UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
2013 MODEL YEAR
CERTIFICATE OF CONFORMITY
WITH THE CLEAN AIR ACT OF 1990

OFFICE OF TRANSPORTATION AND AIR QUALITY
ANN ARBOR, MICHIGAN 48105

Certificate Issued To: **Amano Pioneer Eclipse Corporation**
(U.S. Manufacturer or Importer)

Certificate Number: D2PXS.6032K1-001

Effective Date: 01/03/2013

Expiration Date: 12/31/2013

Byron J. Bunker, Division Director
Compliance Division

Issue Date: 01/03/2013

Revision Date: N/A

Manufacturer: Amano Pioneer Eclipse Corporation
Engine Family: D2PXS.6032K1
Certificate Number: D2PXS.6032K1-001
Useful Life : 1000 Hours / 5 Years
Engine Class : Nonhandheld-Class II
Fuel : LPG/Propane
Emission Standards : CO (g/kW-hr) : 610
HC + NOx (g/kW-hr) : 8

Pursuant to Section 213 of the Clean Air Act (42 U.S.C. section 7547), 40 CFR Part 1054, 40 CFR Part 1068 and 40 CFR Part 60 (stationary only and combined stationary and mobile), and subject to the terms and conditions prescribed in those provisions, this certificate of conformity is hereby issued for the following small nonroad engine family, more fully described in the documentation required by 40 CFR Part 1054 and produced in the stated model year.

This certificate of conformity covers only those new small nonroad engines which conform in all material respects to the design specifications that applied to those engines described in the documentation required by 40 CFR Part 1054 and which are produced during the model year stated on this certificate of the said manufacturer, as defined in 40 CFR Part 1054. This certificate of conformity does not cover small nonroad engines imported prior to the effective date of the certificate.

It is a term of this certificate that the manufacturer shall consent to all inspections described in 40 CFR 1068.20 and 1068, Subpart E and authorized in a warrant or court order. Failure to comply with the requirements of such a warrant or court order may lead to revocation or suspension of this certificate for reasons specified in 40 CFR Part 1054. It is also a term of this certificate that this certificate may be revoked or suspended or rendered void *ab initio* for other reasons specified in 40 CFR Part 1054, 40 CFR Part 1068.

This certificate does not cover small nonroad engines sold, offered for sale, or introduced, or delivered for introduction, into commerce in the U.S. prior to the effective date of the certificate.

Pioneer Eclipse

PROPANE MACHINE SAFETY

Amano Pioneer Eclipse is a conscientious company that designs and builds indoor propane-powered equipment that is safe and reliable. We take great pride in providing the customer a well built product.

For propane-powered machines used indoors, the Occupational Safety and Health Administration (OSHA) has established a limit of 50 parts per million (ppm) of carbon monoxide (CO) for 8-hour time weighted average (TWA) ambient air. The Canadian Gas Association (CGA) has set a limit of 0.15% (1500 ppm) CO in exhaust flow. OSHA is considering a limit of 800 ppm CO in exhaust flow in lieu of the TWA limit.

Propane-powered machines must also be approved by the US Environmental Protection Agency (EPA) for sale in the US and the California Air Resource Board (CARB) for sale in California.

Manufacturers must meet all of these requirements for propane-powered floorcare machines sold in the United States and Canada. OSHA has the authority to remove a machine from the work place if it is found to be in noncompliance.

All Amano Pioneer Eclipse floorcare machines with Kawasaki engines converted to propane easily meet the requirements for CO in the exhaust flow. The engines are tuned to a level of 10-15 ppm CO in the exhaust before shipping. Each machine is operated by an engine setup inspector and final inspector to verify that the fuel system and engine are operating properly and the desired emissions are achieved. Each machine comes with a decal recording the measured emissions.

TWA is difficult to measure but can be easily calculated from the CO reading in ambient air using the following formula:

$$TWA = \frac{173.6 \times C \times D \times R \times N \times T}{A \times H \times \#}$$

where C = % CO in exhaust; D = engine size in cubic inches;
R = engine RPM while operating; N = number of cylinders;
T = operating time in hours; A = area of store in square feet;
H = ceiling height of store in feet; # = number of air changes in operating time

Example: A store has 25000 square feet area and 10 foot ceilings with the ventilation turned off and doors closed, (no air changes). A 36.8 cubic inch, 2 cylinder propane-powered buffer is used for 2 hours at 3500 rpm engine speed. The CO reading is 0.01% (100 ppm) which is the average of the reading taken after the first hour of operation and the taken after the second hour of operation.

TWA = 3.6 ppm which is far below the 50 ppm OSHA limit.

All of our fuel system components are labeled with the UL mark for safety validation. For added safety, we convert all of the engines in-house and fit them with specially formulated catalytic exhausts to achieve our low emissions. In addition, we offer a technical training course to certify technicians and provide technical assistance at 1- 336-372-8080.

For complete ease of mind, our air-cooled engines can be paired with either EcoSense™ or SafeSense™. These systems will shut down the engine if elevated levels of CO are being produced or if the machine is left unattended.

In summary, Amano Pioneer Eclipse propane-powered floorcare machines easily meet the regulatory requirements for CO emissions and, consequently, lead the industry in operator safety. But it is simply not enough to meet the requirements – emissions must be maintained as low as possible. That is our goal and what we achieve. That is what end-users should demand and expect.