INSTRUCTION BULLETIN

No. 340039
Machine: 550
Published: 3-97/01
System: HYDRAULICS

NOTE: DO NOT DISCARD the Parts List from the Instruction Bulletin. Place the Parts List in the appropriate place in your machine manual for future reference. Retaining the Parts List will make it easier to reorder individual parts and will save you 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 CP550135

SYNOPSIS / PROBLEM:

This kit contains the parts needed to install a heavy duty engine oil / hydraulic oil cooling kit on the model 550 scrubber.

Please follow step-by-step instructions.

SPECIAL TOOLS / CONSIDERATIONS: Hand drill, drain pan, .500 inch drill bit.

(Estimated time to complete: 16 hours)

PREPARATION:
(Refer to photos on right)

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

1. Open the engine cover.
2. Disconnect battery cables from machine.

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

3. Drain the engine oil and the hydraulic fluid.
4. Remove the left rear corner panel from the machine. Leave the air cleaner attached to the panel.

ENGINE REWORK:
(Refer to photos on right)

1. Remove the small oil pressure gauge line leading to the 90°fitting on the rear of the engine block near the bellhousing.
2. Remove and retain the 90°fitting.
3. Install the straight nipple fitting (7) in the port where the fitting was removed in the previous step.

NOTE: Use PST or some form of pipe sealant on the threads before installing any pipe fittings.

4. Install the tee fitting (8) on the end of the straight nipple fitting (7). Point the tee straight up.

5. Install the oil pressure switch (9) in the top port of the tee fitting (8). (electrical wiring will be done later)


OIL SWITCH & TEE ASSY

NOTE: Use PST or some form of pipe sealant on the threads before installing any pipe fittings.

6. Install the 90°fitting, that was removed earlier, into the end of the tee fitting (8). Point the 90°fitting up and slightly toward the bellhousing.
7. Reconnect the small oil pressure line on the 90° fitting.
8. Remove the engine oil filter.
9. Remove the stud holding the existing engine oil cooler to the engine block. Discard the stud.


OIL ADAPTOR BASE, FTG, & HOSES

10. Use a vise grip or pipe wrench to remove the threaded stud in the engine block. Discard the threaded stud.
11. Install the two straight fittings (2 and 3) in the engine oil adaptor base (1).
12. Install the two small O-rings (4) into the engine oil adaptor base (1).
13. Install the one large O-ring on the bottom of the engine oil adaptor base (1). Lightly oil all of the O-rings.
14. Install the engine oil adaptor base (1) on the engine using the base adaptor stud (6). Point the fittings toward the rear of the machine and slightly down. Firmly tighten. Do not over tighten.


REMOTE BASE, FTGS., AND MOUNT BRACKET

15. Pre-assemble the remote oil filter base (10) by installing the two 90° fittings (11 and 12). The (11) fitting goes in the **OUT** port on the base (10) and should point toward the mount flange and mount holes. The (12) fitting goes in the **IN** port of the base (10) and should point away from the mount flange and mount holes.
16. Install the remote oil filter mount bracket (13) on the base (10) using two screws (14) and two nuts (15). Firmly tighten.
17. Mount the base (10) and bracket (13) on the machine. Go under the machine on the left side, behind the front tire. Look in the area just behind the remote engine oil drain fitting and static chain. Locate the two existing mount holes on the frame cross member under the radiator. Install the filter base (10) and bracket (13) using these holes and two screws (14) and two nuts (15). Firmly tighten.


LOCATE MOUNT HOLES UNDER FRAME HERE

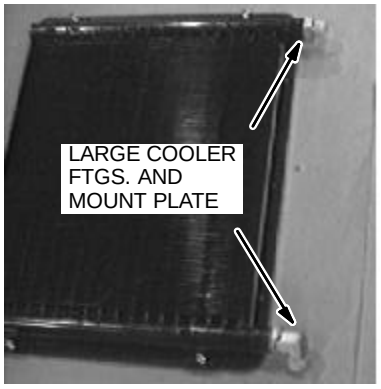
18. Install the new engine oil filter (16) on the new remote base (10).
19. Install the 45°end of the hydraulic hose (17) on the **OUT** port (top) on the remote base (10). Install the other end of this hose on the **IN** port on the engine adaptor base (1).
20. Install one end of the hydraulic hose (18) on the **IN** port (side) on the remote base (10). Route the other end of the hose toward the area of the vacuum fan and new cooler/fan package mounting.

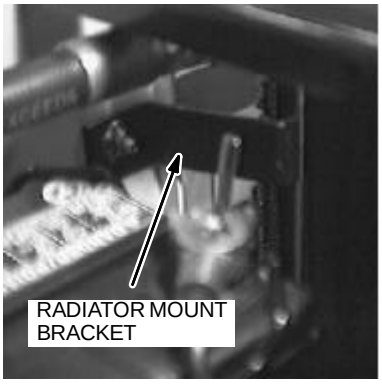
21. Install one end of the hydraulic hose (19) on the **OUT** port of the engine adaptor base (1). Route the other end of the hose toward the area of the vacuum fan and new cooler mounting.

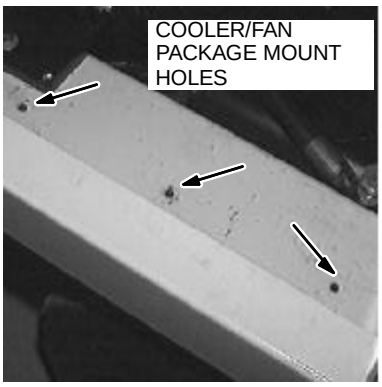
RADIATOR COOLER REMOVAL/INSTALL AND PREP FOR COOLER PACKAGE:

(Refer to photos on right)

1. Disconnect the two hydraulic hose leading to the cooler mounted behind the engine radiator. Remove the cooler from the machine. Retain the mounting hardware for re-use later. Remove and discard the two metal mount strips and four flat head screws from the cooler. This cooler will be re-used later.
2. Disconnect the low pressure hydraulic hose running from the machine hydraulic oil filter to the cooler that was removed in the previous step. Remove and discard this hose.
3. Position the new large cooler (20) on the new mount plate (21). The ports on the cooler should be on the side of the mount plate (21) with three mount holes. Use four nuts (22) and four washers (23). Tighten firmly.
4. Install the two fittings (24 and 25) in the cooler (20). The straight fitting (24) goes in the top port and the 90° fitting (25) goes in the bottom port facing forward and slightly down.
5. Install the new cooler (20) and mount plate (21) in the machine with the fittings facing the battery. Reinstall the existing hardware and new radiator bracket (26). Firmly tighten the hardware.
6. Install the new hydraulic hose (27) on the bottom 90° fitting (25) on the new cooler (20). Route the other end of this hose under the engine, along the left inside frame rail, and up to the empty port on the hydraulic oil filter.
7. Install the new hose (28) on the top straight fitting (24) on the new cooler (20). Route the other end of this hose toward the area behind the vacuum fan, where the new cooler package will be installed. Leave this end loose for now.
8. Remove the existing right hand engine compartment access door. Remove and install the latch on the new side door (51). Retain the mounting hardware. Discard the old door.
9. Use the dimensions in **FIG 1 on page 8** to mark and drill the three cooler/fan package mount holes on the right inside frame section.

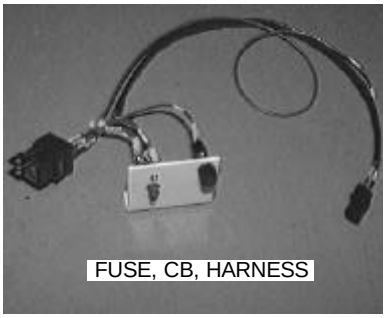






ELECTRICAL WIRING INSTALLATION:

(Refer to photos on right)

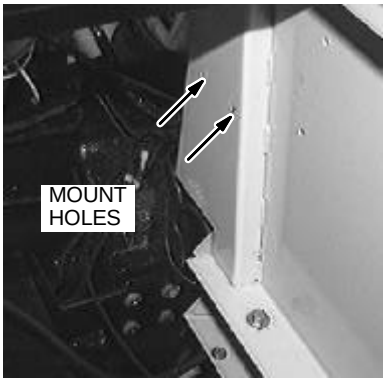


1. Check to make sure the battery cables are disconnected.

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

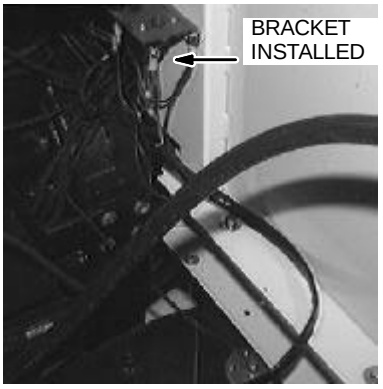
2. Install the inline fuse holder (38) in the larger hole of the new circuit breaker bracket (39). Connect wire #313/RED from the new harness (49) to this terminal.

3. Install the 30 amp circuit breaker (40) on the new circuit breaker bracket (39) using two screws (41) and two washers (42). Connect wires #311/ORA and #310 ORA from the new harness (49) to the terminals on the circuit breaker (40).



4. Connect wires #313/RED, #314A/BLK, #311/ORA, and #312/ORA from the new harness (49) to the new relay (50). See the harness drawing in FIG. 2 on page 9.

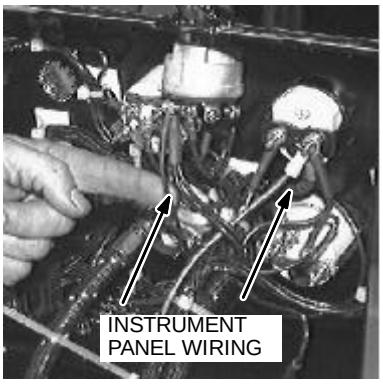
5. Install the circuit breaker bracket (39) and relay (50) on the machine using two existing holes located on the back side of the operators compartment, directly behind the vacuum fan. Use two screws (43) and one shake washer (44). Install the relay (50) under one of the screws and shake. Firmly tighten the hardware.
Note: the shake washer must be placed between the bracket and machine frame for a proper electrical ground.



6. Locate the bundle of wires tied up with the main harness near the area of the engine bellhousing. Cut the plastic wire ties and locate the single wire #10. Cut the heat shrink back about 2". Cut off the existing terminal and install the 1/4 female spade (45). Plug this wire onto the empty terminal on the inline fuse holder (38).

7. Locate the wires #10, #31, and #30 in this same bundle of wires. Route all three wires over to the area of the new oil switch (9) installed earlier. Cut the heat shrink back about 2"on wires #10 and #31. The #10 wire connects to the COM. terminal of the oil switch and the wire #31 connects to the N.O. terminal of the oil switch.

8. Route wire #310 orange, in the new harness (49), forward to the area of the instrument panel.



9. Loosen the four screws holding the instrument panel to the machine. Lift the panel up far enough to access the wires. Locate the #310 orange wire. Install this wire on the positive terminal of the AMP gauge.

10. Locate wire #31 from the existing machine harness, in the instrument panel area. Connect this wire to the #17 terminal on the key switch.

11. Reinstall the instrument panel and tighten the hardware.

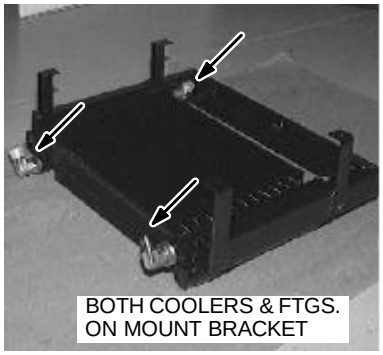
COOLER PACKAGE ASSEMBLY AND INSTALLATION:

(Refer to photos on right and diagram in FIG. 3 page 10)

1. Position the **existing** small cooler, removed from the rear of the engine radiator earlier, on the cooler/fan assembly mount bracket (29). Line up the holes only for now--do not install any hardware yet.
2. Locate the **new** small cooler (30) and install the two fittings (31). With the cooler flat on the ground and the ports of the cooler pointing to the right, the fittings (31) should point up and slightly in toward each other.
3. Install the **new** small cooler (30) and fittings (31) on the cooler/fan package mount bracket (29). Line up the holes and install the hardware--four screws (32) and four nuts (33). Tighten firmly.
4. Install the fan mount bars (35) on the electric fan housing using four screws (52), washers (53), and nuts (54). Leave loose for now.
5. Install the fan assembly (34), and two fan mount bars (35), on top of the two coolers installed in the previous steps. Install the hardware--four screws (36) and four nuts (37). Tighten firmly.
6. Position the cooler/fan package in the area behind the machine vacuum fan (where the three mount hole were drilled earlier).
7. Position the cooler/fan package in the machine at a 45° angle to ease installation.
8. Locate the hydraulic hose (90°end) that was connected to the bottom fitting on the original small cooler that was removed earlier. Connect this hose to the bottom straight fitting on the cooler nearest the outside of the machine frame on the cooler/fan package.
9. Move the cooler/fan package into place over the mount holes. Install the three screws (36). Tighten firmly.
10. Connect the hydraulic hose (28) coming from the top of the new large cooler (20) to the 90°fitting on **top** of the cooler nearest the **outside** of the machine frame.
11. Connect the hose (18) leading from the remote oil filter assembly (6) to the 90°fitting on **top** of the cooler nearest the **inside** of the machine frame. (nearest the electric cooling fan)
12. Connect the hose (19) leading from the engine oil adaptor base (1) to the 90°fitting on **bottom** of the cooler nearest the **inside** of the machine frame. (nearest the electric cooling fan)

COOLER/FAN PACKAGE MOUNT FRAME

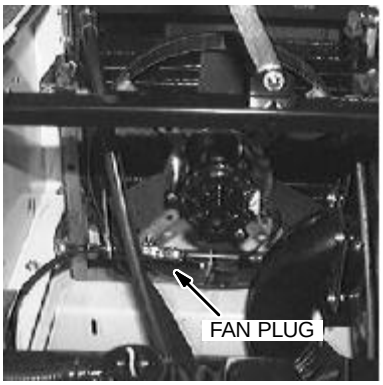
NEW SMALL COOLER FTGS.



BOTH COOLERS & FTGS. ON MOUNT BRACKET

ELEC FAN MOUNTED OVER COOLERS

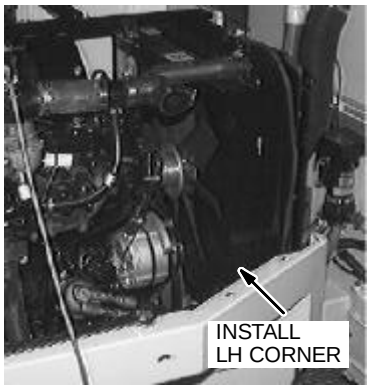
13. Go to the area of the new cooler/fan package. Locate the fan plug on the new harness (49). Connect this plug to the plug on the electric cooling fan.
14. Use the smaller plastic wire ties (46) to tie the fan harness to the mount brackets so it is free of any hot or moving parts.
15. Use the larger plastic ties (47) to tie up the hydraulic hoses in the area under the engine radiator. Make sure all of the new hydraulic hoses are tied back in such a way so they are free of any sharp edges or moving parts.
16. Install the three edging pieces (48) on the air cleaner support bracket edge, frame edge near radiator, and in any area where the hoses may be against a sharp edge.

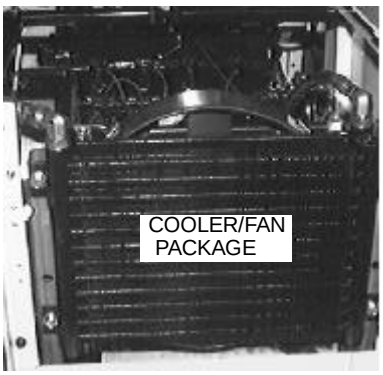


FINAL INSTALLATION:

(Refer to photos on right)

1. Reinstall the left, rear corner panel and air cleaner assembly on the machine.
2. Install the new engine side door (51) using the hardware removed from the old side door.
3. Fill the engine with the proper grade of oil.
4. Fill the hydraulic fluid reservoir.
5. Reconnect the battery cables.
6. Start the machine and check the cooler/fan package for any leaks and for proper fan operation. After the machine has been run for a few minutes, shut it off and re-check the oil level in the engine and hydraulic reservoir.





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IB 340039 (3-97) LITHO IN U.S.A.

BILL OF MATERIALS FOR ENGINE OIL AND HYDRAULIC OIL COOLING KIT CP550135

Ref.	TENNANT Part No.	Description	Qty.
1	SP02578	Engine oil adaptor base	1
2	44869	Hydraulic fitting	1
3	SP02579	Hydraulic fitting (included in wis-con kit)	1
4	SP02580	O-ring (small) (included in wis-con kit)	2
5	SP02581	O-ring (large) (included in wis-con kit)	1
6	SP02582	Base adaptor stud	1
7	48144	Nipple fitting	1
8	22309	Tee fitting	1
9	51805	Oil pressure switch	1
10	SP02584	Remote oil filter base	1
11	SP02583	90°hydraulic fitting	1
12	44868	90°hydraulic fitting (included in wis-con kit)	1
13	SP02568	Remote oil filter mount bracket	1
14	16950	Screw, 1/4 - 20 - 3/4 SEMS	4
15	27978	Nut, flange, 1/4 - 20	4
16	16853	Engine oil filter	1
17	16473	Hydraulic hose, #8, 21 inch	1
18	77301	Hydraulic hose, #8, 54 inch	1
19	65224	Hydraulic hose, #8, 64 inch	1
20	73106	Hydraulic oil cooler	1
21	SP02565	Mount plate	1
22	59156	Nut, 3/8 - nyloc	4
23	32492	Flat washer, 3/8	4
24	67310	Straight hydraulic fitting	1
25	52911	90°hydraulic fitting	1
26	SP02585	Radiator bracket	1
27	13109	Hydraulic hose	1
28	19633	Hydraulic hose	1
29	SP02564	Cooler/fan assy mount bracket	1
30	31592	Cooler	1
31	47655	90°hydraulic fitting	2
32	01764	Screw, 3/8 - 16 - 1.00 SEMS	4
33	27980	Flange nut, 3/8 - 16	4
34	SP02586	Fan assembly	1
35	SP02587	Fan mount bar	2
36	01764	3/8-16 x 1.00 SEMS	7
37	27980	Nut	4
38	07422	Fuse holder	1
39	SP02569	Circuit breaker bracket	1
40	222298	Circuit breaker	1

BILL OF MATERIALS FOR ENGINE OIL AND HYDRAULIC OIL COOLING KIT CP550135

Ref.	TENNANT Part No.	Description	Qty.
41	32515	Screw, 8–32 x 3/8	2
42	02938	Washer	2
43	16950	Screw, 1/4 x 1.00 SEMS	2
44	41140	Washer, 1/4 int/ext	1
45	50470	1/4 female spade terminal	1
46	49266	Wire tie	3
47	49263	Wire tie	2
48	31775	Edging, 4”	3
49	SP02589	Wire harness	1
50	56186	Relay	1
51	SP02566	Engine side door	1
52	16950	Screw	4
53	32483	Washer	4
54	41169	Nut	4

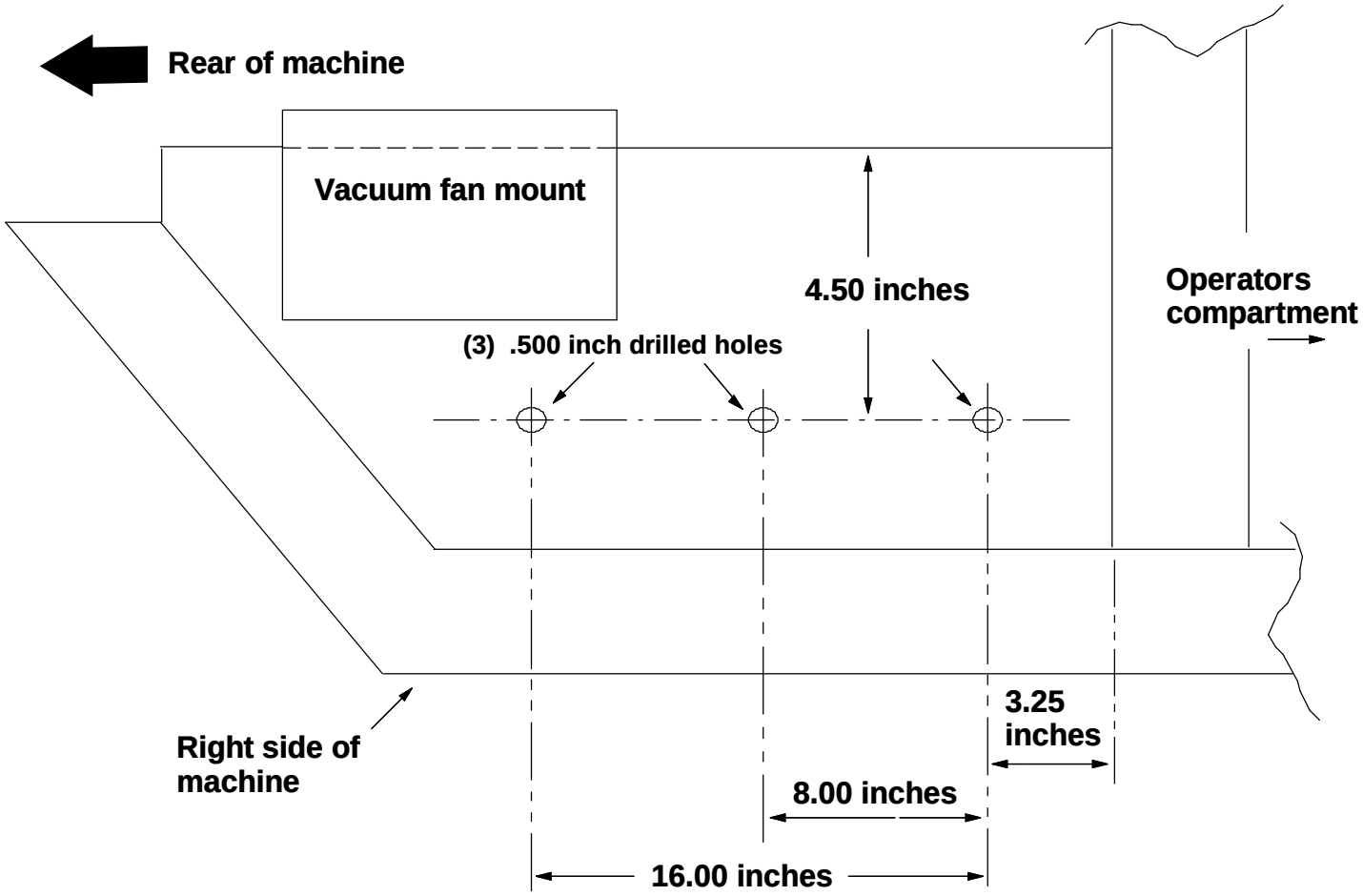

FIG. 1 - Location Dimensions For Cooler/fan Package Mount Holes

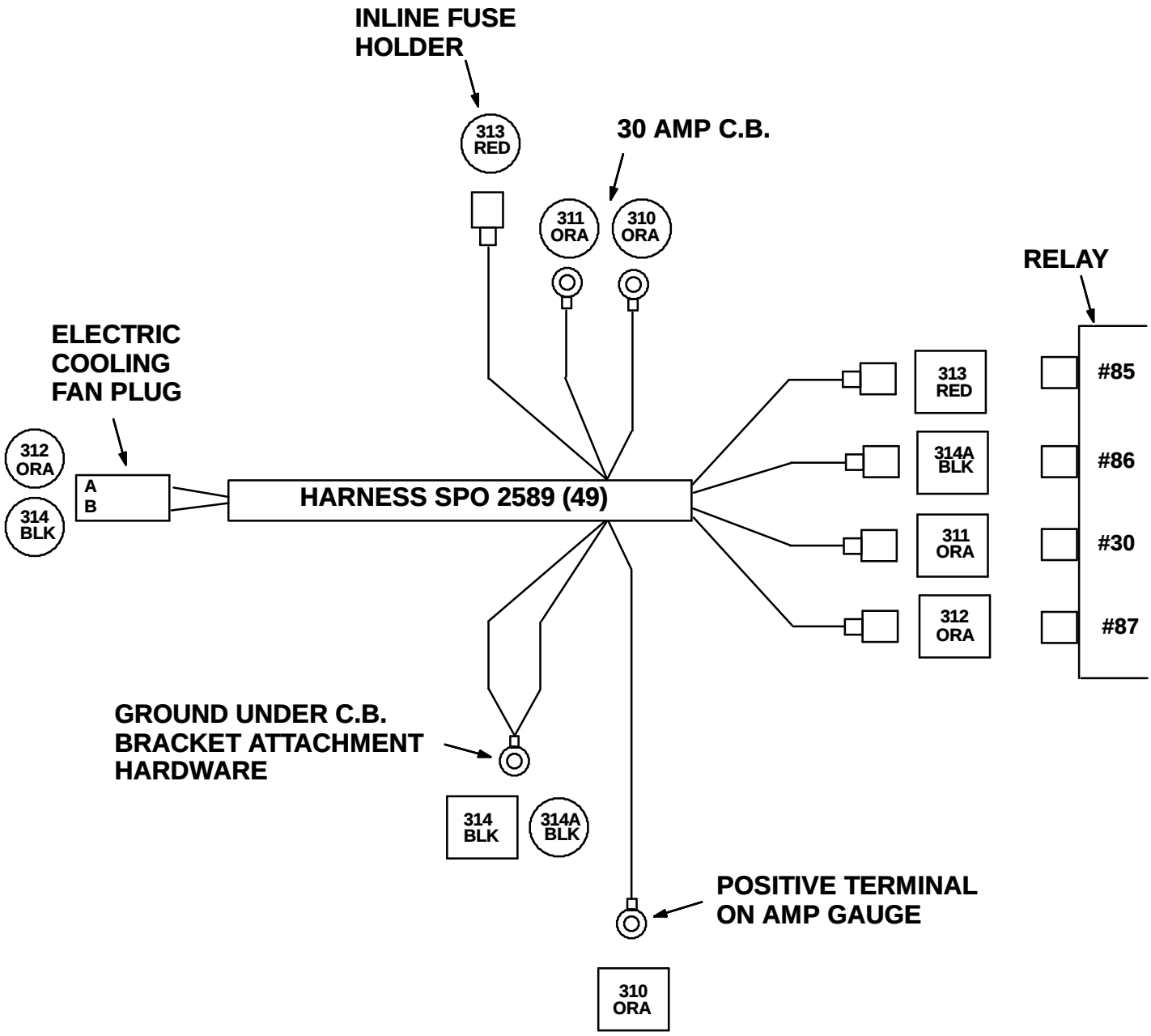

FIG. 2 - Harness Drawing And Electrical Connections

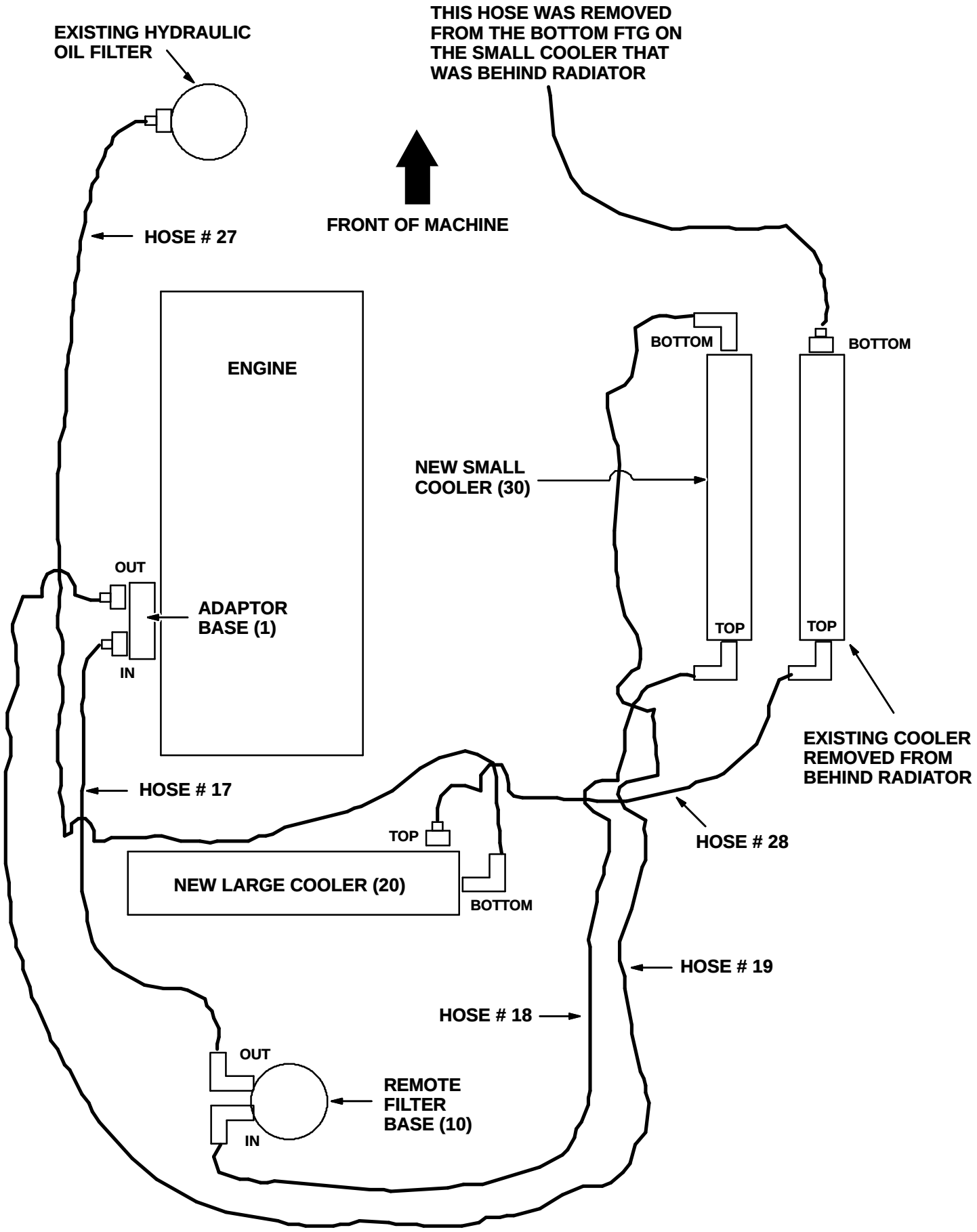

FIG. 3 - Hose Diagram