark V Installation

Install New Pressure Control Parts

NOTE: Refer to Fig. 1 for old parts (1 thru 120), except where noted. Refer to Fig. 3 for new parts (201 thru 244), except where noted.

1. Install filter bracket (219) using screws (234) and nuts (227).
2. Fig. 5. Attach existing check valve (42) and fitting (59) assembly to rear of new pressure control (206). Attach one (209) fitting to check valve (42).

CAUTION

When attaching hardware for motor is removed, motor can be tipped off mount causing damage or injury. When working on or around motor, exercise care to prevent knocking or tipping of motor.

3. Remove four nuts (41), and lockwashers (40) from capscrews (37) attaching motor (1) to cart (6) and discard.
4. Figs. 3 and 4. Put pressure control (206) in place. Line up with four motor mount holes and attach with motor mount screws (37). Do not tighten.
5. Center motor and pressure control assembly on cart and tighten screws (37).
6. Attach fitting (221) to bottom of filter (48). Attach filter (48) to bracket (219) with screws (220).
7. Modify ball valve (55), then re-install. See Fig. 2.
8. Install hose (217) between filter housing and pressure control assembly elbow (209). Attach remaining parts to filter as shown, using new parts from kit or re-using parts as necessary.
9. Remove adapter (8) from outlet of displacement pump (39). Replace with nipple (207).
10. Attach 45° swivel union (209) to pump outlet fitting (207).
11. Fig. 5. Install hose (226) from swivel union on pump to 45° swivel union (209) at rear of pressure control assy
12. Thread motor wires through conduit fitting (231). Fasten fitting to motor.
13. Slide end of black conduit (229) over wires and secure to conduit connector on motor.
14. Loosen cover on pressure control wiring box (A) and let hang.

Mark V Installation

15. Fig. 5. Attach conduit connector (244) to pressure control wiring box. Then thread motor wires through fitting on pressure control and secure end of black conduit (229) to fitting.
16. Connect two yellow wires to two red bullets.
17. Connect two black wires to two black wires.
18. Carefully arrange wires in box and install cover.
19. Apply labels (239) to motor brush covers.
20. Fig. 4. Attach motor shield (14) with ten screws (64).
21. Install drain tube (79) into spring clip (75).
22. Fig. 5. Remove screws (204) and washers (205) from pressure control (206).
23. Plug power cord (201) into pressure control (206).
24. Attach plug retainer (202) with screws (204) and washers (205).

WARNING



FIRE AND EXPLOSION HAZARD

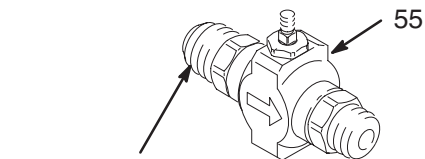
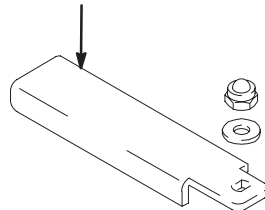
Use of the plug retainer is essential to reduce the risk of fire and explosion. Accidental disconnection of the plug can cause sparks. This can result in serious injury and property damage. Also read

FIRE OR EXPLOSION HAZARD in

manual 308490.

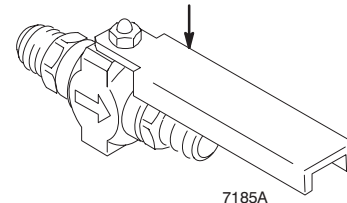
BALL VALVE MODIFICATION

1. Unfasten handle



2. Replace fitting with 190338 supplied

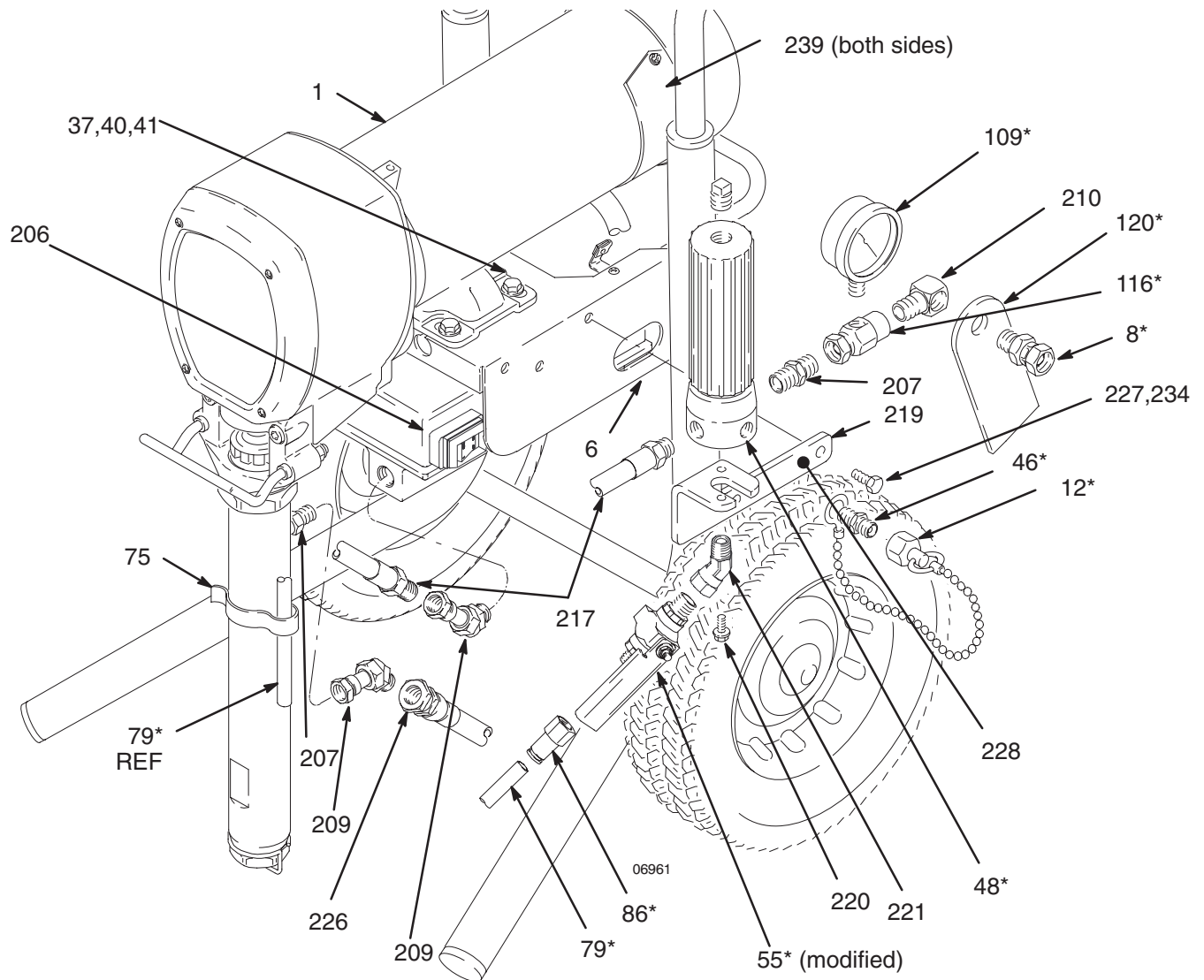
3. Reverse handle and refasten



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Fig. 2

Mark V Installation



Mark V Installation Parts List

Ref. No.	Part No.	Description	Qty	Ref. No.	Part No.	Description	Qty
201	240XXX*	CORD, power	1	209	161889	UNION, swivel, 45°	3
* Select power cord part number from list below for country in which sprayer is to be used				210	155699	ELBOW	1
	240539	CORD, power (for Continental Europe, CEE 7/7)		217	239278	HOSE, high pressure, 12 in.	1
	240540	CORD, power (for Italy)		219	192135	BRACKET	1
	240541	CORD, power (for Denmark)		220	110997	SCREW	2
	240542	CORD, power (for Switzerland)		221	114030	UNION, swivel, 45°	1
	240543	CORD, power (none-bare end)		226	239287	HOSE, high pressure, 16.5 in.	1
202	192149	PLUG, Retainer (part of 201)	1	227	111040	NUT, 5/16-18	2
204	111714	SCREW (part of 206)	2	228	183466	TAG, caution	1
205	114027	WASHER, flat, no. 6 (part of 206)	2	229	065312	CONDUIT, black, 5 in.	1
206	239429	PRESSURE CONTROL	1	231	110138	CONNECTOR, conduit	1
207	156849	NIPPLE	2	234	110963	CAPSCREW, flange head, 5/16-18 x 3/4"	2
				239	290447	LABEL, warning	2
				244	108460	CONNECTOR, conduit	1

Fig. 3

Mark V Installation

Pressure Control Retrofit Kit – Pressure Control Location

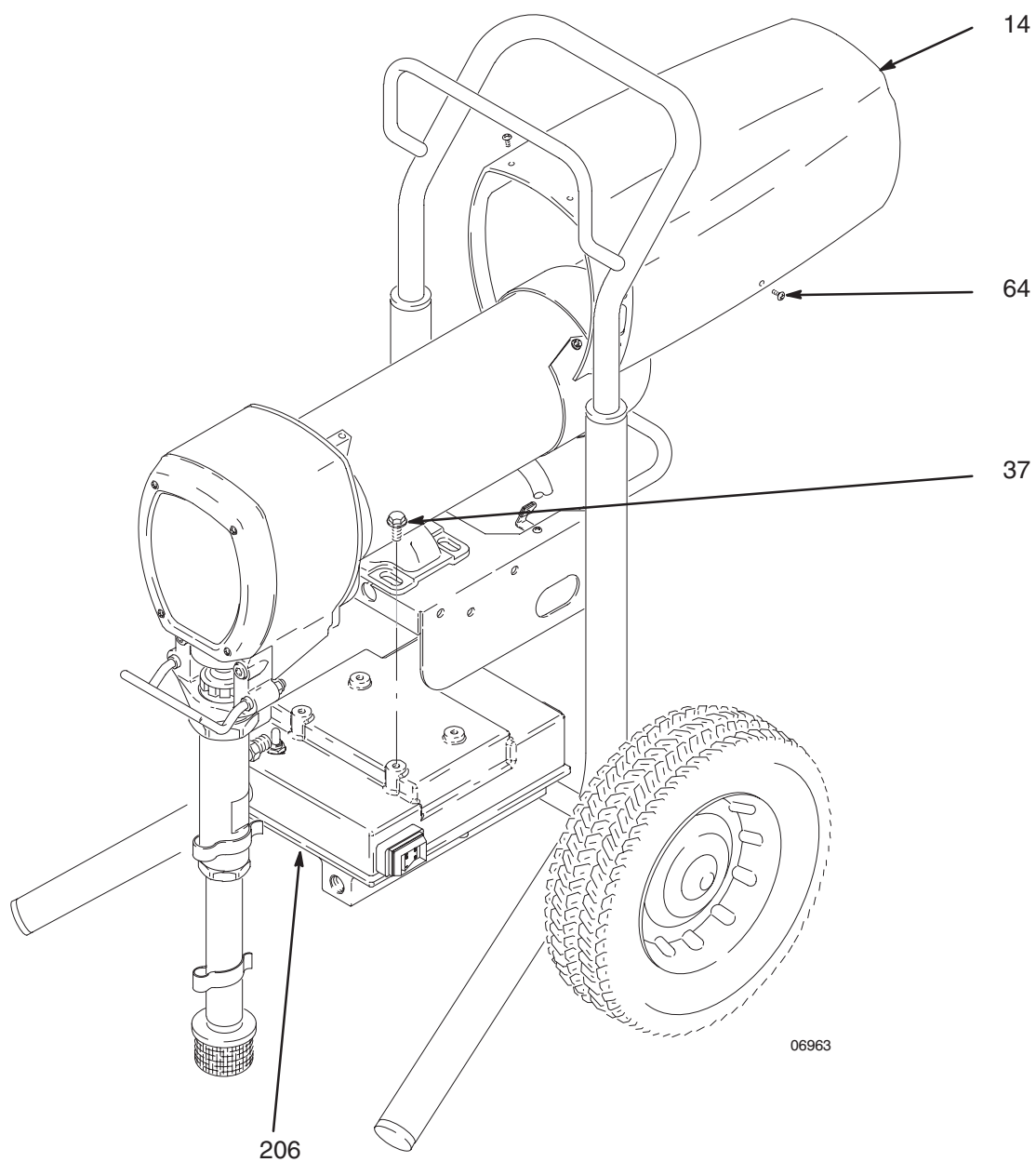
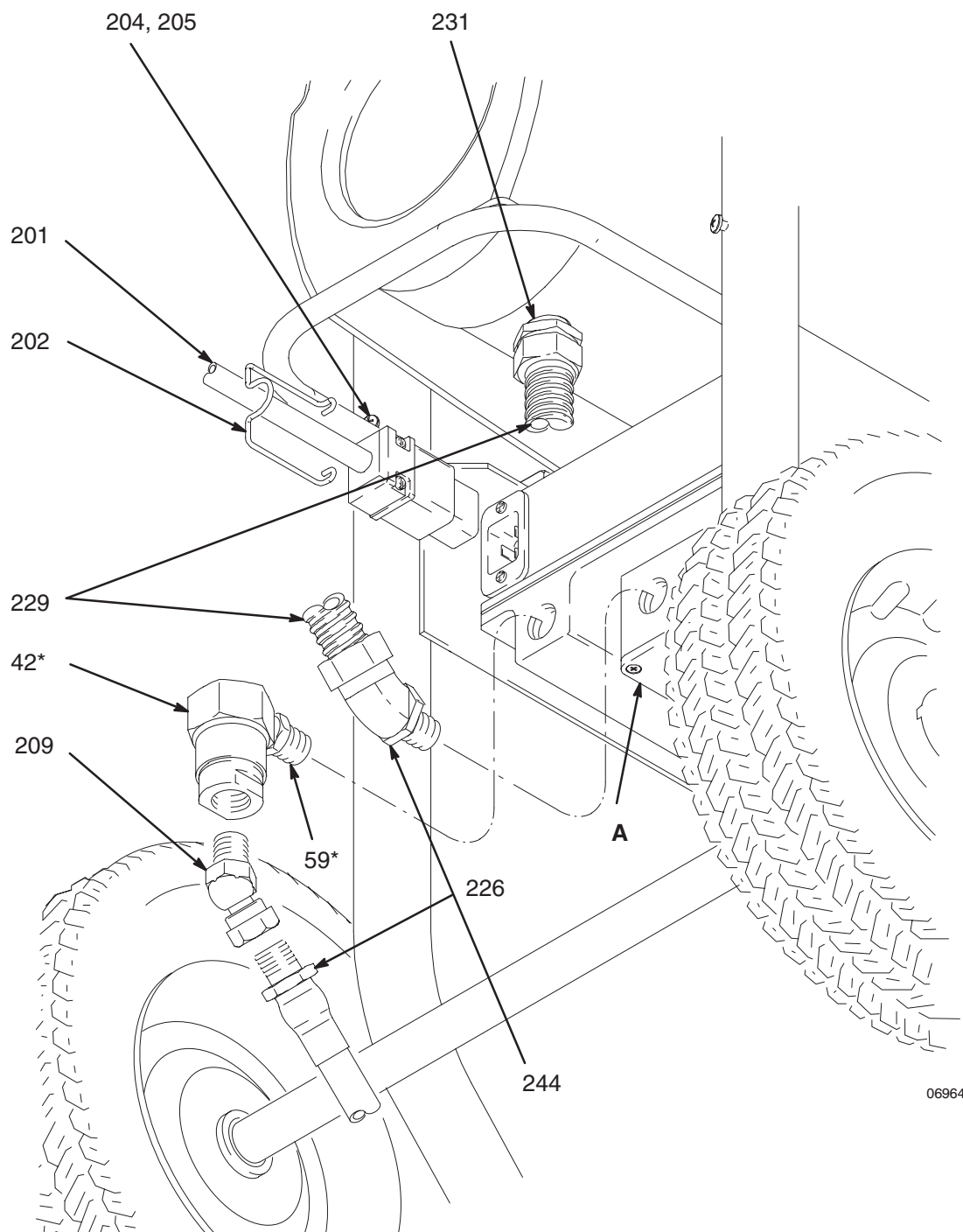


Fig. 4

Mark V Installation

Pressure Control Retrofit Kit Hook-up – Rear View



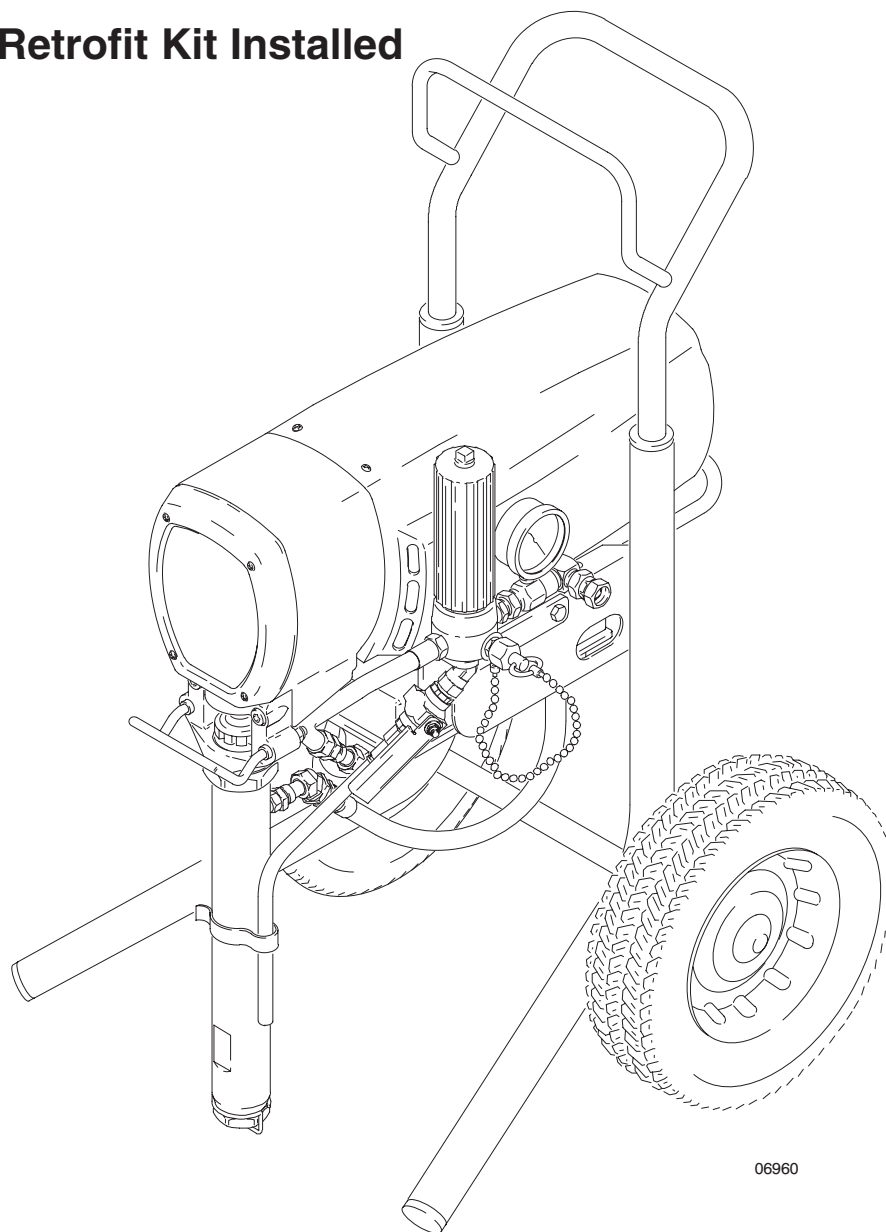
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Fig. 5

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Mark V Installation

Pressure Control Retrofit Kit Installed




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Fig. 6

Ultra 1500 Removal

Pressure Relief Procedure



WARNING

INJECTION HAZARD

The system pressure must be manually relieved to prevent the system from starting or spraying accidentally. Fluid under high pressure can be injected through the skin and cause serious injury. To reduce the risk of an injury from injection, splashing fluid, or moving parts, follow the **Pressure Relief Procedure** in your sprayer manual whenever you:

- are instructed to relieve the pressure,
- stop spraying,
- check or service any of the system equipment,
- or install or clean the spray tip.

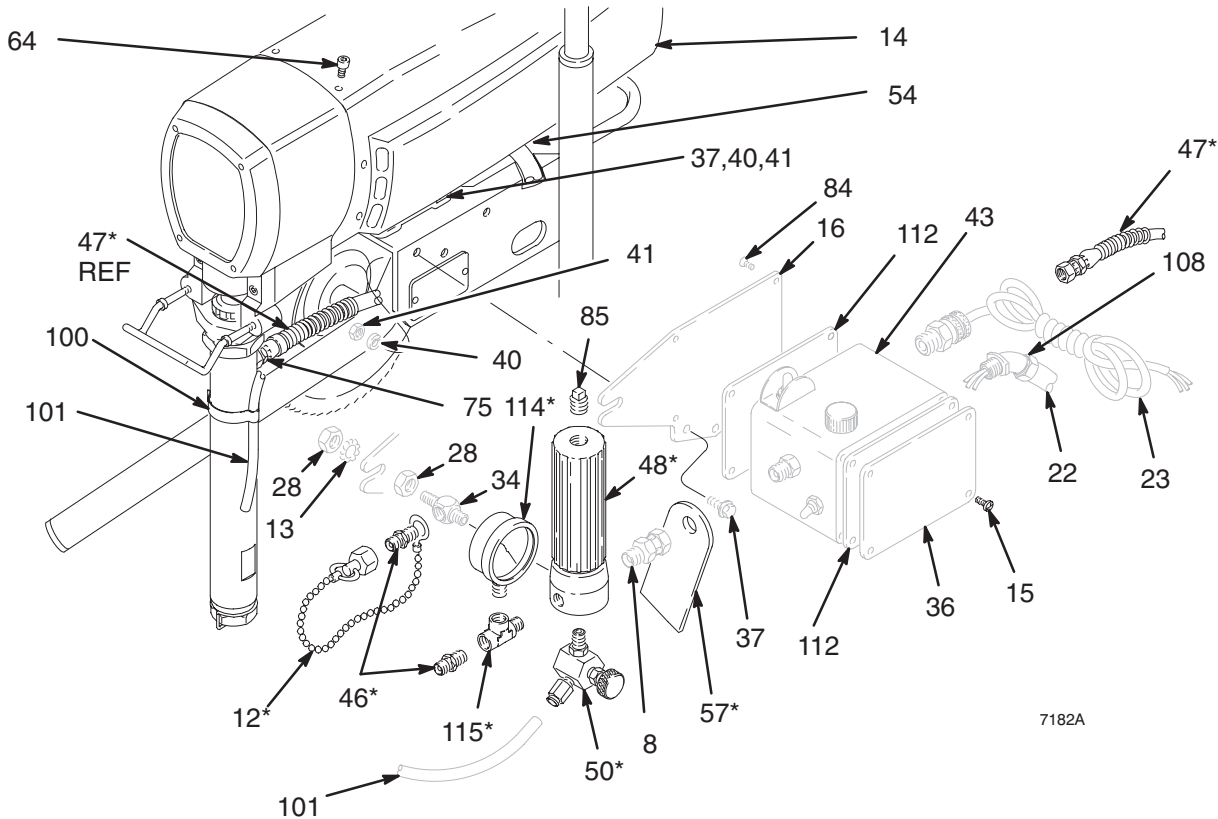
1. Flush the system. See **How to Flush** in manual 308552.
2. Relieve pressure. See **Pressure Relief Procedure** in manual 308552.

Remove Old Pressure Control Parts

NOTE: Refer to Fig. 7 for old parts (1 thru 115).

1. Remove screws (15), control cover (36), and gasket (112).
2. Disconnect the four motor leads.
3. Unfasten conduit fitting (108), and remove electrical conduit (22) and motor wires from pressure control (43). Discard fitting and conduit.
4. Remove conduit fitting (54) from motor (1).
5. Remove ten screws (64) and motor shield (14).
6. Disconnect hose (47).
7. Remove bypass tube (101) from spring clip (100) and spring clip (102).
8. Remove screws (37), washers (40), and nuts (41). Remove pressure control (43) and fluid filter (48) as an assembly
9. Disassemble pressure control and fluid filter. Save indicated parts for re-use.

Ultra 1500 Removal



Ultra 1500 Removal Parts List

Ref. No.	Part No.	Description	Qty	Ref. No.	Part No.	Description	Qty
8	155665	UNION, adapter; 3/8" npsm swivel x 3/8 npt(m)	2	47*	235542	HOSE, 3/8 npsm(f) x 14-1/2"	1
12*	220285	CAP	1	48*	214570	FLUID FILTER	1
13	100322	LOCKWASHER, ext., 7/16"	1	50*	221077	PRESSURE DRAIN VALVE	1
14	222153	MOTOR SHIELD KIT	1	54	108460	FITTING, conduit	1
15	110885	SCREW, pnh; 10-24 type C x 3/8"	4	57*	178034	TAG, WARNING	1
16	185539	BRACKET, mounting	1	64	108865	SCREW, 8-32 x3/8"	10
22	065099	CONDUIT, electrical	1	84	106078	SCREW, flat hd; 10-24 x 3/8"	4
28	150513	NUT, jam; 7/16"	2	100	186490	CLIP, spring	1
36	186918	COVER, pressure control	1	101	186495	TUBE, drain	1
37	110963	CAPSCREW, flange head, 5/16-18 x 3/4"	7	102	181102	CLIP, spring	1
40	100214	LOCKWASHER, spring; 5/16"	7	108	102932	FITTING, conduit, 90°	1
41	100188	NUT, heavy hex; 5/16-18 unc-2a	7	112	187656	GASKET, pressure control	2
46*	162453	NIPPLE, 1/4 npsm x 1/4 npt, 1-3/16" long	2	114*	102814	GAUGE, pressure	1
				115*	106228	TEE, street	1

* Save these parts for re-use.

Fig. 7

Ultra 1500 Motor Check

CAUTION

Do not install the pressure control until motor is checked. A defective motor may damage the pressure control. Make sure to test the motor prior to pressure control installation.

Motor Test

With motor shield off and four motor leads disconnected:

1. Check continuity with multimeter from each black motor lead to ground (one at a time). Any reading less than infinite resistance – even very high resistance – means motor is shorted to ground. Replace motor.

CAUTION

A motor that is shorted to ground will damage the pressure control.

2. Remove fan cover from motor.
3. Remove pump pin (See **Removing and Installing Pump** section in manual 308552).
4. With black motor leads not connected, use motor fan to spin motor quickly. Motor should spin freely in both directions. If not, replace motor.
5. Connect black motor leads together.
6. Use motor fan to turn motor. It should be much harder to turn than in step 4. If there is uneven or no resistance to turning, check brushes and replace if necessary.
7. If there is still uneven or no resistance to turning, replace motor.
8. Install pump pin and fan cover.

Ultra 1500 Installation

Install New Pressure Control Parts

NOTE: Refer to Fig. 7 for old parts (1 thru 115), except where noted. Refer to Fig. 8 for new parts (201 thru 244), except where noted.

1. Install filter bracket (219) using screws (234) and nuts (227).

CAUTION

When attaching hardware for motor is removed, motor can be tipped off mount causing damage or injury. When working on or around motor, exercise care to prevent knocking or tipping of motor.


2. Remove four nuts (41), and lockwashers (40) from capscrews (37) attaching motor (1) to cart (6) and discard.
3. Fig. 9. Put new pressure control (206) in place. Line up with four motor mount holes and attach with motor mount screws (37). Do not tighten.
4. Center motor and pressure control assembly on cart and tighten screws (37).
5. If separated, attach drain valve (50) to bottom of filter (48). Attach filter (48) to bracket (219) with screws (220). Attach remaining parts to filter as shown, using new parts from kit or re-using as necessary.
6. Install hose (217) between filter housing and pressure control assembly elbow (209).
7. Attach 45° swivel union (209) to existing pump outlet fitting (75).
8. Fig. 10. Install hose (47) and nipple (207) from swivel union on pump to rear of pressure control assy
9. Thread motor wires through conduit fitting (231). Fasten fitting to motor.
10. Slide end of black conduit (229) over wires and secure to conduit connector on motor.
11. Loosen cover on pressure control wiring box (A) and let hang.


Ultra 1500 Installation

12. Fig. 10. Attach conduit connector (244) to pressure control wiring box. Then thread motor wires through fitting on pressure control and secure end of black conduit (229) to fitting.
13. Connect two yellow wires to two red bullets.
14. Connect two black wires to two black wires.
15. Carefully arrange wires in box and install cover.
16. Apply labels (239) to motor brush covers.
17. Fig. 9. Attach motor shield (14) with ten screws (64).
18. Install drain tube (224) into spring clip (100) and spring clip (102).
19. Fig. 10. Remove screws (204) and washers (205) from pressure control (206).

20. Plug power cord (201) into pressure control (206).

21. Attach plug retainer (202) with screws (204) and washers (205).

 **WARNING**



FIRE AND EXPLOSION HAZARD

Use of the plug retainer is essential to reduce the risk of fire and explosion. Accidental disconnection of the plug can cause sparks. This can result in serious injury and property damage. Also read **FIRE OR EXPLOSION HAZARD** in manual 308552.

Ultra 1500 Installation Parts List

Ref. No.	Part No.	Description	Qty	Ref. No.	Part No.	Description	Qty
201	240XXX*	CORD, power	1	209	161889	UNION, swivel, 45°	2
* Select power cord part number from list below for country in which sprayer is to be used				217	239278	HOSE, high pressure, 12 in.	1
	240539	CORD, power (for Continental Europe, CEE 7/7)		219	192135	BRACKET	1
	240540	CORD, power (for Italy)		220	110997	SCREW	2
	240541	CORD, power (for Denmark)		224	190339	TUBE, drain	1
	240542	CORD, power (for Switzerland)		227	111040	NUT, 5/16–18	2
	240543	CORD, power (none–bare end)		228	183466	TAG, caution	1
202	192149	PLUG, Retainer (part of 201)	1	229	065312	CONDUIT, black, 5 in.	1
204	111714	SCREW (part of 206)	2	231	110138	CONNECTOR, conduit	1
205	114027	WASHER, flat, no. 6 (part of 206)	2	234	110963	CAPSCREW, flange head, 5/16–18 x 3/4"	2
206	239429	PRESSURE CONTROL	1	235	100840	ELBOW	1
207	156849	NIPPLE	1	236	156823	UNION, swivel	1
				239	290447	LABEL, danger	2
				244	108460	CONNECTOR, conduit	1

Ultra 1500 Installation

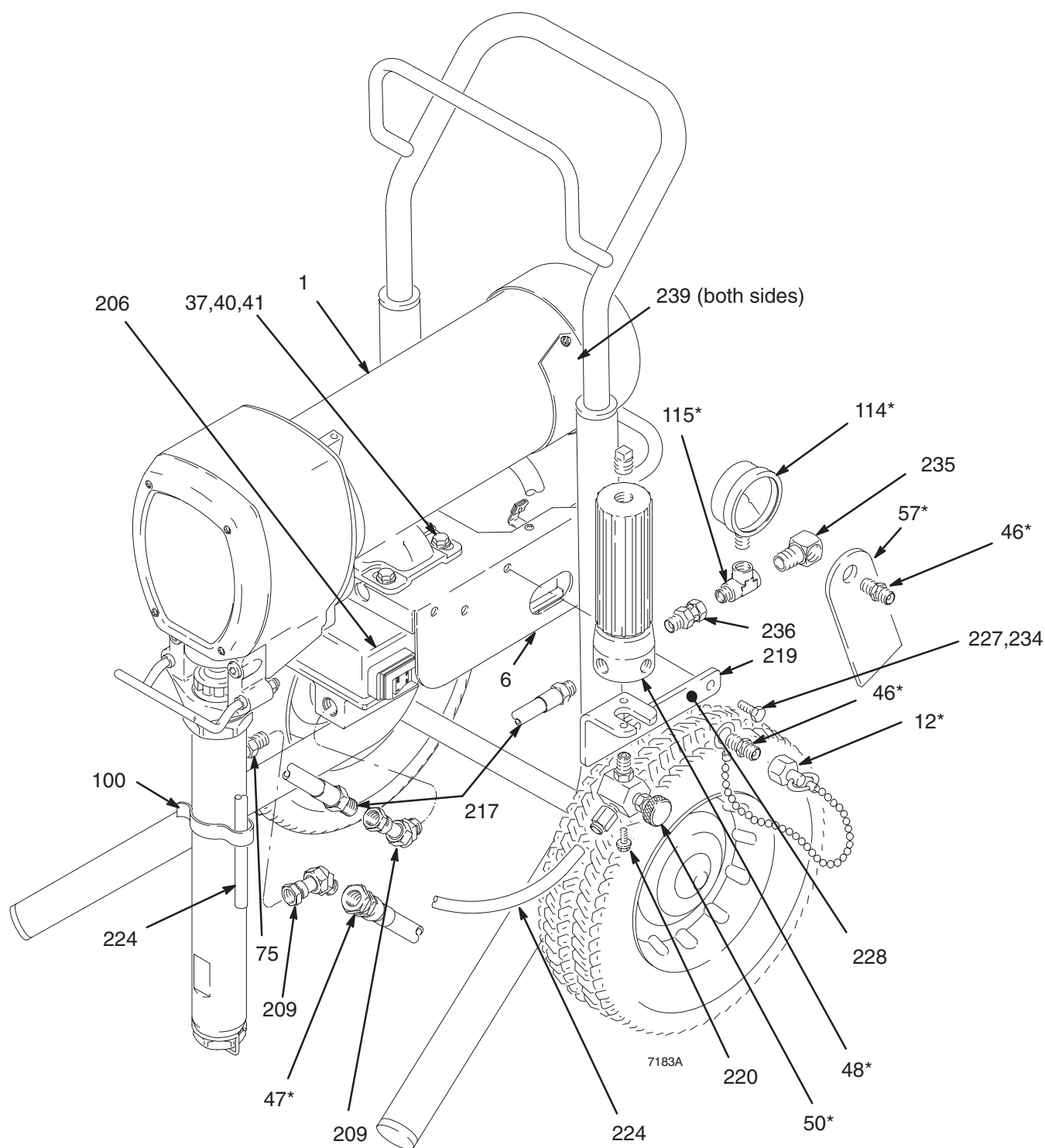


Fig. 8

Ultra 1500 Installation

Pressure Control Retrofit Kit – Pressure Control Location

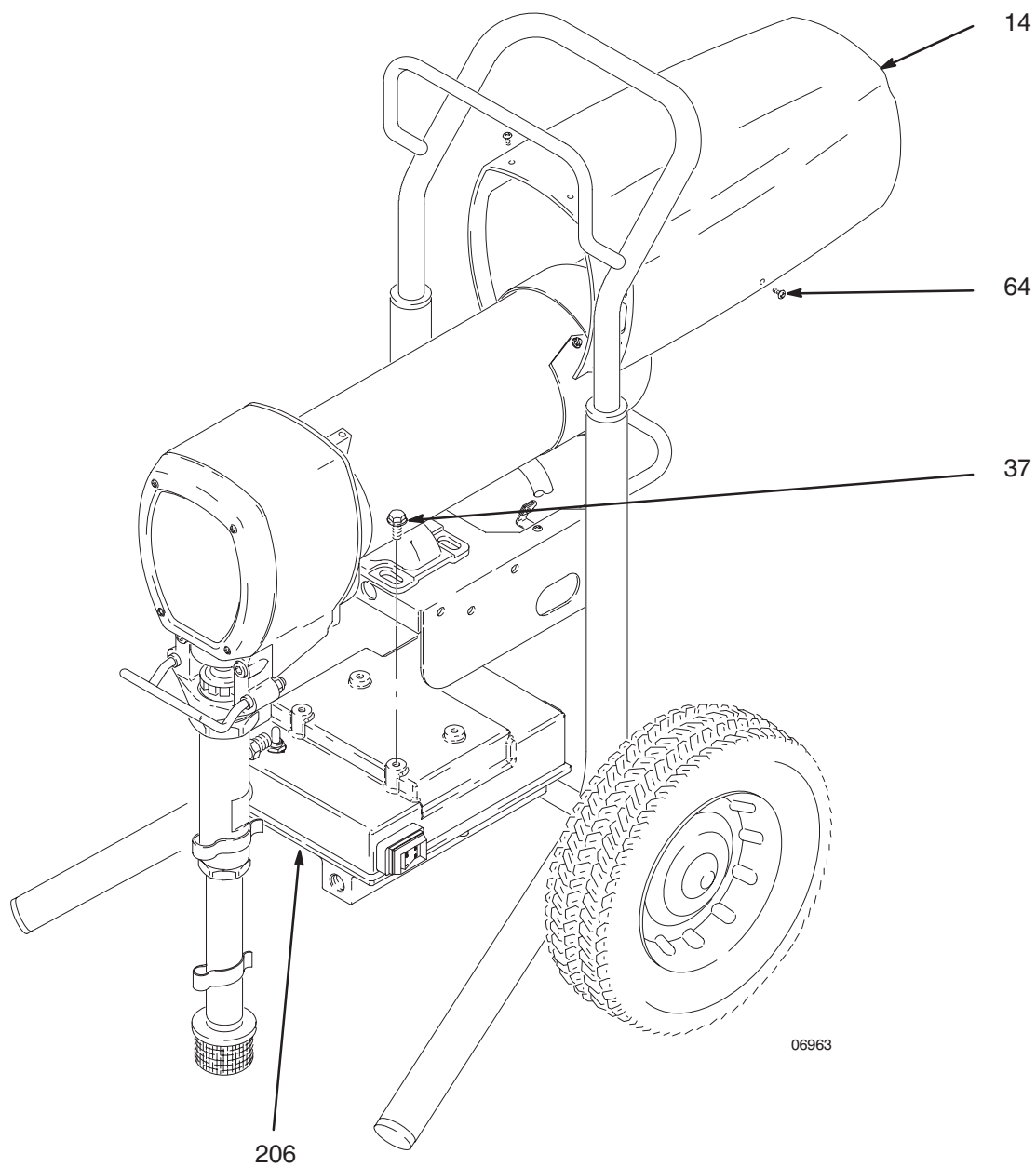


Fig. 9

Ultra 1500 Installation

Pressure Control Retrofit Kit Hook-up – Rear View

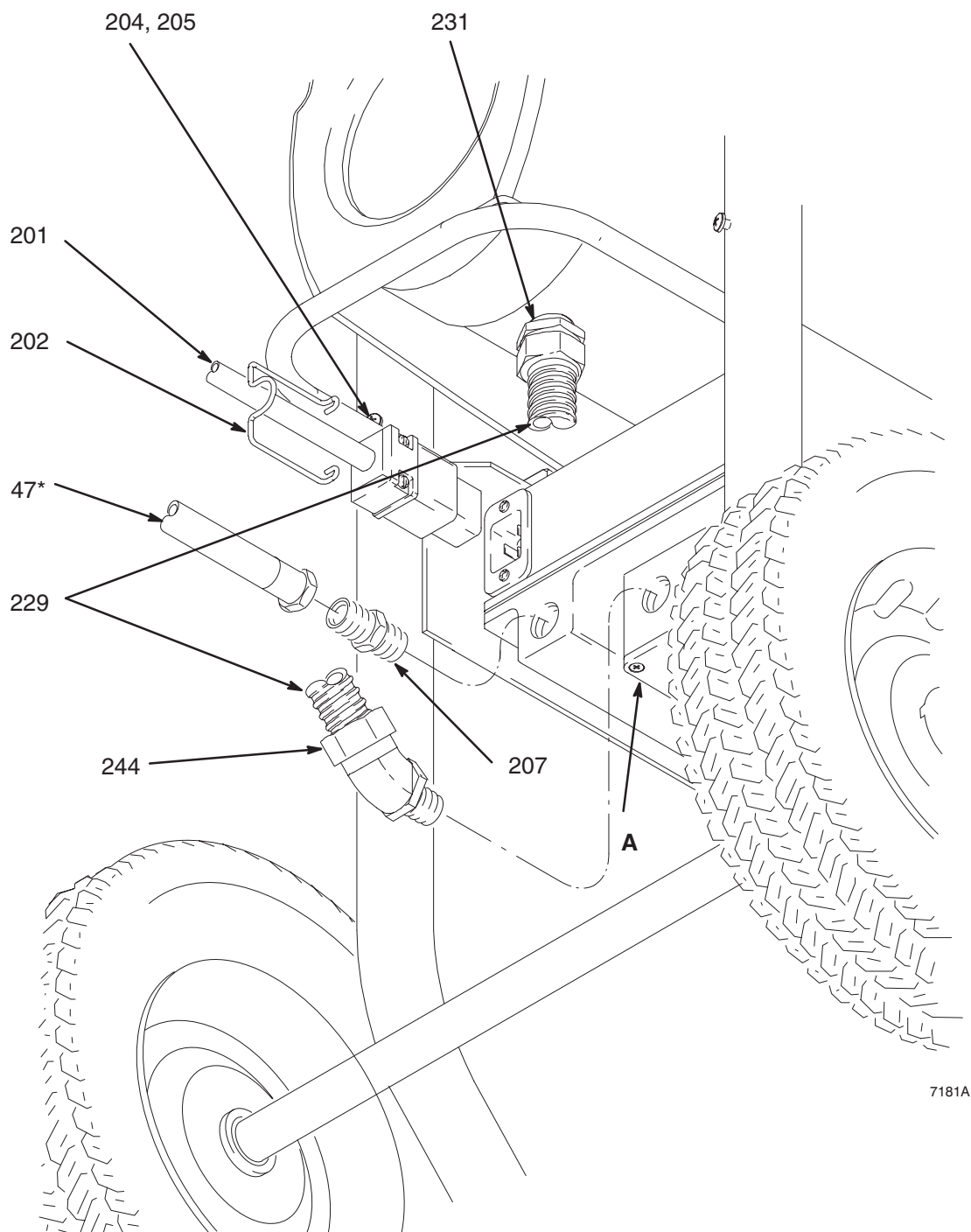


Fig. 10

Ultra 1500 Installation

Pressure Control Retrofit Kit Installed

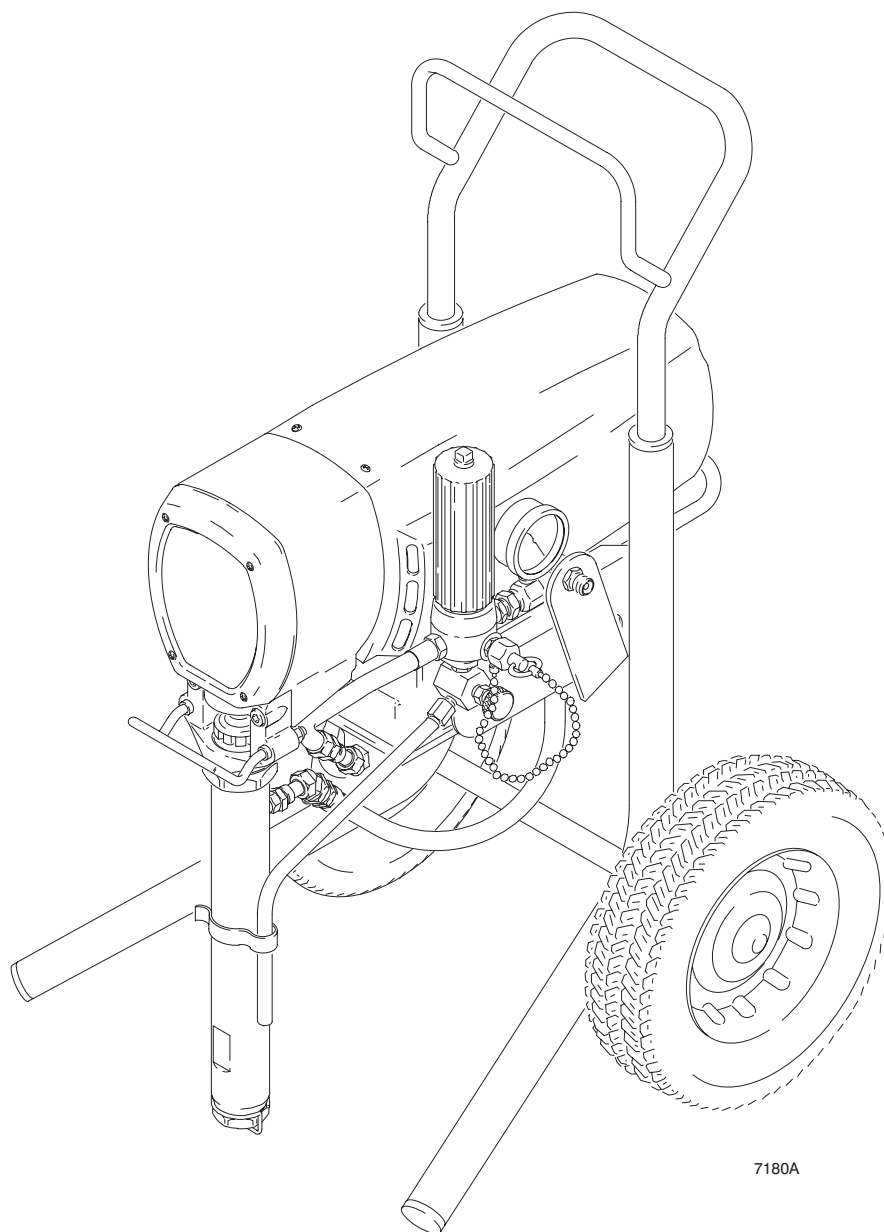


Fig. 11

Graco Warranty

Graco warrants all equipment listed in this manual which is manufactured by Graco and bearing its name to be free from defects in material and workmanship on the date of sale by an authorized Graco distributor to the original purchaser for use. With the exception of any special extended or limited warranty published by Graco, Graco will, for a period of twelve months from the date of sale, repair or replace any part of the equipment determined by Graco to be defective. This warranty applies only when the equipment is installed, operated and maintained in accordance with Graco's written recommendations.

This warranty does not cover, and Graco shall not be liable for general wear and tear, or any malfunction, damage or wear caused by faulty installation, misapplication, abrasion, corrosion, inadequate or improper maintenance, negligence, accident, tampering, or substitution of non-Graco component parts. Nor shall Graco be liable for malfunction, damage or wear caused by the incompatibility of Graco equipment with structures, accessories, equipment or materials not supplied by Graco, or the improper design, manufacture, installation, operation or maintenance of structures, accessories, equipment or materials not supplied by Graco.

This warranty is conditioned upon the prepaid return of the equipment claimed to be defective to an authorized Graco distributor for verification of the claimed defect. If the claimed defect is verified, Graco will repair or replace free of charge any defective parts. The equipment will be returned to the original purchaser transportation prepaid. If inspection of the equipment does not disclose any defect in material or workmanship, repairs will be made at a reasonable charge, which charges may include the costs of parts, labor, and transportation.

Graco's sole obligation and buyer's sole remedy for any breach of warranty shall be as set forth above. The buyer agrees that no other remedy (including, but not limited to, incidental or consequential damages for lost profits, lost sales, injury to person or property, or any other incidental or consequential loss) shall be available. Any action for breach of warranty must be brought within two (2) years of the date of sale.

GRACO MAKES NO WARRANTY, AND DISCLAIMS ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE IN CONNECTION WITH ACCESSORIES, EQUIPMENT, MATERIALS OR COMPONENTS SOLD BUT NOT MANUFACTURED BY GRACO. These items sold, but not manufactured by Graco (such as electric motors, gas engines, switches, hose, etc.), are subject to the warranty, if any, of their manufacturer. Graco will provide purchaser with reasonable assistance in making any claim for breach of these warranties.

LIMITATION OF LIABILITY

In no event will Graco be liable for indirect, incidental, special or consequential damages resulting from Graco supplying equipment hereunder, or the furnishing, performance, or use of any products or other goods sold hereto, whether due to a breach of contract, breach of warranty, the negligence of Graco, or otherwise.

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ADDITIONAL WARRANTY COVERAGE

Graco does provide extended warranty and wear warranty for products described in the "Graco Contractor Equipment Warranty Program".

Graco Phone Number

TO PLACE AN ORDER, contact your Graco distributor, or call this number to identify the distributor closest to you:
1-800-690-2894 Toll Free.

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PRINTED IN U.S.A. 308723 March 1997, Revised 04/2000