MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY AIR QUALITY DIVISION

June 2, 2022

PERMIT TO INSTALL 67-22

ISSUED TO
Kawasaki Motors Corp USA

LOCATED AT
5080 36th Street SE
Grand Rapids, Michigan 49152

IN THE COUNTY OF Kent

STATE REGISTRATION NUMBER P0677

The Air Quality Division has approved this Permit to Install, pursuant to the delegation of authority from the Michigan Department of Environment, Great Lakes, and Energy. This permit is hereby issued in accordance with and subject to Section 5505(1) of Article II, Chapter I, Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended. Pursuant to Air Pollution Control Rule 336.1201(1), this permit constitutes the permittee's authority to install the identified emission unit(s) in accordance with all administrative rules of the Department and the attached conditions. Operation of the emission unit(s) identified in this Permit to Install is allowed pursuant to Rule 336.1201(6).

DATE OF RECEIPT OF ALL INFORMATION REQUIRED BY RULE 203:			
May 3, 2022			
-			
DATE PERMIT TO INSTALL APPROVED:	SIGNATURE:		
June 2, 2022			
DATE PERMIT VOIDED:	SIGNATURE:		
DATE PERMIT REVOKED:	SIGNATURE:		

PERMIT TO INSTALL

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COMMON ACRONYMS

AQD Air Quality Division

BACT Best Available Control Technology

CAA Clean Air Act

CAM Compliance Assurance Monitoring
CEMS Continuous Emission Monitoring System

CFR Code of Federal Regulations

COMS Continuous Opacity Monitoring System

Department/department/EGLE Michigan Department of Environment, Great Lakes, and Energy

EU Emission Unit FG Flexible Group

GACS Gallons of Applied Coating Solids

GC General Condition
GHGs Greenhouse Gases

HVLP High Volume Low Pressure*

ID Identification

IRSLInitial Risk Screening LevelITSLInitial Threshold Screening LevelLAERLowest Achievable Emission RateMACTMaximum Achievable Control TechnologyMAERSMichigan Air Emissions Reporting System

MAP Malfunction Abatement Plan MSDS Material Safety Data Sheet

NA Not Applicable

NAAQS National Ambient Air Quality Standards

NESHAP National Emission Standard for Hazardous Air Pollutants

NSPS New Source Performance Standards

NSR New Source Review
PS Performance Specification

PSD Prevention of Significant Deterioration

PTE Permanent Total Enclosure

PTI Permit to Install

RACT Reasonable Available Control Technology

ROP Renewable Operating Permit

SC Special Condition

SCR Selective Catalytic Reduction SNCR Selective Non-Catalytic Reduction

SRN State Registration Number

TBD To Be Determined

TEQ Toxicity Equivalence Quotient

USEPA/EPA United States Environmental Protection Agency

VE Visible Emissions

^{*}For HVLP applicators, the pressure measured at the gun air cap shall not exceed 10 psig.

POLLUTANT / MEASUREMENT ABBREVIATIONS

acfm Actual cubic feet per minute

BTU British Thermal Unit °C Degrees Celsius CO Carbon Monoxide

CO2e Carbon Dioxide Equivalent dscf Dry standard cubic foot dscm Dry standard cubic meter Pegrees Fahrenheit

gr Grains

HAP Hazardous Air Pollutant

Hg Mercury hr Hour

 $\begin{array}{ccc} \text{HP} & \text{Horsepower} \\ \text{H}_2 \text{S} & \text{Hydrogen Sulfide} \end{array}$

kW Kilowatt

lb Pound

m Meter

mg Milligram

mm Millimeter

MM Million

MW Megawatts

NMOC Non-Methane Organic Compounds

NO_x Oxides of Nitrogen

ng Nanogram

PM Particulate Matter

PM10 Particulate Matter equal to or less than 10 microns in diameter PM2.5 Particulate Matter equal to or less than 2.5 microns in diameter

pph Pounds per hour ppm Parts per million

ppmv Parts per million by volume ppmw Parts per million by weight

psia Pounds per square inch absolute psig Pounds per square inch gauge

scf Standard cubic feet

sec Seconds SO₂ Sulfur Dioxide

TAC Toxic Air Contaminant

Temp Temperature THC Total Hydrocarbons

tpy Tons per year µg Microgram

µm Micrometer or Micron

VOC Volatile Organic Compounds

yr Year

GENERAL CONDITIONS

- 1. The process or process equipment covered by this permit shall not be reconstructed, relocated, or modified, unless a Permit to Install authorizing such action is issued by the Department, except to the extent such action is exempt from the Permit to Install requirements by any applicable rule. (R 336.1201(1))
- 2. If the installation, construction, reconstruction, relocation, or modification of the equipment for which this permit has been approved has not commenced within 18 months, or has been interrupted for 18 months, this permit shall become void unless otherwise authorized by the Department. Furthermore, the permittee or the designated authorized agent shall notify the Department via the Supervisor, Permit Section, Air Quality Division, Michigan Department of Environment, Great Lakes, and Energy, P.O. Box 30260, Lansing, Michigan 48909-7760, if it is decided not to pursue the installation, construction, reconstruction, relocation, or modification of the equipment allowed by this Permit to Install. (R 336.1201(4))
- 3. If this Permit to Install is issued for a process or process equipment located at a stationary source that is not subject to the Renewable Operating Permit program requirements pursuant to Rule 210 (R 336.1210), operation of the process or process equipment is allowed by this permit if the equipment performs in accordance with the terms and conditions of this Permit to Install. (R 336.1201(6)(b))
- 4. The Department may, after notice and opportunity for a hearing, revoke this Permit to Install if evidence indicates the process or process equipment is not performing in accordance with the terms and conditions of this permit or is violating the Department's rules or the Clean Air Act. (R 336.1201(8), Section 5510 of Act 451, PA 1994)
- 5. The terms and conditions of this Permit to Install shall apply to any person or legal entity that now or hereafter owns or operates the process or process equipment at the location authorized by this Permit to Install. If the new owner or operator submits a written request to the Department pursuant to Rule 219 and the Department approves the request, this permit will be amended to reflect the change of ownership or operational control. The request must include all of the information required by subrules (1)(a), (b), and (c) of Rule 219 and shall be sent to the District Supervisor, Air Quality Division, Michigan Department of Environment, Great Lakes, and Energy. (R 336.1219)
- 6. Operation of this equipment shall not result in the emission of an air contaminant which causes injurious effects to human health or safety, animal life, plant life of significant economic value, or property, or which causes unreasonable interference with the comfortable enjoyment of life and property. (R 336.1901)
- 7. The permittee shall provide notice of an abnormal condition, start-up, shutdown, or malfunction that results in emissions of a hazardous or toxic air pollutant which continue for more than one hour in excess of any applicable standard or limitation, or emissions of any air contaminant continuing for more than two hours in excess of an applicable standard or limitation, as required in Rule 912, to the Department. The notice shall be provided not later than two business days after start-up, shutdown, or discovery of the abnormal condition or malfunction. Written reports, if required, must be filed with the Department within 10 days after the start-up or shutdown occurred, within 10 days after the abnormal conditions or malfunction has been corrected, or within 30 days of discovery of the abnormal condition or malfunction, whichever is first. The written reports shall include all of the information required in Rule 912(5). (R 336.1912)
- 8. Approval of this permit does not exempt the permittee from complying with any future applicable requirements which may be promulgated under Part 55 of 1994 PA 451, as amended or the Federal Clean Air Act.
- 9. Approval of this permit does not obviate the necessity of obtaining such permits or approvals from other units of government as required by law.
- 10. Operation of this equipment may be subject to other requirements of Part 55 of 1994 PA 451, as amended and the rules promulgated thereunder.

- 11. Except as provided in subrules (2) and (3) or unless the special conditions of the Permit to Install include an alternate opacity limit established pursuant to subrule (4) of Rule 301, the permittee shall not cause or permit to be discharged into the outer air from a process or process equipment a visible emission of density greater than the most stringent of the following. The grading of visible emissions shall be determined in accordance with Rule 303 (R 336.1303). (R 336.1301)
 - a) A six-minute average of 20 percent opacity, except for one six-minute average per hour of not more than 27 percent opacity.
 - b) A visible emission limit specified by an applicable federal new source performance standard.
 - c) A visible emission limit specified as a condition of this Permit to Install.
- 12. Collected air contaminants shall be removed as necessary to maintain the equipment at the required operating efficiency. The collection and disposal of air contaminants shall be performed in a manner so as to minimize the introduction of contaminants to the outer air. Transport of collected air contaminants in Priority I and II areas requires the use of material handling methods specified in Rule 370(2). (R 336.1370)
- 13. The Department may require the permittee to conduct acceptable performance tests, at the permittee's expense, in accordance with Rule 1001 and Rule 1003, under any of the conditions listed in Rule 1001. (R 336.2001)

EMISSION UNIT SPECIAL CONDITIONS

EMISSION UNIT SUMMARY TABLE

The descriptions provided below are for informational purposes and do not constitute enforceable conditions.

Emission Unit ID	Emission Unit Description (Including Process Equipment & Control Device(s))	Installation Date / Modification Date	Flexible Group ID
EU-TEST1	Durability/endurance testing of engines up to 50 hp. Exhausted to SV-EF5A.	1/12/2016	FG-TESTCELLS
EU-TEST2	Durability/endurance testing of engines up to 50 hp. Exhausted to SV-EF5A.	1/12/2016	FG-TESTCELLS
EU-TEST3	Durability/endurance testing of engines up to 50 hp. Exhausted to SV-EF5A.	1/12/2016	FG-TESTCELLS
EU-TEST4	Durability/endurance testing of engines up to 50 hp. Exhausted to SV-EF5A.	1/12/2016	FG-TESTCELLS
EU-TEST5	Durability/endurance testing of engines up to 50 hp. Exhausted to SV-EF5A.	1/12/2016	FG-TESTCELLS
EU-TEST6	Durability/endurance testing of engines up to 50 hp. Exhausted to SV-EF5A	1/12/2016	FG-TESTCELLS
EU-TEST7	Durability/endurance testing of engines up to 50 hp. Exhausted to SV-EF5A	1/12/2016	FG-TESTCELLS
EU-TEST8	Durability/endurance testing of engines up to 50 hp. Exhausted to SV-EF5A	1/12/2016	FG-TESTCELLS
EU-TEST9	Durability/endurance testing of engines up to 50 hp. Exhausted to SV-EF5A	1/12/2016	FG-TESTCELLS
EU-TEST10	Performance testing of engines up to 50 hp. Exhausted to SV-EF5C.	1/12/2016	FG-TESTCELLS
EU-TEST11	Performance testing of engines up to 50 hp. Exhausted to SV-EF5C.	1/12/2016	FG-TESTCELLS
EU-TEST12	Performance testing of engines up to 50 hp. Exhausted to SV-EF5E.	1/12/2016	FG-TESTCELLS
EU-TEST13	Performance testing of engines up to 50 hp. Exhausted to SV-EF5C.	1/12/2016	FG-TESTCELLS
EU-TEST14	Performance testing of engines up to 50 hp. Exhausted to SV-EF5C.	1/12/2016	FG-TESTCELLS
EU-TEST15	Rain testing of engines up to 50 hp. Exhausted to SV-EF5D.	1/12/2016	FG-TESTCELLS
EU-TEST16	Climactic testing of engines up to 50 hp. Exhausted to SV-EF5D.	1/12/2016	FG-TESTCELLS
EU-TEST17	Climactic testing of engines up to 50 hp. Exhausted to SV-EF5D.	1/12/2016	FG-TESTCELLS
EU-TEST18	Chassis test cell - testing of engines up to 50 hp. Exhausted to SV-EF5D.	1/12/2016	FG-TESTCELLS
EU-TEST19	Chassis test cell - testing of engines up to 50 hp. Exhausted to SV-EF5D.	1/12/2016	FG-TESTCELLS
EU-TEST20			FG-TESTCELLS
EU- NATGASHEAT	Natural gas-fired equipment installed along with the original installation of test cells, including air make-up units and a boiler/hot water generator.	01/01/2016	NA

Emission Unit ID	Emission Unit Description (Including Process Equipment & Control Device(s))	Installation Date / Modification Date	Flexible Group ID
EU-TANKS	One horizontal gasoline storage tank installed along with the original installation of test cells. The tank has a capacity of 2,000 gallons.	1/01/2016	NA

Changes to the equipment described in this table are subject to the requirements of R 336.1201, except as allowed by R 336.1278 to R 336.1291.

FLEXIBLE GROUP SPECIAL CONDITIONS

FLEXIBLE GROUP SUMMARY TABLE

The descriptions provided below are for informational purposes and do not constitute enforceable conditions.

Flexible Group ID	Flexible Group Description	Associated Emission Unit IDs
FG-TESTCELLS	Twenty (20) test cells, testing gasoline and ethanol-fired engines up to 50 hp.	EU-TEST1, EU-TEST2, EU-TEST3, EU-TEST4, EU-TEST5, EU-TEST6, EU-TEST7, EU TEST8, EU-TEST9, EU-TEST10, EU-TEST11, EU-TEST12, EU-TEST13, EU-TEST14, EU-TEST15, EU TEST16, EU-TEST17, EU-TEST18, EU-TEST19, EU-TEST20

FG-TESTCELLS FLEXIBLE GROUP CONDITIONS

DESCRIPTION

Twenty (20) test cells, testing gasoline and ethanol-fired engines up to 50 hp.

Emission Unit: EU-TEST1, EU-TEST2, EU-TEST3, EU-TEST4, EU-TEST5, EU-TEST6, EU-TEST7, EU-TEST8, EU-TEST10, EU-TEST11, EU-TEST12, EU-TEST13, EU-TEST14, EU-TEST15, EU-TEST16, EU-TEST17, EU-TEST18, EU-TEST19, EU-TEST20

POLLUTION CONTROL EQUIPMENT

Durability/Endurance cells EU-TEST1 through EU-TEST9 are equipped with a Pressure Control Oxidizer (PCO). The remining eleven (11) test cells are uncontrolled.

I. EMISSION LIMIT(S)

		Time Period /		Monitoring / Testing	Underlying Applicable
Pollutant	Limit	Operating Scenario	Equipment	Method	Requirements
1. CO	6.57 lb/gal ^A	Hourly, uncontrolled	FG-TESTCELLS	SC V.1	40 CFR 52.21(d)
2. CO	180.7 tpy	12-month rolling time period as determined at the end of each calendar month.	FG-TESTCELLS	SC V.2, SC VI.3	R 336.1205(1)(a) & (3)
3. Benzene	291.5 lbs/yr ¹	12-month rolling time period as determined at the end of each calendar month.	FG-TESTCELLS	SC V.2, SC VI.3	R 336.1225
4. 1,3-Butadiene	98.5 lbs/yr ¹	12-month rolling time period as determined at the end of each calendar month.	FG-TESTCELLS	SC V.2, SC VI.3	R 336.1225
5. Formaldehyde	160.9 lbs/yr ¹	12-month rolling time period as determined at the end of each calendar month.	FG-TESTCELLS	SC V.2, SC VI.3	R 336.1225
6. Acetaldehyde		12-month rolling time period as determined at the end of each calendar month.	FG-TESTCELLS	SC V.2,, SC VI.3	R 336.1225
Alb/gal = pound per gallon					

II. MATERIAL LIMIT(S)

		Time Period /		Monitoring / Testing	Underlying Applicable
Material	Limit	Operating Scenario	Equipment	Method	Requirements
Fuel (any combination of gasoline, ethanol/gasoli ne blend, E85	which no more	calendar month.	FG-TESTCELLS	SC VI.2	R 336.1205(1)(a) & (3), R 336.1225, 40 CFR 52.21(d)

2. The permittee shall only test engines burning gasoline, ethanol, or gasoline/ethanol blends in FG-TESTCELLS. (R 336.1205, R 336.1224, R 336.1225, 40 CFR 52.21(c) & (d))

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee shall not operate EU-TEST1 through EU-TEST9 unless a malfunction abatement plan (MAP) as described in Rule 911(2), for the PCO, has been submitted within 180 days of permit issuance, and is implemented and maintained. The MAP shall include acceptable pressure and temperature ranges of operation based on the previous PCO performance test. If at any time the MAP fails to address or inadequately addresses an event that meets the characteristics of a malfunction, the permittee shall amend the MAP within 45 days after such an event occurs. The permittee shall also amend the MAP within 45 days, if new equipment is installed or upon request from the District Supervisor. The permittee shall submit the MAP and any amendments to the MAP to the AQD District Supervisor for review and approval. If the AQD does not notify the permittee within 90 days of submittal, the MAP or amended MAP shall be considered approved. Until an amended plan is approved, the permittee shall implement corrective procedures or operational changes to achieve compliance with all applicable emission limits. (R 336.1225, R 336.1702(a), R 336.1910, R 336.1911, 40 CFR 52.21(c) and (d))

IV. DESIGN/EQUIPMENT PARAMETER(S)

- The permittee shall install and operate devices as necessary to measure the total fuel usage in both controlled and uncontrolled test cells in FG-TESTCELLS. (R 336.1205(1)(a) & (3), R 336.1225, 40 CFR 52.21(d))
- 2. The permittee shall not operate EU-TEST1 through EU-TEST9 unless the associated exhaust is routed to the PCO with a minimum control efficiency of 90% for CO and 95% for VOCs. The permittee shall install, maintain, and operate the PCO in a satisfactory manner acceptable to the AQD District Supervisor and in accordance with the MAP. (R 336.1205, R 336.1224, R 336.1225 R 336.1702, R 336.1910)
- 3. The permittee shall not operate EU-TEST1 through EU-TEST9 unless a minimum operating temperature of 600°F is maintained in the PCO. (R 336.1205, R 336.1224, R 336.1225 R 336.1702, R 336.1910)
- 4. The permittee shall install an interlock to prevent engine operation until the PCO has reached a minimum operating temperature of 600°F. (R 336.1205, R 336.1224, R 336.1225 R 336.1702, R 336.1910)

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. (R 336.1201(3))

- 1. The permittee shall verify the CO emission factor (lb/gal) for FG-TESTCELLS by testing at owner's expense, in accordance with Department requirements within 5 years from the date of the last CO performance test and every 5 years thereafter. The testing shall be performed on one or more test cells, while the engine(s) to be tested are burning gasoline, under conditions which will produce the maximum emission rate. For compliance purposes, the hourly emission rate is the average of the multiple test runs as specified by the testing method. Testing shall be performed using an approved EPA Method listed in 40 CFR Part 60, Appendix A and B. No less than 60 days prior to testing, the permittee shall submit a complete test plan to the AQD Technical Programs Unit and District Office. The AQD must approve the final plan prior to testing. Verification of emission rates includes the submittal of a complete report of the test results to the AQD Technical Programs Unit and District Office within 60 days following the last date of the test. (R 336.1205(1)(a) & (3), R 336.2001, R 336.2003, R 336.2004, 40 CFR 52.21(d)
- Within 180 days of permit issuance, the permittee shall verify the VOC and CO control efficiencies of the PCO for FG-TESTCELLS by testing at owner's expense, in accordance with Department requirements. Testing shall be performed on a representative number of test cells using an approved EPA Method listed in 40 CFR Part 60, Appendix A while performing engine testing typically completed in those cells that produce the maximum VOC and CO emissions including periods of Wide Open Throttle operation. The temperatures and pressures during the test shall be recorded for incorporation into the MAP. No less than 60 days prior to testing, the permittee shall submit a complete test plan to the AQD Technical Programs Unit and District Office. The AQD must approve the final plan prior to testing. Verification of emission rates includes the submittal of a complete report of the test results to the AQD Technical Programs Unit and District Office within 60 days following the last date of the test. (R 336.1225, R 336.2001, R 336.2003, R 336.2004)

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. (R 336.1201(3))

- 1. The permittee shall complete all required calculations in a format acceptable to the AQD District Supervisor by the last day of the calendar month, for the previous calendar month, unless otherwise specified in any monitoring/recordkeeping special condition. (R 336.1205(1)(a) & (3), R 336.1225, 40 CFR 52.21(d))
- 2. The permittee shall keep, in a satisfactory manner, monthly and 12-month rolling time period records of the following for FG-TESTCELLS
 - a) Total gallons of each fuel burned in EU-TEST1 through EU-TEST9 (controlled).
 - b) Total gallons of each fuel burned in EU-TEST10 through EU-TEST20 (uncontrolled).
 - c) Total gallons of all fuel burned in FG-TESTCELLS.

The permittee shall keep all records on file at the facility and make them available to the Department upon request. (R 336.1205(1)(a) & (3), R 336.1225, 40 CFR 52.21(d))

- 3. The permittee shall keep, in a satisfactory manner, monthly and 12-month rolling time period CO, benzene, 1,3-butadiene, formaldehyde, and acetaldehyde emission calculation records for FG-TESTCELLS, as required by SC I.2, I.3, I.4, I.5, and I.6, and Appendix A. The permittee shall keep all records on file at the facility and make them available to the Department upon request. (R 336.1205(1)(a) & (3), R 336.1225)
- 4. The permittee shall monitor and record the temperature of the PCO on a continuous basis during operation of EU-TEST1 through EU-TEST9. All records shall be kept on file for a period of at least five years and made available to the Department upon request. (R 336.1205, R 336.1224, R 336.1225 R 336.1702, R 336.1910)

VII. REPORTING

VIII. STACK/VENT RESTRICTION(S)

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

Stack & Vent ID	Maximum Exhaust Diameter/Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SV-EF5A	20	48	R 336.1225,
			40 CFR 52.21(c) & (d)
2. SV-EF5C	20	48	R 336.1225,
			40 CFR 52.21(c) & (d)
3. SV-EF5D	20	48	R 336.1225,
			40 CFR 52.21(c) & (d)
4. SV-EF5E	6	48	R 336.1225,
			40 CFR 52.21(c) & (d)

IX. OTHER REQUIREMENT(S)

NA

Footnotes:

¹ This condition is state only enforceable and was established pursuant to Rule 201(1)(b).

APPENDIX A Procedures for Calculating Annual Emissions

The permittee shall demonstrate compliance with the CO emission limits (SC I.2) by keeping track of fuel usage for FG-TESTCELLS and multiplying that fuel usage by an equipment-specific emission factor. The emission factors are typically expressed as the mass of pollutant per unit of fuel.

CO Emission Calculation:

The permittee shall use 6.57 lb CO/gal fuel to calculate uncontrolled emissions from FG-TESTCELLS, until other emission factors become available from source specific testing (stack testing). If emission factors from other sources are used, the permittee shall obtain the approval of the AQD District Supervisor before using the emission factors to calculate emissions.

The CO control efficiency of 90% shall be used to calculate controlled emissions from FG-TESTCELLS, until a different control efficiency becomes available from a source specific PCO performance test. If control efficiencies from other sources are used, the permittee shall obtain the approval of the AQD District Supervisor before using the emission factors to calculate emissions.

Toxics Emission Calculation:

The permittee shall calculate toxics as a percentage of the total VOCs from FG-TESTCELLS using the percentages in the table below. The permittee shall use 0.16 lb VOC/gal fuel to calculate uncontrolled emissions from FG-TESTCELLS, unless other emission factors become available from source specific testing (stack testing). If emission factors from other sources are used, the permittee shall obtain the approval of the AQD District Supervisor before using the emission factors to calculate emissions.

The VOC control efficiency of 95% shall be used to calculate controlled emissions from FG-TESTCELLS, until a different control efficiency becomes available from a source specific PCO performance test. If control efficiencies from other sources are used, the permittee shall obtain the approval of the AQD District Supervisor before using the emission factors to calculate emissions.

Toxic	% VOC
Benzene	3.84%
1,3-Butadiene	1.30%
Formaldehyde	2.12%
Acetaldehyde	1.18%