

TO: Byron Brown and Mandy Gunasekara
FROM: Fitzgerald Truck Sales
DATE: May 16, 2017
RE: Fitzgerald Truck Parts' Summary of Issues Concerning the GHG Emissions and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles – Phase 2, 81 Fed. Reg. 73,478 (Oct. 25, 2016) (“Phase 2 Rule”)

The following summary is provided by Fitzgerald Truck Parts (“Fitzgerald”) to assist with the EPA’s review and reconsideration of the Phase 2 Regulation as it is applied to the glider industry. Fitzgerald is a closely held company that repairs worn heavy duty trucks using a glider kit (“gliders”), which is a collection of new highway tractor parts sold as an assemblage. This memorandum summarizes several issues Fitzgerald has raised in ongoing conversations, including Fitzgerald’s reuse of cast steel in its engines, engine weight reduction through redesign and machining of various engine components, and substantive factual and legal issues with the Phase 2 Regulation itself.

Item 1: Substantive Factual and Legal Issues in the Phase 2 Regulation

Fitzgerald has identified the following factual and legal issues in the Phase 2 Rule, specifically as it relates to the treatment of gliders in the Phase 2 Rule.

- 1) Glider – glider kit or glider vehicle is not “new” vehicle
 - a. The CAA provides the EPA with authority to regulate "new motor vehicles" and their engines, defined as "self-propelled" vehicles "the equitable or legal title to which has never been transferred to the ultimate purchaser". *See* 42 U.S.C. §§ 7522(a) and 7550(3). Gliders are not new motor vehicles.
 - i. The long-time NHTSA rule defines gliders as not new vehicles. NHTSA’s rule provides, in pertinent part, “When a new cab is used in the assembly of a truck, the truck will be considered newly manufactured for purposes of paragraph (a) of this section, the application of the requirements of this chapter, and the Act, unless the engine, transmission, and drive axle(s) (as a minimum) of the assembled vehicle are not new, and at least two of these components were taken from the same vehicle.” 49 C.F.R. 571.7(e).
 - ii. Vehicle title to the glider is linked to the donor vehicle, meaning the purchaser of a glider is not taking “initial title”; EPA rejected this argument by relying on advertising language on Fitzgerald’s website. (81 Fed. Reg. at 73,513-514).
 - iii. Glider vehicles’ VINs identify them as refurbished (state titles identify gliders as gliders, used, rebuilt, or remanufactured on the vehicle’s title or in the sequencing of the VIN number); glider kit VINs identify them as incomplete vehicles. (*see, e.g.*, RTC 1832).

- iv. The National Automobile Dealers Association (NADA) blue book values gliders significantly less than new vehicles, because they are not new vehicles.
 - b. The Phase 2 Rule and preamble makes circular and arbitrary arguments in an attempt to support its decision to regulate gliders for the first time. The Rule argues that it can regulate because:
 - i. The Rule's reliance on cherry picked statements from the Fitzgerald website that the glider "...is like a new truck" (81 Fed. Reg. at 73,514).
 1. Of course, language from a company website does not meet the statutory requirement nor provide the legal authority for gliders to be new vehicles.
 - ii. It already implicitly determined gliders were new vehicles in Phase 1 by exempting gliders from the Phase 1 rule and thus any challenge is too late (81 Fed. Reg. at 73,513)
 1. It is hard to understand how exempting gliders, for which the statutory language of the CAA does not support regulating, somehow allows for such regulation.
 - iii. Argues that CAA grants authority to regulate parts of a vehicle in the past and can do so now (e.g. locomotives, vapor recovery systems). (81 Fed. Reg. at 73,514).
 1. The rule however is not regulating the engine for example, rather it is attempting to make a glider a new vehicle.
 - c. Apparently recognizing the lack of statutory authority and overreach, the Phase 2 Rule attempts to shroud its authority to regulate gliders under another equally flawed argument under the CAA. (81 Fed. Reg. at 73,517). The Rule states, in pertinent part, "[e]ven if, against our view, trailers and glider kits are not considered to be "motor vehicles," and the entities engaged in assembling trailers and glider kits are not considered to be manufacturers of motor vehicles, the Clean Air Act still provides authority for the testing requirements adopted here."
- 2) Economics
- a. Glider Industry is over a billion dollars and supports upwards of 20,000 jobs nationally. The glider industry supplies the small businesses who need heavy-duty tractors to operate but cannot afford the cost of buying new. It also reduces their operating costs. (RTC p. 1885).
 - b. Fitzgerald operates in small towns impacted by decreases in manufacturing jobs and provides high paying jobs in these communities. Fitzgerald and other glider assemblers are often the largest employer in the towns in which they operate.
 - c. The Phase 2 rule forces an immediate business model change without sufficient lead time to prepare for compliance, thereby forcing glider companies to prepare for drastic reductions in workforce. Because of the insufficient lead time, starting January 1, 2018, Fitzgerald will have to reduce its output by 90% to comply with the 300 glider cap.
- 3) The Phase 2 Rule did not rely on independent data, its own testing or data from the glider industry.

- a. Relied on data from foreign manufacturer of new vehicles where the data is decades old and long before ultra-low-sulfur diesel fuel. (RTC p. 1875)
 - b. Relied on articles in industry publications, public statements, or websites. (*See, e.g.*, 81 Fed. Reg. 73,514 n.82, 83, 73,518 n.93, 73,943 n.987; RTC p. 1881, 1883).
 - c. Tennessee Tech University has and continues to conduct independent and extensive testing to compare Fitzgerald re-built engines with Original Equipment Manufacturer (“OEM”) engines to compare fuel efficiency and emissions.
 - d. Fitzgerald is able to reuse approximately 4,000 pounds of cast steel when rebuilding engines, transmissions and rear ends, preventing significant emissions and other environmental concerns associated with the casting of new parts. This in combination with superior fuel efficiency to an OEM substantially reduces the carbon footprint of the rebuilt vehicle.
- 4) Gliders are not “defeat” devices.
- a. “Principal effect” of a glider kit is not to “defeat” any regulation under CAA Section 202.
 - b. EPA did not conduct any testing on fuel efficiency of engines installed in glider vehicles. The Phase 2 Rule provides no support or substantial discussion in the preamble to this assertion. (81 Fed. Reg. 73,517).
 - c. EPA relied on inaccurate and old data contained in comments from Volvo with regards to the new glider market being based on avoiding emission controls. (RTC p. 1866, 1878).
 - d. Fitzgerald optimizes engines with new generation components. Independent research verifies significantly better fuel efficiency than new trucks and performance within 98% of GHG and PM standards.
- 5) Fuel Efficiency Standard
- a. Glider vehicles are more fuel efficient than today’s OEM engines. Standard base model glider is consistently 20% better fuel mileage than national average at road speed a full load.
 - b. Fitzgerald has developed methods and parts that are able to replace cast steel and reduce the weight of the engine resulting in better fuel efficiency. New engines are still built with the steel components.
 - c. NHTSA elected not to include gliders in its Phase 2 program for fuel efficiency standards (p.73584).
- 6) Rule purports to be GHG and fuel efficiency standard rule but instead regulates NOx and PM emissions for gliders.
- a. This should have been a separate rulemaking.
 - i. Phase 2 rule’s stated design: GHG emissions and fuel consumption (p. 73524), yet without statutory authority EPA acknowledges this rule also regulates criteria pollutants (p. 73526, n.130).
 - ii. While NOx and PM standards for new engines took full effect in 2010, the glider industry found itself suddenly subject to these requirements and had to start complying within 3 months of publication of the final rule and four days from effective date (except for the small business exceptions, touted

as flexibility for those businesses – however it was not flexible), with most significant impact within 12 months of effective date. (81 Fed. Reg. 73,518, 73,942-945).

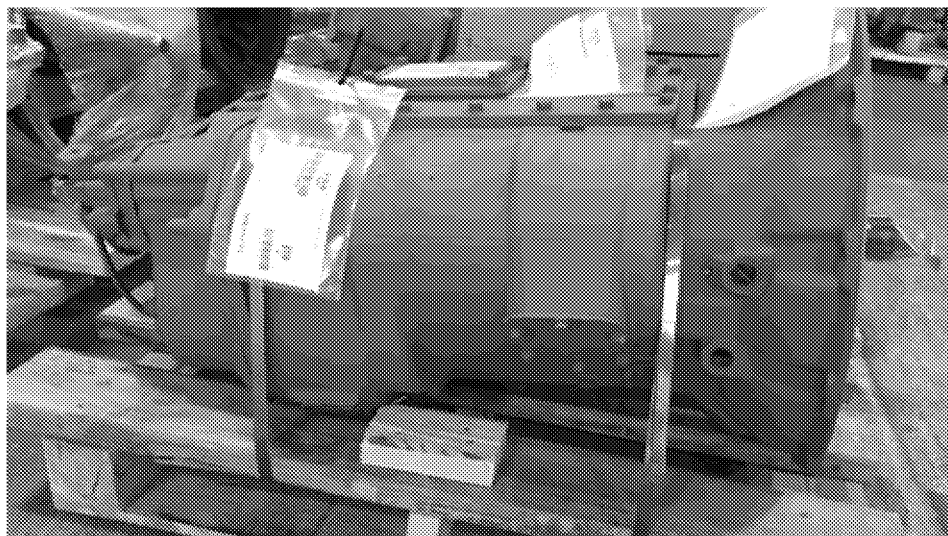
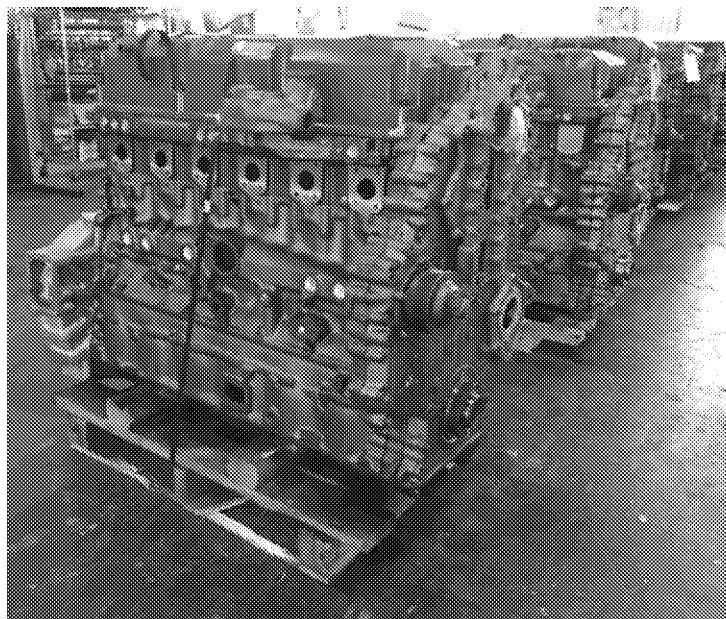
- b. Rule for NOx/PM does not comply with CAA’s four year lead time in CAA 202(a)(3)(C).
 - i. Rule incorrectly states lead time is not required because these are not new standards (81 Fed. Reg. 73,518-519) and compliant engines are readily available (81 Fed. Reg. 73,945).
 - ii. Rule notes specifically that Fitzgerald will need to reduce its production in 2017, but goes on to state, without any justification, that it does “not believe that manufacturer truly needs additional lead time.” The Rule calls the gliders highly polluting in its justification of killing the industry, but fails to rely on actual data that takes into account the rebuilt engines with current technology, engine programming in the electronic control module and ultra-low-sulfur diesel fuel used in all engines since 2010.

Item 2: Fitzgerald’s Reuse of Cast Steel Engine Components

In rebuilding a worn or wrecked tractor with a glider kit, Fitzgerald utilizes engines, transmissions and rear ends (rears) from a donor tractor. The reuse of these items, the heart and soul of the tractor, results in the reuse of approximately 4,000 pounds of cast steel. Of course, the economic and environmental costs of casting 4,000 or more pounds of steel is significant when a glider is used to restore a worn or wrecked truck as opposed to building a new truck.

Engine Component	Weight of Cast Steel
Engine Assembly (block, crank shaft, rods)	3,000 lbs.
Transmission (13, 15, or 18 speed)	500-700 lbs.
Rears (2 sides)	600 lbs.
Total Weight	4,100 – 4,300 lbs.

The photographs below show an engine and transmission and give a perspective on the amount of cast steel reuse.

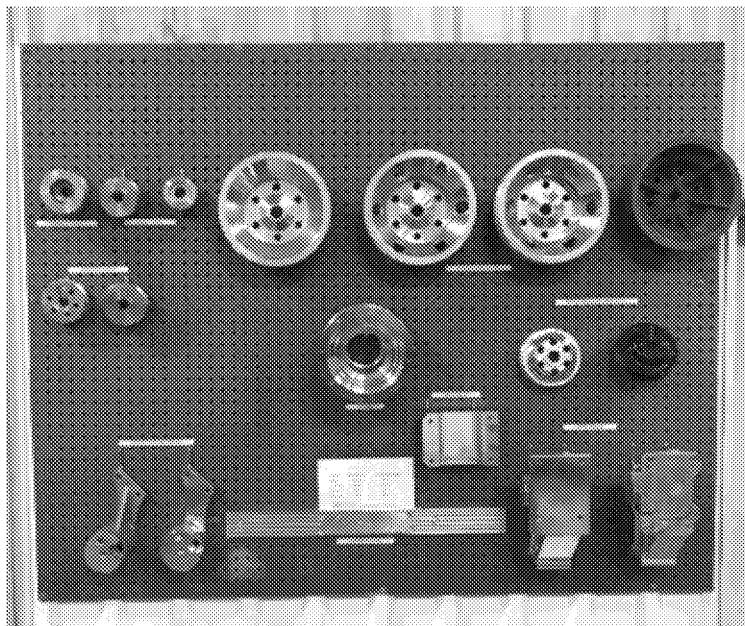


As is well known and documented, the casting of steel produces a significant environmental footprint. The impact includes use of significant resources and fossil fuels in the mining of the ore and environmental impacts of the mining, which may include destruction of vegetation, accelerated soil erosion, sedimentation of water bodies, toxic tailings and acid waste damage. Further, if a coke furnace is used, then there are the impacts of mining the coke as well. Once the ore is mined, there are the environmental consequences of the production of steel, including the coke (if used), the oven gas, naphthalene, ammonium compounds, sulfur, water emissions, slag, sulfur dioxide, hydrogen sulfide and various other gaseous emissions. *Cf* <https://www3.epa.gov/ttn/chief/ap42/ch12/final/c12s13.pdf>. Moreover, EPA should also consider the energy and fuels required to transport the materials and finished products.

As discussed, the Phase 2 Regulations did not take any of these issues regarding casting into consideration when evaluating the portion of the rule that concerns glider trucks. Instead, the Phase 2 Rule relies on dated third-party data that is contradicted by the EPA's own studies and data on ultra-low sulfur diesel fuel. When considering the impact of not having to newly cast these parts the tractor and the actual GHG emissions of gliders, it is very possible gliders may have a smaller carbon footprint than new trucks.

Item 3: Fitzgerald's Redesign and Machining of Engine Components

As discussed, in applying race car technology and improving the overall engine performance both from a fuel efficiency and a vibration standpoint, Fitzgerald researched and developed alternative pulleys, brackets and belt tensioners. Fitzgerald designed and made significant investment in machinery in order to produce aluminum pulleys, brackets and belt tension arms. These items were then used to replace the cast steel pulleys, brackets and belt tensioners utilized on the engines. The pulleys are depicted in the photo we provided at our meeting on May 8, 2017 and is shown again below. The overall result of such effort was to lightweight the engine by approximately 28 pounds.



The light-weighting of the rotating mass of the engine results in significant fuel savings, along with maintenance and other environmental benefits. For example, the front bearing and related seal of the accessory drive pulley would normally fail from the significant weight of the cast pulley within two to three years. Of course, when such failure occurs engine oil leaks from the engine and onto the pavement, roads and highways until the bearing and seal are replaced. The rebuilt Fitzgerald engines have shown a near zero failure rate of that bearing and seal as a result of the aluminum pulley designed by Fitzgerald. Yet, new trucks continue to utilize the cast pulleys, brackets and belt tension arms.

The redesigned pulleys include the following, along with the weight difference between the Fitzgerald designed and machined aluminum replacement versus the cast pulley. They are as follows:

<u>Pulley</u>	<u>Steel Weight</u>	<u>Aluminum Weight</u>
Crank	18.166 lbs.	8.68lbs
Clutch Fan	24.032 lbs.	11.724 lbs.
Accessory	4.18 lbs.	1.56 lbs.
Alternator	3.182 lbs.	.946 lbs.

The bracket and belt tensioner have also been light-weighted and which results in a total combined 28 pounds of reduction on the engine. As discussed, the Phase 2 Regulation failed to consider this or any other actual data, as it relates to gliders.