

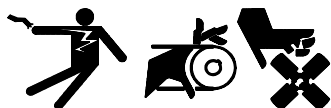
INSTALLATION INSTRUCTIONS

Original Issue Date: **3/98**
 Model: **20-2000 kW**
 Market: **Industrial**
 Subject: **Air Cleaner Restriction Indicator Kits**

The air restriction gauge monitors the air flow through the generator set engine air cleaner(s). Reduced airflow indicates a clogged air cleaner element.

The gauge displays restriction readings indicated as vacuum. As maximum allowable restriction is reached, the gauge window turns red indicating a need for air cleaner element replacement. Reset the gauge by pushing down on the top of the gauge. Observe the following safety precautions while installing the kit.

⚠ WARNING



**Accidental starting.
 Can cause severe injury or death.**

Disconnect the battery cables before working on the generator set. Remove the negative (-) lead first when disconnecting the battery. Reconnect the negative (-) lead last when reconnecting the battery.

Disabling the generator set. Accidental starting can cause severe injury or death. Before working on the generator set or connected equipment, disable the generator set as follows: (1) Move the generator set master switch to the OFF position. (2) Disconnect the power to the battery charger. (3) Remove the battery cables, negative (-) lead first. Reconnect the negative (-) lead last when reconnecting the battery. Follow these precautions to prevent starting of the generator set by an automatic transfer switch, remote start/stop switch, or engine start command from a remote computer.

Installation

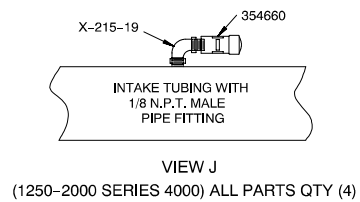
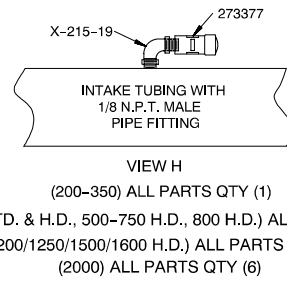
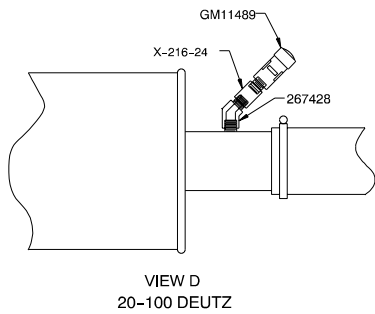
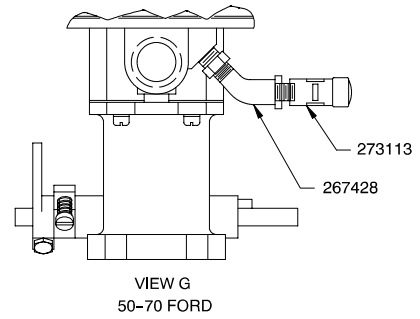
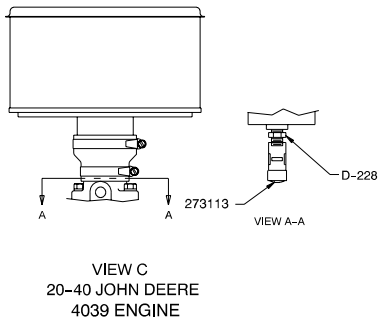
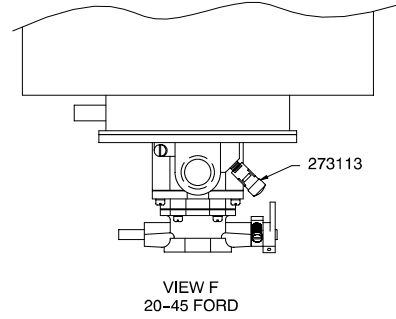
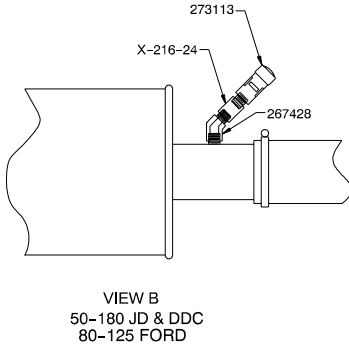
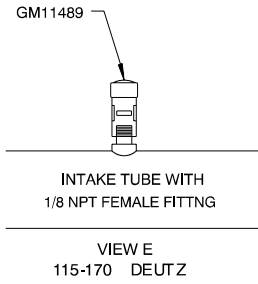
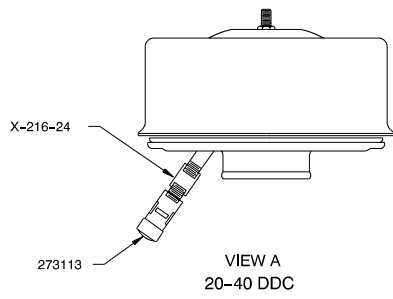
1. Place the generator set master switch in the OFF position.
2. Disconnect power to the battery charger, if equipped.
3. Disconnect the generator set engine starting battery(ies), negative (-) lead first.
4. Find the air cleaner restriction indicator kit number in the following table to determine the next installation step. See Figure 1.

| Kit No. | Installation Step No. | View |
|-------------------------|-----------------------|--------|
| GM10684-KA1 | 15 | M |
| GM10756-KA1 | 16 | S |
| GM11490-KA1 | 5 | D |
| GM11491-KA1 | 12 | E |
| PA-274608, PA-274608-SD | 5 | G |
| PA-274609, PA-274609-SD | 6 | H or N |
| PA-279828, PA-279828-SD | 6 | H |
| PA-279830, PA-279830-SD | 6 | H |
| PA-326208, PA-326208-SD | 7 | G |
| PA-326237, PA-326237-SD | 8 | F |
| PA-328005, PA-328005-SD | 9 | C |
| PA-328693, PA-328693-SD | 10 | K |
| PA-343512, PA-343512-SD | 11 | R |
| PA-343513, PA-343513-SD | 13 | L |
| PA-347603, PA-347603-SD | 6 | H |
| PA-354465, PA-354465-SD | 13 | L |
| PA-354485, PA-354485-SD | 13 | L |
| PA-361589, PA-361589-SD | 6 | J |
| PA-365250, PA-365250-SD | 12 | P |
| PA-365530, PA-365530-SD | 14 | Q |

Figure 1 Air Cleaner Restriction Indicator Kit.

- Note:** Use pipe sealant on all threaded connections to prevent leakage.
5. Perform the following steps to install the air cleaner restriction indicator kit.
 - a. Remove the cap from the air cleaner base or air intake tubing for the restriction gauge installation.
 - b. Apply pipe sealant to the threads of the street elbow (267428) and install on the air intake tube.
 - c. Apply pipe sealant to threads of the street elbow or air cleaner base fitting and install the pipe coupling (X-216-24).
 - d. Apply pipe sealant to threads of the restriction gauge (273113 or GM11489) and thread the restriction gauge into the pipe coupling.
 - e. Go to step 17.
 6. Perform the following steps to install the air cleaner restriction indicator kit.
 - a. Remove the cap from the air intake tube for the restriction gauge installation.
 - b. Apply pipe sealant to threads of the intake tube pipe fitting.
 - c. Install the 90° pipe elbow (X-215-19).
 - d. Apply pipe sealant to the threads of the restriction gauge (273377 or 354660) and thread the restriction gauge into the pipe elbow.
 - e. Go to step 17.
 7. Perform the following steps to install the air cleaner restriction indicator kit.
 - a. Remove the plug from the carburetor for the restriction gauge installation.
 - b. Apply pipe sealant to the male threads of the 45° street elbow and install the elbow on the carburetor fitting.
 - c. Apply pipe sealant to the male threads of the restriction gauge and thread the restriction gauge into the street elbow.
 - d. Go to step 17.
 8. Perform the following steps to install the air cleaner restriction indicator kit.
 - a. Remove the plug from the carburetor.
 - b. Apply pipe sealant to the male threads of the restriction gauge and thread the restriction gauge into the carburetor.
 - c. Go to step 17.
 9. Perform the following steps to install the air cleaner restriction indicator kit.
 - a. Remove the plug from the air intake.
 - b. Apply pipe sealant to the male threads of the reducer bushing (D-228) and thread the reducer bushing into the air intake.
 - c. Apply pipe sealant to the male threads of the restriction gauge and thread the restriction gauge into reducer bushing.
 - d. Go to step 17.
 10. Perform the following steps to install the air cleaner restriction indicator kit.
 - a. Remove the air cleaner and hump hose from the generator set.
 - b. Punch a 0.63 in. (16 mm) hole in the hump hose.
 - c. Install the restriction gauge adapter (328691) in the hump hose.
 - d. Thread and secure the clamp nut (328692) onto the restriction gauge adapter.
 - e. Apply pipe sealant to the male threads of the restriction gauge (273377) and thread the restriction gauge into the restriction gauge adapter.
 - f. Clean all rubber filings removed from the hose and air intake.
 - g. Reinstall the air cleaner and hump hose.
 - h. Repeat the procedure for the remaining three air cleaners and hoses.
 - i. Go to step 17.
 11. Perform the following steps to install the air cleaner restriction indicator kit.
 - a. Remove the cap from the air intake fitting.
 - b. Apply pipe sealant to the threads of the air intake fitting.
 - c. Thread the pipe coupling (X-216-24) onto the air intake fitting.

- d. Apply pipe sealant to the male threads of the restriction gauge (273377) and thread the restriction gauge into the pipe coupling.
 - e. Go to step 17.
12. Perform the following steps to install the air cleaner restriction indicator kit.
 - a. Remove the fitting from the air intake tube or hose for the restriction gauge installation.
 - b. Apply pipe sealant to the male threads of the restriction gauge (273377, 354660, or GM11489) and thread the restriction gauge into the air intake fitting.
 - c. Go to step 17.
 13. Perform the following steps to install the air cleaner restriction indicator kit.
 - a. Remove the fittings from the air intake hoses for the restriction gauge installation.
 - b. Apply pipe sealant to the male threads of the restriction gauges (273377) and thread the restriction gauges into the air intake fittings.
 - c. Go to step 17.
 14. Perform the following steps to install the air cleaner restriction indicator kit.
 - a. Remove the air cleaner and hump hose from the generator set.
 - b. Punch a 0.63 in. (16 mm) hole in the hump hose. .
 - c. Install the restriction gauge adapter (328691) in the hump hose.
 - d. Thread and secure the clamp nut (328692) onto the restriction gauge adapter.
 - e. Apply pipe sealant to the male threads of the restriction gauge (273377) and thread the restriction gauge into the restriction gauge adapter.
 - f. Clean all rubber filings removed from the hose and air intake.
 - g. Reinstall the air cleaner and hump hose.
 - h. Go to step 17.
15. Perform the following steps to install the air cleaner restriction indicator kit.
 - a. Remove the plug from the air intake.
 - b. Apply pipe sealant to the threads of the intake tube pipe fitting.
 - c. Install the 90° pipe elbow (X-215-19).
 - d. Apply pipe sealant to the threads of the restriction gauge (354660) and thread the restriction gauge into the pipe elbow.
 - e. Go to step 17.
 16. Perform the following steps to install the air cleaner restriction indicator kit.
 - a. Remove the plug from the air intake.
 - b. Apply pipe sealant to the male threads of the adapter bushing (360975) and thread the adapter bushing and nylon washer (276552) into the air intake.
 - c. Apply pipe sealant to the male threads of the restriction gauge and thread the restriction gauge into reducer bushing.
 - d. Go to step 17.
 17. Check that the generator master switch is in the OFF position.
 18. Reconnect the generator set engine starting battery, negative (-) lead last.
 19. Reconnect power to the battery charger, if equipped.



GD-273000AB

Figure 2 Restriction Gauge Location

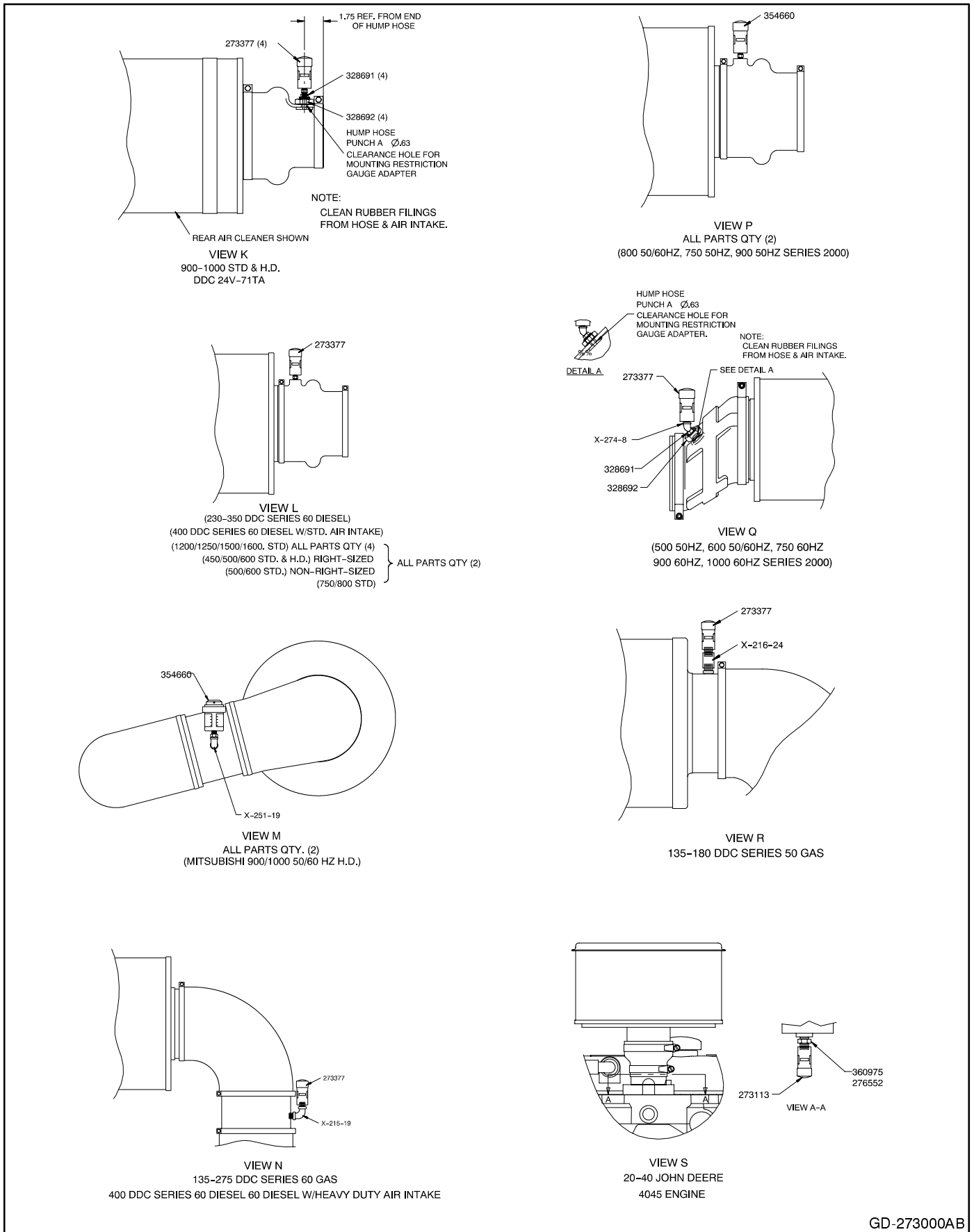


Figure 3 Restriction Gauge Location (cont.)

Air Cleaner Restriction Indicator Kit

| Parts List | | | | | | |
|---|----------------------------|---------------------------|---------------------------|------------|---------------------------|---------------------------|
| Kits: PA-326208, PA-326208-SD, PA-326237, PA-326237-SD, PA-328005, PA-328693, PA-328693-SD, PA-351589, PA-351589-SD | | Unique Parts | | | | |
| Qty. | Description | PA-326208 PA-326208-SD | PA-326237 PA-326237-SD | PA-328005 | PA-328693 PA-328693-SD | PA-351589 PA-351589-SD |
| 1 | Elbow, 45° street | 267428 | | | | X-215-19 |
| | Elbow, 90° street | | | | | |
| | Gauge, restriction | (1) 273113 | (1) 273113 | (1) 273113 | (4) 273377 | (1) 354660 |
| 4 | Adapter, restriction gauge | | | | 328691 | |
| 4 | Nut, clamp | | | | 328692 | |
| 1 | Bushing, reducer | | | D-228 | | |

Air Cleaner Restriction Indicator Kit

| Parts List | | | | | | |
|--|--------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|
| Kits: PA-343512, PA-343512-SD, PA-343513, PA-343513-SD, PA-347603, PA-347603-SD PA-354465, PA-354465-SD, PA-354485, PA-354485-SD | | Unique Parts | | | | |
| Qty. | Description | PA-343512 PA-343512-SD | PA-343513 PA-343513-SD | PA-347603 PA-347603-SD | PA-354465 PA-354465-SD | PA-354485 PA-354485-SD |
| | Coupling, pipe | (1) X-216-24 | | (6) X-215-19 | | |
| | Gauge, restriction | (1) 273377 | (1) 273377 | (6) 273377 | (4) 273377 | (2) 273377 |

Air Cleaner Restriction Indicator Kit

| Parts List | | | | | | |
|---|--------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|
| Kits: PA-274608, PA-274608-SD, PA-274609, PA-274609-SD, PA-279828, PA-279828-SD PA-279830, PA-279830-SD | | Unique Parts | | | | |
| Qty. | Description | PA-274608 PA-274608-SD | PA-274609 PA-274609-SD | PA-279828 PA-279828-SD | PA-279830 PA-279830-SD | PA-365250 PA-365250-SD |
| | Coupling, pipe | (1) X-216-24 | (1) X-215-19 | (2) X-215-19 | (4) X-215-19 | |
| 1 | Elbow, 45° street | 267428 | | | | |
| | Gauge, restriction | (1) 273113 | (1) 273377 | (2) 273377 | (4) 273377 | (2) 354660 |

Air Cleaner Restriction Indicator Kit

| Parts List | | | | | | |
|---|--------------------|--------------|-------------|-------------|-------------|---------------------------|
| Kits: GM10684-KP1, GM11490-KP1, GM11491-KP1, GM10756-KP1, PA-365530, PA-365530-SD | | Unique Parts | | | | |
| Qty. | Description | GM10684-KP1 | GM11490-KP1 | GM11491-KP1 | GM10756-KP1 | PA-365530 PA-365530-SD |
| 1 | Coupling, pipe | | X-216-24 | | | |
| | Elbow, pipe 90° | (2) X-215-19 | (1) 267428 | | | |
| | Gauge, restriction | (2) 354660 | (1) GM11489 | (1) GM11489 | (1) 273113 | (2) 273377 |
| 1 | Adapter, bushing | | | | 360975 | (2) 328691 |
| 1 | Washer, nylon | | | | 276552 | |
| 2 | Nut, Clamp | | | | | 328692 |