

**Alternator Efficiency Ratings:**

# The Real Story



**DIAMOND GARD®**  
GENUINE OEM PARTS

**IF IT FAILS, WE'LL REPLACE IT. GUARANTEED!\***

# The All-New Mitsubishi Electric Diamond Power A160 Class 7&8 Alternators!

## Alternator Efficiency Ratings: The Real Story

Everybody is talking about efficiency these days, and some pretty wild claims are floating around the industry. The truth is, the concept of alternator performance efficiency is not an exact science. There are dozens of variables that affect the final number, and in any case, several assumptions must be made. With such latitude in designing the testing routine, the resulting conclusions can be influenced rather easily.

Rather than accept the ratings being claimed by any of our competition, we developed our own test, purchased several units of all of the competition, sent them back to Japan, and ran multiple tests on everything - including our own models.

The results are shown below, and we stand behind them.

| Competitor Model                               | Lab-tested Efficiency Rating at Road Speed* | Mitsubishi Electric DP A160 vs. The Competition | Performance Efficiency as Percent Loss | Estimated Annual Fuel Savings by Using DP 160** | Estimate Fuel Savings Over Our 3 Year Warranty Period** |
|--|---|---|--|---|---|
| <b>Mitsubishi Diamond Power A160 (DP A160)</b> | 56%   |   |  |   |   |
| Delco 160a 36si brushless                      | 52%   | -4.0%   | -7.1%                                  | <b>\$229</b>                                    | <b>\$687</b>  |
| Denso 130a brushless                           | 49%   | -7.0%   | -12.5%                                 | <b>\$426</b>                                    | <b>\$1,278</b>  |
| Leece-Neville 160a brushless                   | 48%   | -8.0%   | -14.3%                                 | <b>\$497</b>                                    | <b>\$1,491</b>  |

See notes at the bottom of the next page



## Higher Efficiency = Improved Fuel Economy

So why exactly are the ratings so different? Why wouldn't any 160a 12v alternator have about the same "rating" as any other? Well, the fact is that the performance efficiency rating is a measure of many different design, assembly, and component factors all taken together to produce an evaluation of how effectively an alternator uses horsepower from the engine to convert mechanical energy to electrical energy that is then used to charge the batteries.

So it's primarily the design of the alternator and its components from the beginning that determines its efficiency rating. If a model was designed twenty years ago, its efficiency was determined at that time, and didn't change much unless there were re-designs along the way that affected its efficiency.

Mitsubishi Electric decided several months ago to design an all-new HD Alternator that focused from the beginning on maximum efficiency and superior durability. This quest for high efficiency drove the way we designed our regulator, how we wind our stator, how we made our rectifier, and how we laid out the components to have the best cooling, corrosion, and vibration protection possible.

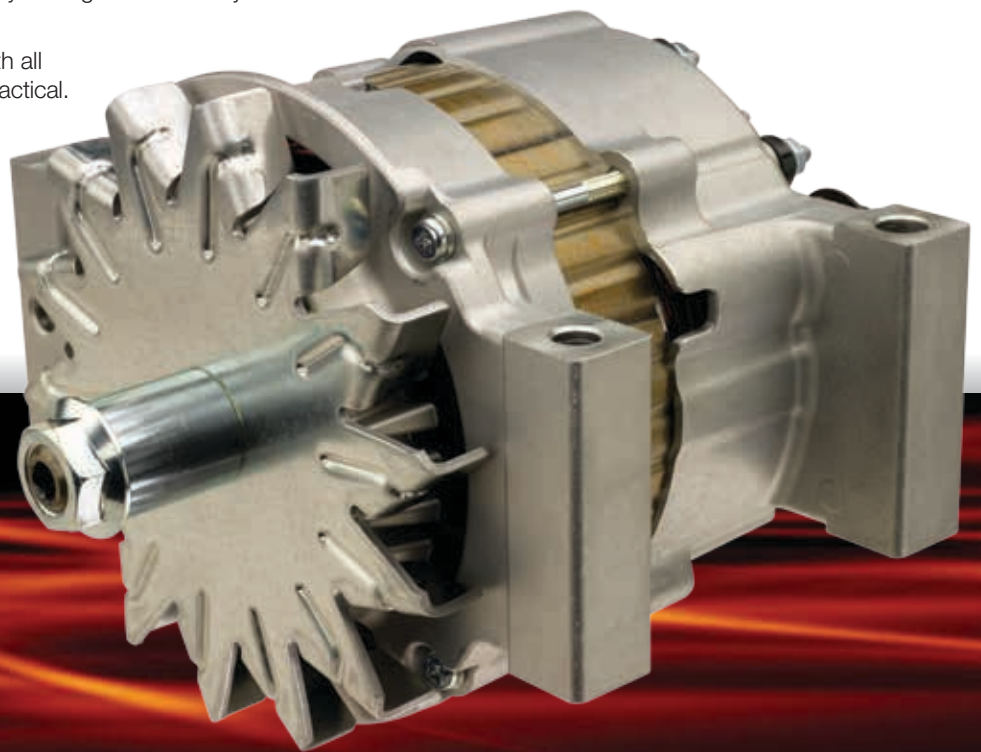
**The Mitsubishi Electric Diamond Power A160 Alternator** pays for itself within the first year! And its rugged durability keeps the savings coming year after year after year!

\* Note: The values shown are based on laboratory testing conducted by Mitsubishi Electric at their facilities in Himeji Japan.

The tests were performed on random units, with all conditions and parameters being as equal as practical.

\*\* Based on a model with the following parameters, among several others kept constant:

|                     |                 |
|---------------------|-----------------|
| Fuel Cost:          | \$4.00 / gallon |
| Average miles/year: | 150,000         |
| Average Output:     | 150a            |
| Average Speed:      | 50 mph          |



# Mitsubishi Electric Diamond Power A160 Alternator Advantages/Features!

## 1. Reduces your Fuel Expense with Industry-Leading Efficiency - see reverse page.

- Technology changes that increased efficiency:
  - Advanced Regulator design and logic
  - Yes, we design and manufacture our own regulators – we start with growing our own silicone chips.
  - Advanced Rectifier design and manufacture –again, our own.
  - Increased Density Stator winding – more copper wire
  - Designed with a 2-piece Rotor/Core assembly rather than the standard 3 piece
  - Reduced manufacturing variance by minimizing the use of screws, bolts, other fasteners, nuts, washers, leads, crimped connections, solder connections, and separate molded insulators.

## 2. Diamond Power A160 also saves fuel with reduced weight

- Weighs 25 percent less than the Remy 36SI.
- Easier to install

## 3. Utilizes a “5-wire” design (see below)

- This alternator will replace every PAD MOUNT application since 2007, and most before that!
- Think of your service truck customers being able to carry just a single part to cover every on road failure of a pad mount alternator!

## 4. Reduces your Downtime – Increases your Uptime

- Vibration and corrosion resistance that exceeds all North American O.E. requirements.
- Extreme heat tolerance that exceeds all North American O.E. requirements.
- Designed to last – not to remanufacture!

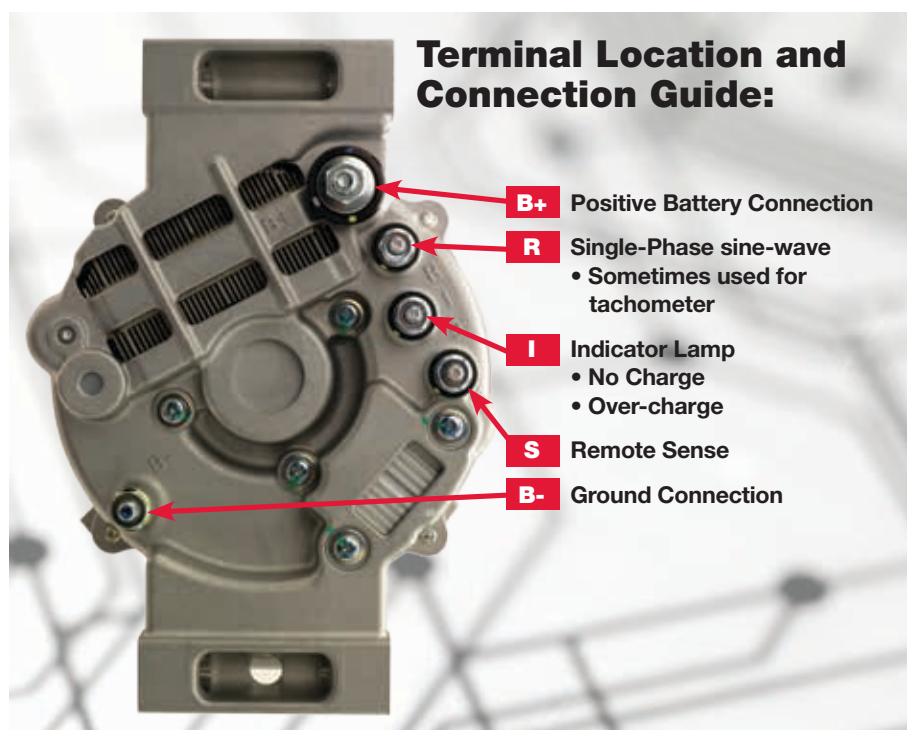
## 5. Keeps your Batteries Charged in All Conditions - Built to take the heat

- Unlike the competition, the regulator in the Diamond Power A160 does not reduce charging output at a pre-set temperature.
- With other alternators, when operating temperatures exceed a certain set-point, the alternator self-adjusts to lower it's output until cooler conditions return.
- The A160's components eliminate the need for a regulator cut-off, producing maximum output when you need it most!

## 6. Utilizes Remote Sense technology to make sure the batteries are fully charged

- Senses the battery state-of-charge at the battery rather than at the alternator. Non-remote-sense vehicles can also use the A160 without modification.
- Extends Battery Life

## 7. Increased rates of charge at idle - The DP A160 provides a TRUE 110a AT IDLE.



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\*You can get more information at our website or by calling our toll-free number.

[www.diamond-gard.com](http://www.diamond-gard.com)

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