



INSTRUCTION BULLETIN

No. 340486
Machine: See Below
Published: 03-2012
Rev. 02

NOTE: DO NOT DISCARD the Parts List from the Instruction Bulletin. Place the Parts List in the appropriate place in the machine manual for future reference. Retaining the Parts List will make it easier to reorder individual parts and will save the cost of ordering an entire kit.

NOTE: Numbers in parenthesis () are reference numbers for parts listed in Bill of Materials.

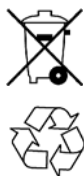
Installation instructions for **kit number 374127**

SYNOPSIS:

This kit contains the parts needed to replace the existing controller with a new all purpose digital controller on all 355, 528, 800, 6500, 7400, 8200, and 8410 machines.
Please follow step-by-step instructions.

SPECIAL TOOLS / CONSIDERATIONS: The new digital controller is labeled DIGITAL in red letters to help differentiate between the new digital controllers and old controllers.

(Estimated time to complete: 1 hour)



PROTECT THE ENVIRONMENT

Please dispose of packaging materials, old machine components, and hazardous fluids in an environmentally safe manner according to local waste disposal regulations.

Always remember to recycle.

PREPARATION:

1. Park the machine on a clean level surface, turn off the machine, remove the key, and set the parking brake.

FOR SAFETY: Before leaving or servicing machine, stop on level surface, turn off machine, and remove key.

2. Disconnect the battery cables from the batteries.



WARNING: Always disconnect battery cables from machine before working on electrical components.

SETUP NEW DIGITAL CONTROLLER:

1. Determine if machine is equipped with a rotary actuator or a linear actuator to control the fuel flow to the carburetor. The type actuator assembly will determine some dip switch settings. (Fig. 1)

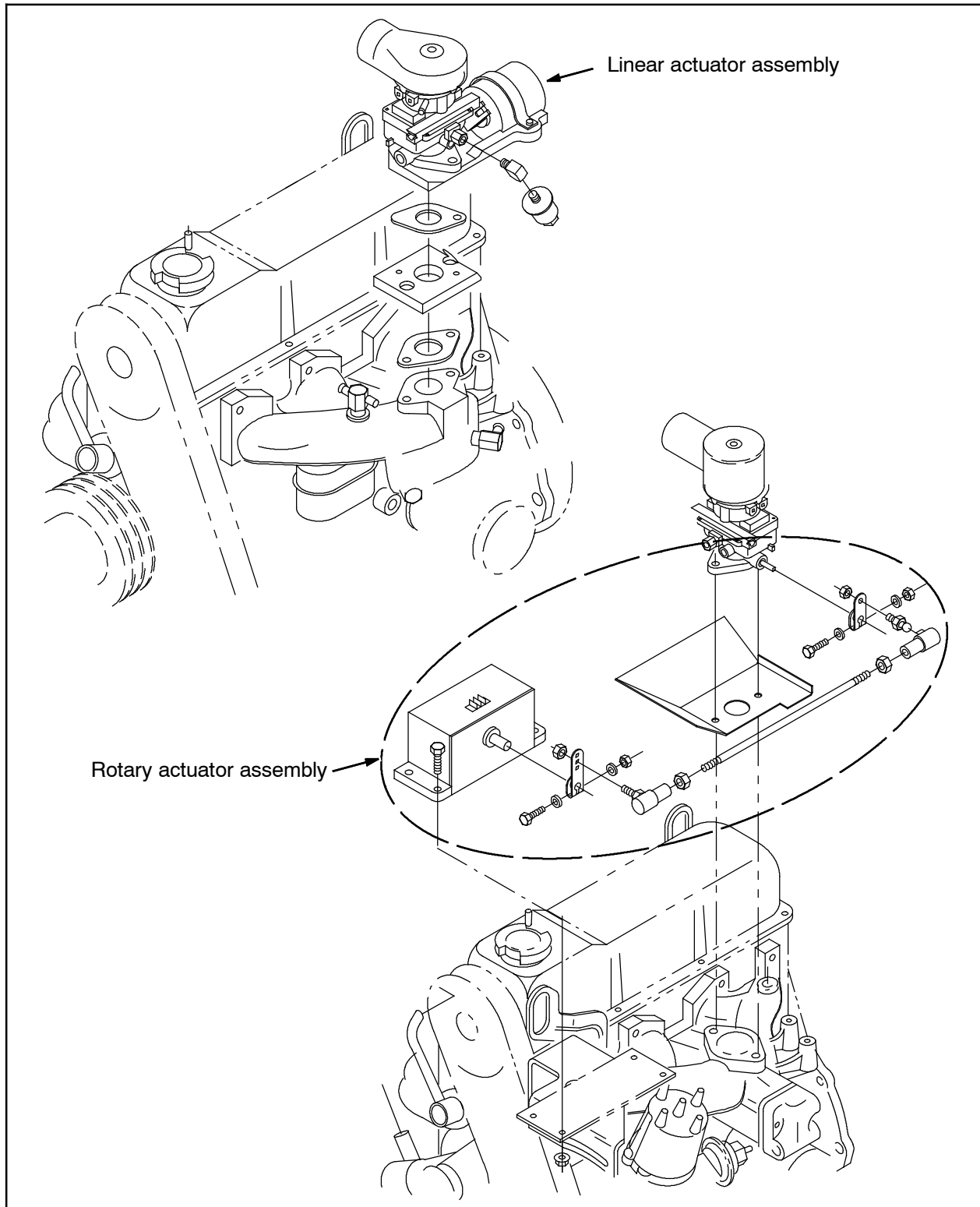



FIG. 1 - Rotary Actuator / Linear Actuator

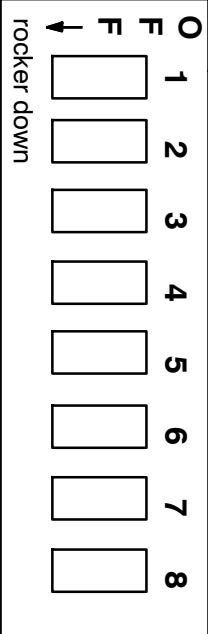
- Remove the red cap from the left hole on the back of the controller. Locate the DIP switches inside the controller. (Fig. 2)

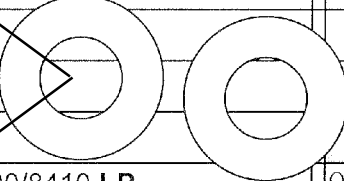

- Set the DIP switches according to the settings chart shown on the back of the controller. Reinstall the cap into the hole. (Fig. 2)



Digital Controller
 p/n 374763

Set DIP switches according to controller label, before installing controller.



Controller Set-Up:		DIP Switch Settings:					
Program Number	Machine Model	Switch number starting from left					
		#1	#2	#3	#4	#5	#6
#1	355/6500/6550/8200/8210/7400 Gas/LP	ON	OFF	OFF	OFF	OFF	OFF
#2	6550/7400/8200/8210 Diesel w/ SJ actuator (linear)	OFF	ON	OFF	OFF	OFF	OFF
#3	355/6500/6550/7400 Diesel w/ SF (rotary) actuator	ON	ON	OFF	OFF	OFF	OFF
#4	800/810 Gas	OFF	OFF	ON	OFF	OFF	OFF
#5	800/810 LP	ON	OFF	ON	OFF	OFF	OFF
#6	800/810 550/1550 Diesel	OFF	ON	ON	OFF	OFF	OFF
#7	8400/8410 Gas	ON	ON	ON	OFF	OFF	OFF
		Gain pot and Trouble shooting LED can be seen through here: 					
#8	8400/8410 LP	OFF	OFF	OFF	ON	OFF	OFF
#9	8400/8410 Diesel	ON	OFF	OFF	ON	OFF	OFF
#10	6500II LP / Gas	ON	ON	OFF	ON	OFF	OFF
#11	6500II/6550II Diesel	OFF	OFF	ON	ON	OFF	OFF
#12	800/810 Diesel – 2 spd	ON	OFF	ON	ON	OFF	OFF
#13	800/810 Gas - 2 spd	OFF	ON	ON	ON	OFF	OFF
#14	800/810 LP – 2 spd	ON	ON	ON	ON	OFF	OFF
#15	355/6500/6550/8200/8210/7400 Gas/LP – special 2 spd	OFF	OFF	OFF	OFF	ON	OFF
#16	6550/7400/8200/8210 Diesel w/ SJ actuator (linear) sp. 2 spd	ON	OFF	OFF	OFF	ON	OFF

Special DIP Settings: ↓

Engines with Distributor	
#7	
ON	Distributor
OFF	Non Distributor (DIS)

Special DIP Settings: ↓

Altitude compensation	
#8	RPM added
ON	200 rpm
OFF	0 rpm

FIG. 2 - Control Box Dip Switch Location

355 CONTROLLER INSTALLATION:

1. Park the machine on a clean level surface.
2. Raise the hopper and engage the hopper support.



WARNING: Lift arm pinch point. Stay clear of hopper lift arms.



WARNING: Raised hopper may fall. Engage hopper support pin.

3. Turn off the machine, remove the key, and set the parking brake.

FOR SAFETY: Before leaving or servicing machine, stop on level surface, turn off machine, and remove key.

4. Disconnect the battery cables from the batteries.



WARNING: Always disconnect battery cables from machine before working on electrical components.

5. Locate the old controller to the left of the steering column in the operator compartment. (Fig. 3)
6. Disconnect the main wire harness from the old controller from the main harness.
7. Remove the controller from the machine and discard the controller. Set the mounting hardware aside. (Fig. 3)
8. Set up the controller (1). Refer to the **SET UP NEW DIGITAL CONTROLLER** instructions for information to setup the controller.
9. Connect the main wire harness to the new controller (1). Do not secure the controller to the machine. The controller is secured to the machine after it is tested.
10. Reconnect the battery cables to the batteries.

11. Start the machine. Alternate engine speeds and turn various machine systems on/off. Take note of the engine speed control responses while doing so.

If there is a smooth transition of engine speed, no adjustment is needed.

If the engine speed fluctuates or bounces excessively, turn the gain potentiometer 1/8th of a turn at a time until the engine control is smooth (2-3 bounces are acceptable).

12. Turn off the machine.
13. Install the controller into the machine. (Fig. 3)
14. Raise the debris hopper, disengage the hopper support bar. Lower the debris hopper.
15. Start the machine and check the new controller for proper operation.
16. Follow the troubleshooting instructions, w/ LED blinking codes, if there are any problems.

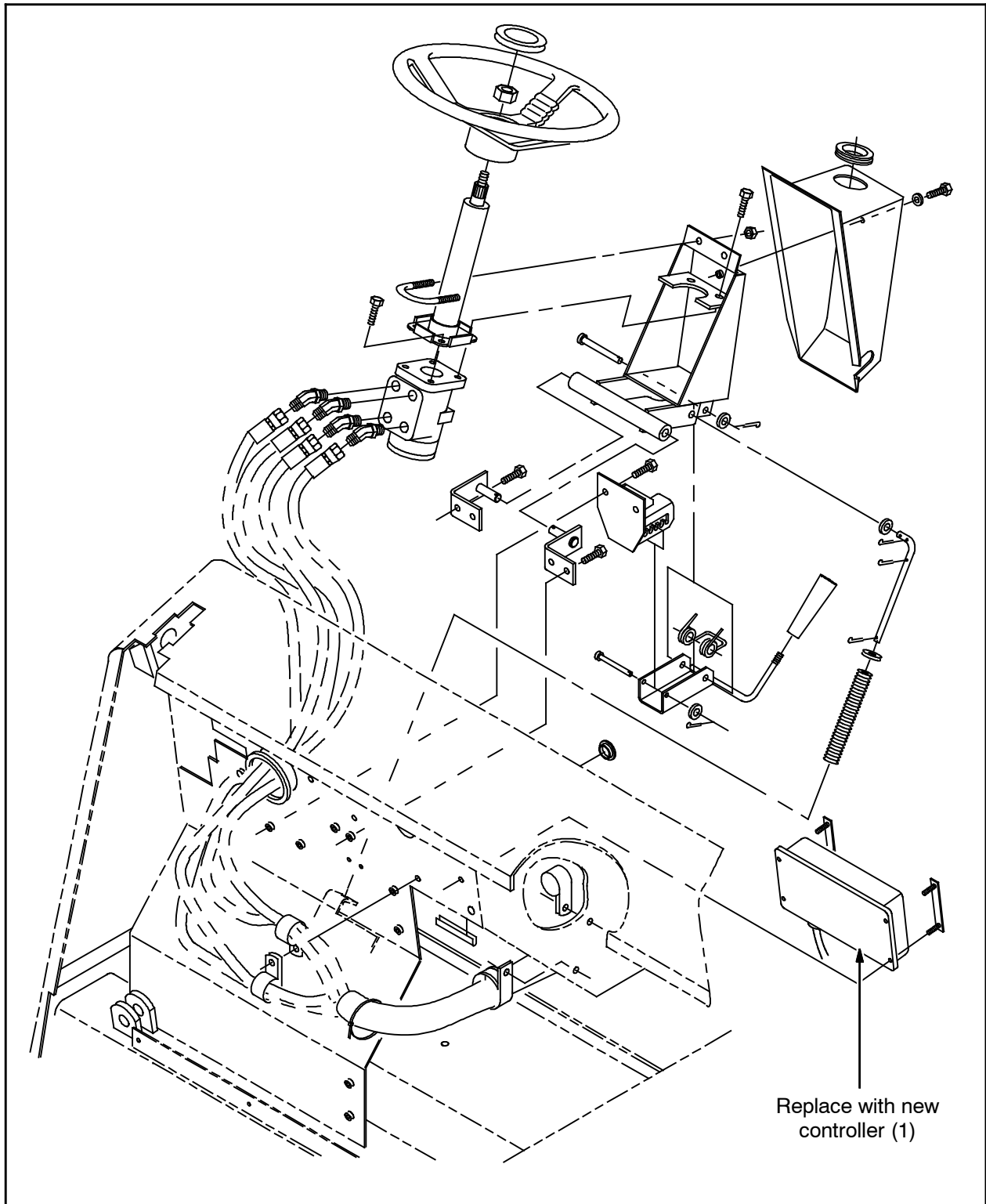


FIG. 3 - 355 Controller Location LP / Gas / Diesel

800 CONTROLLER INSTALLATION:

1. Park the machine on a clean level surface.
2. Raise the hopper and engage the hopper support.



WARNING: Lift arm pinch point. Stay clear of hopper lift arms.



WARNING: Raised hopper may fall. Engage hopper support pin.

3. Turn off the machine, remove the key, and set the parking brake.

FOR SAFETY: Before leaving or servicing machine, stop on level surface, turn off machine, and remove key.

4. Disconnect the battery cables from the batteries.



WARNING: Always disconnect battery cables from machine before working on electrical components.

5. Lift the dust shield located under the hopper and prop it out of the way.
6. Remove the four M6 nyloc nuts and washers holding the plastic relay cover in place. Pull the cover back to access the machine controller. Set the removed items aside.
7. Disconnect the main wire harness from the old controller from the main harness.
8. Remove the controller from the machine and discard the controller. Set the mounting hardware aside. (Fig. 4)
9. Set up the controller (1). Refer to the **SET UP NEW DIGITAL CONTROLLER** instructions for information to setup the controller.
10. Connect the main wire harness to the new controller (1). Do not secure the controller to the machine. The controller is secured to the machine after it is tested.
11. Reconnect the battery cables to the batteries.

12. Start the machine. Alternate engine speeds and turn various machine systems on/off. Take note of the engine speed control responses while doing so.

If there is a smooth transition of engine speed, no adjustment is needed.

If the engine speed fluctuates or bounces excessively, turn the gain potentiometer 1/8th of a turn at a time until the engine control is smooth (2-3 bounces are acceptable).

13. Turn off the machine.
14. Install the controller into the machine. (Fig. 4)
15. Reinstall the plastic relay cover onto the machine.
16. Lower the dust shield back into place.
17. Raise the debris hopper, disengage the hopper support bar. Lower the debris hopper.
18. Start the machine and check the new controller for proper operation.
19. Follow the troubleshooting instructions, w/ LED blinking codes, if there are any problems.

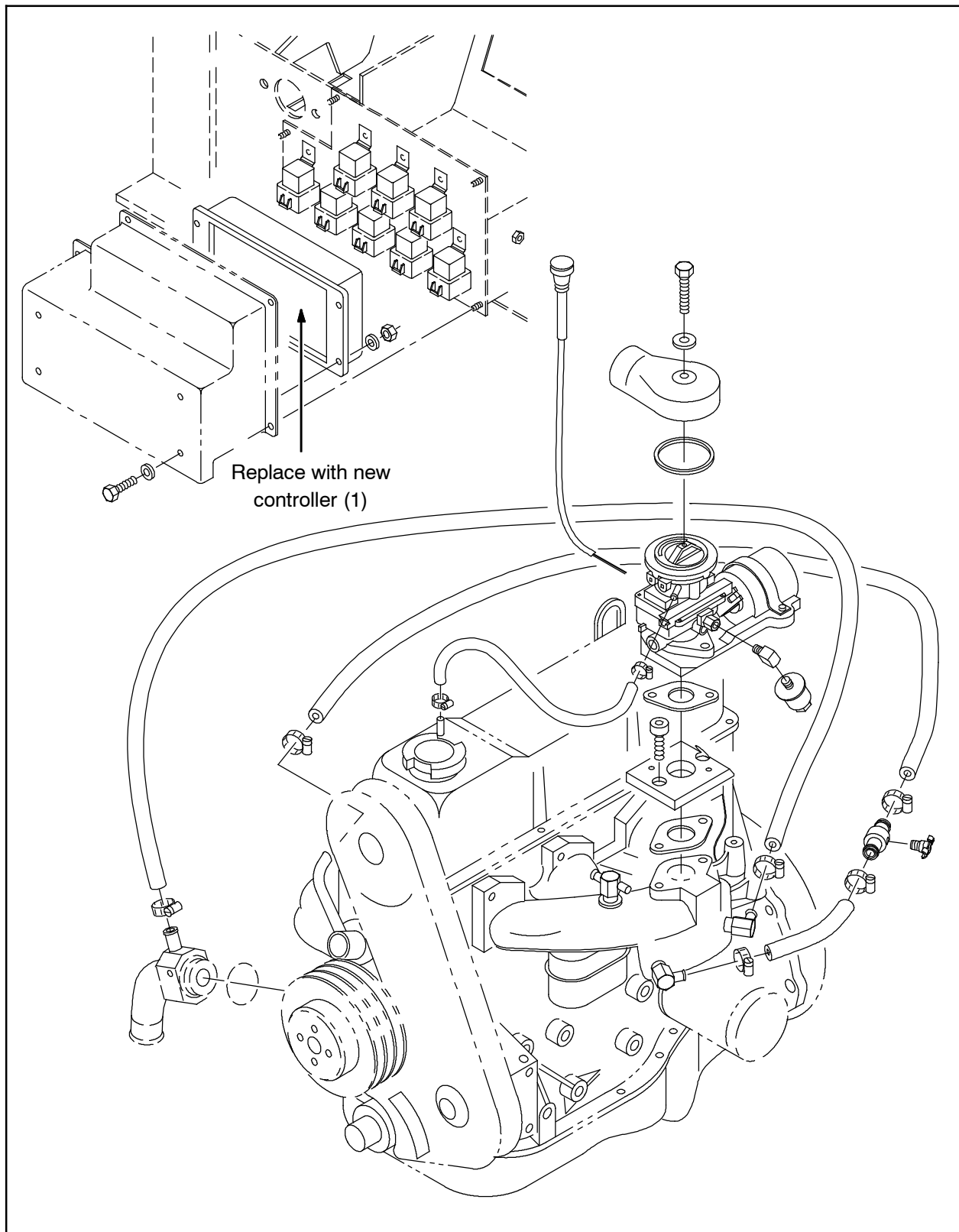


FIG. 4 - 800 Controller Location LP / Gas / Diesel

6500 / 6550 CONTROLLER INSTALLATION:

1. Park the machine on a clean level surface.
2. Raise the hopper and engage the hopper support.



WARNING: Lift arm pinch point. Stay clear of hopper lift arms.



WARNING: Raised hopper may fall. Engage hopper support pin.

3. Turn off the machine, remove the key, and set the parking brake.

FOR SAFETY: Before leaving or servicing machine, stop on level surface, turn off machine, and remove key.

4. Disconnect the battery cables from the batteries.



WARNING: Always disconnect battery cables from machine before working on electrical components.

5. **6550 machines only:** Remove the four knobs, washers, and two retaining brackets from the filter cover. Set the removed items aside.
6. Lift the dust filter cover and locate the filter shaker and filter shaker wire.
7. Connect one end of the jumper harness (2) to the terminal tab (4).
8. Secure the terminal tab (4) to the filter shaker with the filter shaker mounting screw. Tighten the mounting screw hand tight. (Fig. 5)



FIG. 5

9. Route the jumper harness (2) along the filter shaker harness, through the filter cover, up to the hopper Thermo-Sentry. (Fig. 6 / Fig. 7)



FIG. 6



FIG. 7

10. Disconnect the main harness wire from the Thermo-Sentry. (Fig. 7)
11. Install the three-way quick disconnect connector (3) onto the Thermo-Sentry.
12. Connect the main harness wire and the open end of the jumper harness (3) to the three-way quick disconnect connector. (Fig. 7)

13. Use electrical tape or wire ties to secure the jumper harness to the filter shaker harness. (Fig. 8)

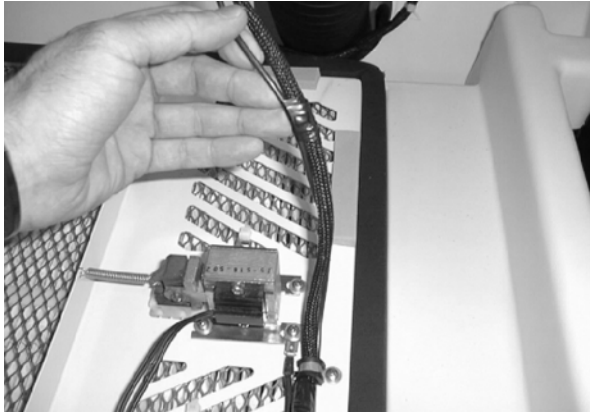


FIG. 8

14. Reinstall the dust filter cover.
15. **6550 machines only:** Secure the dust filter cover with the set aside knobs, washers, and retaining brackets.
16. Locate the controller located under the dash panel, to the left of the steering control motor. (Fig. 9)
17. Disconnect the main wire harness from the old controller.
18. Remove the four hex nuts holding the control box to the machine frame. Remove and discard the old control box. Set the two plate weldments aside.
19. Set up the controller (1). Refer to the **SET UP NEW DIGITAL CONTROLLER** instructions for information to setup the controller.
20. Connect the main wire harness to the controller (1). Do not secure the controller to the machine. The controller is secured to the machine after it is tested.
21. Reconnect the battery cables to the batteries.
22. Start the machine. Alternate engine speeds and turn various machine systems on/off. Take note of the engine speed control responses while doing so.

If there is a smooth transition of engine speed, no adjustment is needed.

If the engine speed fluctuates or bounces excessively, turn the gain potentiometer 1/8th of a turn at a time until the engine control is smooth (2-3 bounces are acceptable).
23. Turn off the machine.
24. Install the controller into the machine. (Fig. 9)
25. Reinstall the two plate weldments and hex screws. Hand tighten the hardware.
26. Raise the debris hopper, disengage the hopper support bar. Lower the debris hopper.
27. Start the machine and check the new controller for proper operation.
28. Follow the troubleshooting instructions, w/ LED blinking codes, if there are any problems.

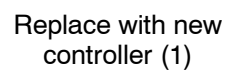


FIG. 9 - 6500 / 6550 Controller Location LP / Gas / Diesel

7400 CONTROLLER INSTALLATION:

1. Park the machine on a clean level surface, turn off the machine, remove the key, and set the parking brake.

FOR SAFETY: Before leaving or servicing machine, stop on level surface, turn off machine, and remove key.

2. Disconnect the battery cables from the batteries.



WARNING: Always disconnect battery cables from machine before working on electrical components.

3. Open the front machine cover.
4. Locate the controller mounted in front of the control panel, on the right side of the machine. (Fig. 10)
5. Disconnect the main wire harness from the old controller.
6. Remove the old control box from the machine. Set mounting hardware aside. Discard removed controller.
7. Set up the controller (1). Refer to the **SET UP NEW DIGITAL CONTROLLER** instructions for information to setup the controller.
8. Connect the main wire harness to the new controller (1). Do not secure the controller to the machine. The controller is secured to the machine after it is tested.
9. Reconnect the battery cables to the batteries.

10. Start the machine. Alternate engine speeds and turn various machine systems on/off. Take note of the engine speed control responses while doing so.

If there is a smooth transition of engine speed, no adjustment is needed.

If the engine speed fluctuates or bounces excessively, turn the gain potentiometer 1/8th of a turn at a time until the engine control is smooth (2-3 bounces are acceptable).

11. Turn off the machine.
12. Install the controller into the machine. (Fig. 10)
13. Close the engine cover doors and the front machine cover.
14. Start the machine and check the new controller for proper operation.
15. Follow the troubleshooting instructions, w/ LED blinking codes, if there are any problems.

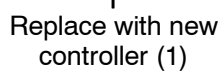


FIG. 10 - 7400 Controller Location LP / Gas / Diesel

8200 / 8210 CONTROLLER INSTALLATION:

1. Park the machine on a clean level surface.
2. Raise the hopper and engage the hopper support.



WARNING: Lift arm pinch point. Stay clear of hopper lift arms.



WARNING: Raised hopper may fall. Engage hopper support pin.

3. Turn off the machine, remove the key, and set the parking brake.

FOR SAFETY: Before leaving or servicing machine, stop on level surface, turn off machine, and remove key.

4. Disconnect the battery cables from the batteries.



WARNING: Always disconnect battery cables from machine before working on electrical components.

5. Open the front engine cover.
6. Locate the controller mounted under the control panel. (Fig. 11)
7. Disconnect the main wire harness from the old controller.
8. Set up the controller (1). Refer to the **SET UP NEW DIGITAL CONTROLLER** instructions for information to setup the controller.
9. Remove the old controller from the machine. Set mounting hardware aside. Discard removed controller.
10. Connect the main wire harness to the new controller (1). Do not secure the controller to the machine. The controller is secured to the machine after it is tested.
11. Reconnect the battery cables to the batteries.

12. Start the machine. Alternate engine speeds and turn various machine systems on/off. Take note of the engine speed control responses while doing so.

If there is a smooth transition of engine speed, no adjustment is needed.

If the engine speed fluctuates or bounces excessively, turn the gain potentiometer 1/8th of a turn at a time until the engine control is smooth (2-3 bounces are acceptable).

13. Turn off the machine.
14. Install the controller onto the machine. (Fig. 11)
15. Raise the debris hopper, disengage the hopper support bar. Lower the debris hopper.
16. Start the machine and check the new controller for proper operation.
17. Follow the troubleshooting instructions, w/ LED blinking codes, if there are any problems.

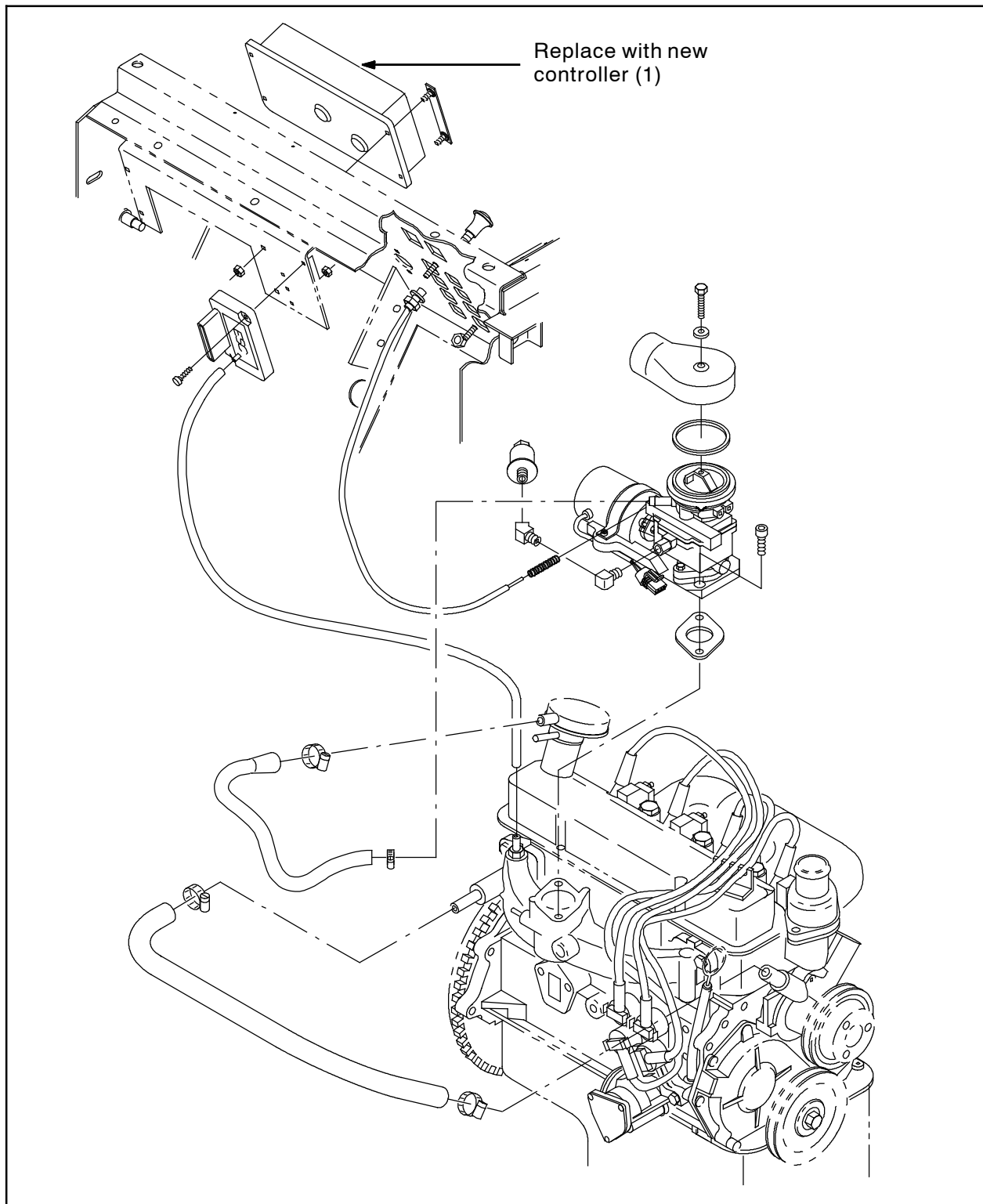


FIG. 11 - 8200 / 8210 Controller Location LP / Gas / Diesel

8410 CONTROLLER INSTALLATION:

1. Park the machine on a clean level surface, turn off the machine, remove the key, and set the parking brake.

FOR SAFETY: Before leaving or servicing machine, stop on level surface, turn off machine, and remove key.

2. Open the engine cover and secure with the engine cover support rod.
3. Disconnect the battery cables from the batteries.



WARNING: Always disconnect battery cables from machine before working on electrical components.

4. Locate the controller in the engine compartment, mounted near the cover support rod. (Fig. 12)
5. Disconnect the main wire harness from the old controller.
6. Remove the old controller from the machine. Set mounting hardware aside. Discard removed controller.
7. Set up the controller (1). Refer to the **SET UP NEW DIGITAL CONTROLLER** instructions for information to setup the controller.
8. Connect the main wire harness to the new controller (1). Do not secure the controller to the machine. The controller is secured to the machine after it is tested.
9. Reconnect the battery cables to the batteries.

10. Start the machine. Alternate engine speeds and turn various machine systems on/off. Take note of the engine speed control responses while doing so.

If there is a smooth transition of engine speed, no adjustment is needed.

If the engine speed fluctuates or bounces excessively, turn the gain potentiometer 1/8th of a turn at a time until the engine control is smooth (2-3 bounces are acceptable).

11. Turn off the machine.
12. Install the controller onto the machine. (Fig. 11)
13. Raise the engine cover, disengage the cover support rod. Close the engine cover.
14. Start the machine and check the new controller for proper operation.
15. Follow the troubleshooting instructions, w/ LED blinking codes, if there are any problems.

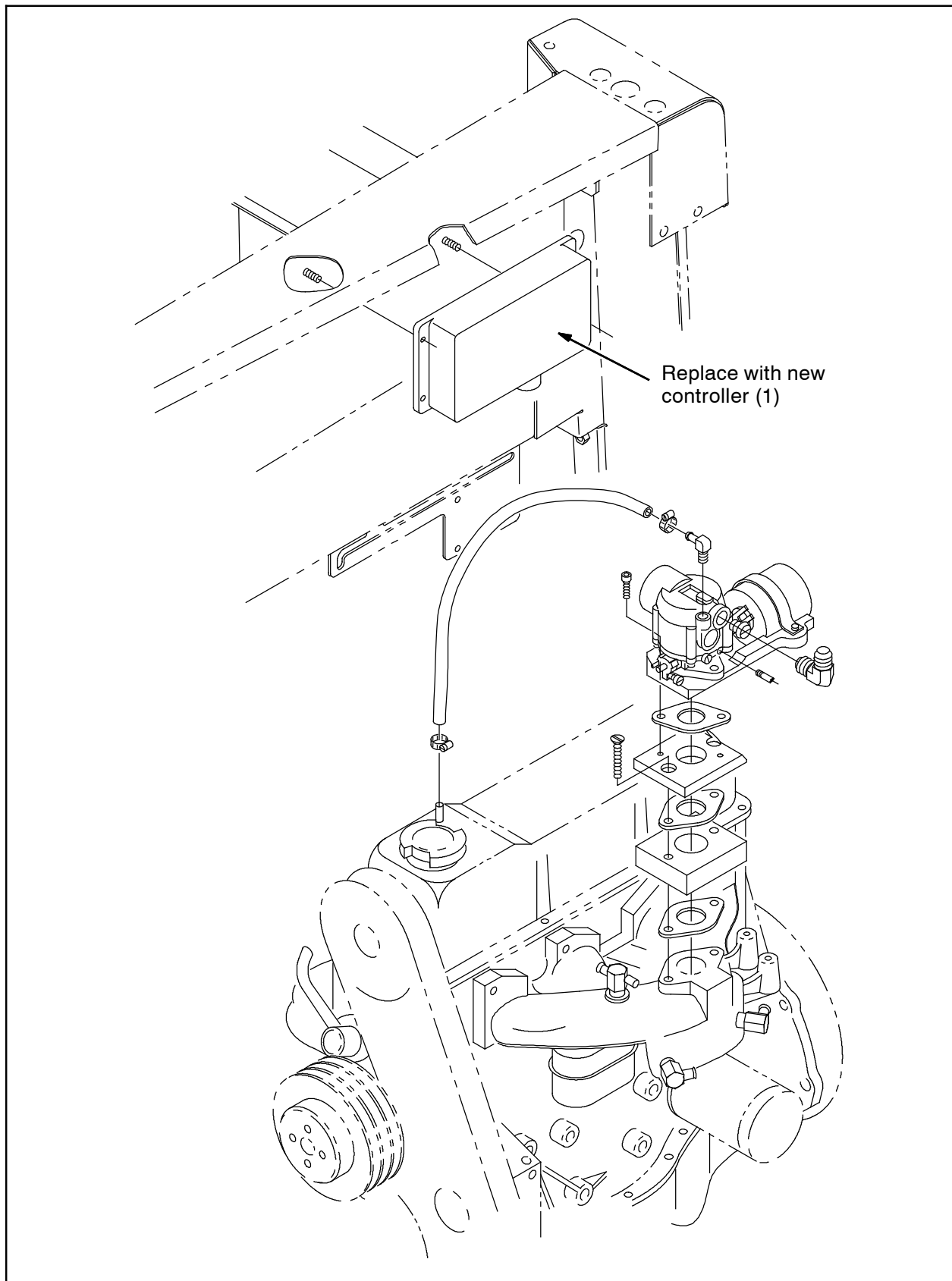


FIG. 12 - 8410 Controller Location LP / Gas / Diesel

Bill Of Materials For Control Kit, Govnr, Replmt [All Purpose] - 374127

	Ref.	Tennant Part No.	Description	Qty.
▽		374127	Control Kit, Govnr, Replmt [All Purpose]	1
▲	1	1040835	Control, Govnr [All Purpose]	1
▲	2	383241	Harness, Jumper, Fltr Shkr	1
▲	3	378953	Terminal, VW, .250 X .032	1
▲	4	68106	Terminal, Tab, .25 .19H .84L	1

TENNANT COMPANY
P. O. Box 1452
Minneapolis, MN 55440-1452