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CORKSPORT PERFORMANCE PARTS FOR RX SINCE '98 SPEEDMACHINE OWNED PERFORMANCE

DGRR 2007 Deals Gap Rotary Rally The Tail Of the Dragon 129 Re-SPEED.COM ReSpeed

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alexei -- check out my topic in 1st gen specific
alexei -- anyone want to help
alexei -- i have a problem
jwteknix -- 7/8 in like a couple of weeks should come look at the thread

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Review of Rotary Aviation O-Ring Kit, More specifically the inner water jacket o-rings...

Options Rating

BDC

Feb 25 2007, 10:55 AM Post #1

BDC Motorsports

Group: Members+
Posts: 822
Joined: 19-June 03
From: Grand Prairie, TX
Member No.: 6,661

Visit Member's Garage

This is one I posted over on the festering evil forum a couple days ago with moderate replies. I wouldn't mind hearing from you guys on this, especially ya fellow builder guys.

Here's my original post:

"I'm pitching this out to you all who've assembled any motors using the Rotary Aviation o-ring kit w/ the TES (teflon-encapsulated silicone) inner o-rings. Have any of you have any issues with not only assembly due to the o-rings being slightly too skinny diameter-wise but also with random, intermittent symptoms that suggest an overheated motor even though the motor has no history of it?"

Some of my replies to others' responses:

"That's been my experience. Most of the motors I built between '03 and '06 use that o-ring set. The problems I had with their o-rings were the orange, inner water jacket ones. I'm getting odd reports from a few customers here and there that are exhibiting partial symptoms of overheating for absolutely no reason whatsoever. None of the motors have overheating or water-burning history yet they are showing some of these symptoms that would say otherwise, even though it's usually only some of the symptoms instead of all of them. I discontinued using this o-ring set in mid-late '06 and have since reverted back to stock as I am beginning to believe that these inner o-rings from that RA set are not a good choice to use, even if the material and construction of the o-ring is superior (my original motivation for using them in the first place). I am also curious of the technical aspect of using a round o-ring in a square-ring land."

Basically, I'm done with these things. I won't build another motor with them nor will I ever recommend them again. The last motor I built with them was I think around Aug or Sept time as I've since gone back to stock. I'm sick of the fitment trouble with them. What's taking a typical 3-6 hour assembly job is taking two days sometimes because of those o-rings. I'm also sick of having to deal with some of these engines that are exhibiting such odd symptoms of overheating even though these motors have absolutely zero reason to be doing that. The only consistent thing is those o-rings. Heck, even a buddy of mine, Mario, told me about how his car was spitting coolant out of the exhaust the other day after having let the thing sit for a week. It's blowing white smoke that smells like syrup yet it has never overheated once.

What do you guys think? Don't get me wrong; I am a fan of the teflon-encapsulated silicone idea, but I don't think the RA o-ring is the right way to go about it on our engines.

B

Brian D. Cain -/- **bdc@bdcmotorsports.com**
Performance Rotary Engine Rebuilds & Specialized, High-End Porting
EFI Fuel & Auxiliary Injection System Installation, Consulting & Tuning



Check out my eBay store specials - http://stores.ebay.com/BDC-Motorsports

ON CARD PM REPORT TOP QUOTE REPLY

BDC Feb 25 2007, 11:04 AM Post #2



BDC Motorsports

Group: Members+
Posts: 822
Joined: 19-June 03
From: Grand Prairie, TX
Member No.: 6,661

Visit Member's Garage

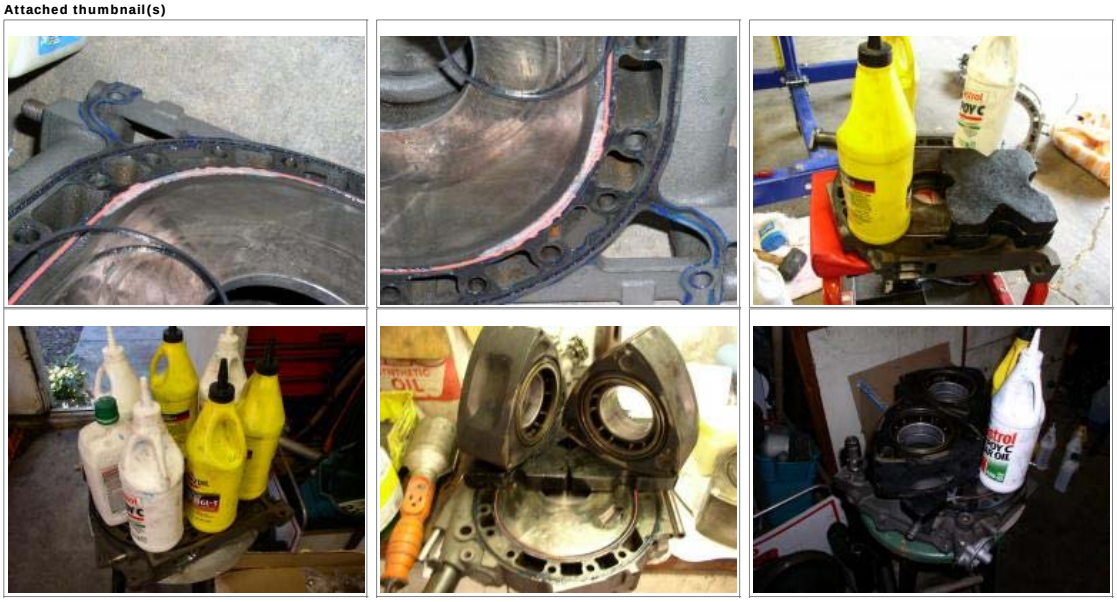
Found a couple of pictures of what I'm talkin' about.

Here's some from an engine I built in summer '04 that had one of those o-rings pop out of the groove and shear during assembly. It required me tearing nearly the whole thing down and replacing the ring. Two pictures show the sheared o-ring. The other pictures show my miserable attempts at "weighting" the o-ring down in place, forcing it to adhere to the shape of the iron's o-ring land. The sheared o-ring "event" occured after all this effort.

Wonderful.

B

Attached thumbnail(s)



Brian D. Cain -/- **bdc@bdcmotorsports.com**
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ON CARD PM REPORT TOP QUOTE REPLY

mazdaspeed7 Feb 25 2007, 12:36 PM Post #3



Love hurts. But only if you do it right.
Group Icon

Group: Supporter+
Posts: 2,222
Joined: 20-September 02

I have yet to have a problem with them. To get around the fitment issue, I took a piece of 1/2" MDF, and cut it to the same size as the groove, and scewed it to another piece slightly larger. I usually keep o-ring kits on hand, and just leave them on that until I need to use the seals. They come out perfectly shaped every time, and drop right into the groove. Theyre even easier to install than the stock seals like that.

I could certainly see even a slightly damaged o-ring causing the overheating problems, and its very easy to damage the o-rings if theyre not pre-formed to the groove. Like I said, I have yet to have a problem since I have been using that board to form them to shape.

From: Savannah, Ga
Member No.: 3,299

Visit Member's Garage



^ ^ ^New Products Added!^ ^ ^

OFF CARD PM REPORT TOP QUOTE REPLY

BDC

Feb 25 2007, 01:35 PM Post #4



BDC Motorsports

Group: Members+
Posts: 822
Joined: 19-June 03
From: Grand Prairie, TX
Member No.: 6,661

Visit Member's Garage

> **QUOTE(mazdaspeed7 @ Feb 25 2007, 12:36 PM)**
>
> I have yet to have a problem with them. To get around the fitment issue, I took a piece of 1/2" MDF, and cut it to the same size as the groove, and scewed it to another piece slightly larger. I usually keep o-ring kits on hand, and just leave them on that until I need to use the seals. They come out perfectly shaped every time, and drop right into the groove. Theyre even easier to install than the stock seals like that.
>
> I could certainly see even a slightly damaged o-ring causing the overheating problems, and its very easy to damage the o-rings if theyre not pre-formed to the groove. Like I said, I have yet to have a problem since I have been using that board to form them to shape.

This is a bit of an ideological question I suppose, but nonetheless one I feel that's valid: Why in the world should we have to do this to o-rings that are already specifically and decidedly sold for engine use? What's going to happen to those of us that aren't as intuitive as you that just assume they're good and go for building the motor with the rings as-is? At best, it seems like a very bad way to sell a product IMO.

B

Brian D. Cain -/- **bdc@bdcmotorsports.com**
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ON CARD PM REPORT TOP QUOTE REPLY

mazdaspeed7

Feb 25 2007, 03:09 PM Post #5



Love hurts. But only if you do it right.
Group Icon

Group: Supporter+
Posts: 2,222
Joined: 20-September 02
From: Savannah, Ga
Member No.: 3,299

Visit Member's Garage

> **QUOTE(BDC @ Feb 25 2007, 04:35 PM)**
>
> This is a bit of an ideological question I suppose, but nonetheless one I feel that's valid: Why in the world should we have to do this to o-rings that are already specifically and decidedly sold for engine use? What's going to happen to those of us that aren't as intuitive as you that just assume they're good and go for building the motor with the rings as-is? At best, it seems like a very bad way to sell a product IMO.
>
> B

I agree, but think about it this way. The material engineering on those o-rings is solid. The problem is they arent engineered specifically for our application. While Im sure RA could spend a little time forming them to shape before selling them, it would add to the price. So from a business perspective, you could charge more for a superior product, or less for an imperfect one. Who is to say one is bad business, because in the end, both are profitable. And isnt that the point of business?

Heres wahat I use to form the o-rings:



This post has been edited by **mazdaspeed7**: Feb 25 2007, 03:19 PM

MOTIVEFAB.com

^ ^ ^New Products Added!^ ^ ^

OFF CARD PM REPORT TOP QUOTE REPLY

BDC

Feb 25 2007, 03:46 PM Post #6

BDC Motorsports

Group: Members+
Posts: 822
Joined: 19-June 03
From: Grand Prairie, TX
Member No.: 6,661

Visit Member's Garage

QUOTE(mazdaspeed7 @ Feb 25 2007, 03:09 PM)

I agree, but think about it this way. The material engineering on those o-rings is solid. The problem is they arent engineered specifically for our application. While Im sure RA could spend a little time forming them to shape before selling them, it would add to the price. So from a business perspective, you could charge more for a superior product, or less for an imperfect one. Who is to say one is bad business, because in the end, both are profitable. And isnt that the point of business?
Heres wahat I use to form the o-rings:



I don't agree entirely. The purpose of business is to make a profit. That profit, for a business to survive in the long run, needs to be done reasonably and well. Part of that reasonable work needs to be quality control, not to mention good advertising. When I go to the RA website, for example, and check out their "13B O-Ring Kit", and see nothing else nor any warnings concerning having to do any extra work, I am fully expecting to spend my money on a kit that's tailoured specifically to the engine that doesn't require any extra "assembly" or "modification" on my part. That's part of my whole beef with this -- There's been so many times where I've purchased these o-rings kits that sometimes they fit just fine and yet sometimes they didn't, requiring some sort of trickery. So I rhetorically beg the question again, *"why should I have to modify these o-rings (half of the time) to get them to fit? Why should I have to do any work at all when I've already spent my money on a product that wasn't advertised with any extra information regarding work on my part?"* If they chose to "fix" these o-rings by "molding" them into the inner o-ring land and then raising the price, then it wouldn't be a fair thing to do IMO, as a consumer. It seems to me that if they're motivated to do a great job and sell a killer product, they ought to be conscious of this fact and build the o-ring right so it's sold and delivered exactly as it's advertised.

B

Brian D. Cain -/- **bdc@bdcmotorsports.com**
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ON CARD PM REPORT TOP QUOTE REPLY

banzaitoyota



I eat EMU's
Group Icon

Group: Charter Moderator
Posts: 4,672

Feb 25 2007, 04:42 PM Post #7

http://www.rotaryeng.net/O-rings-sizes-and...uct-6-30-06.txt

Thought this info was pretty much common knowledge.

http://www.rotaryeng.net/TEFLON_COATED_O_RINGS_IMG4.GIF
http://www.rotaryeng.net/O_RING_STORAGE_BOARD.JPG

Having custom made to order rings is an expensive proposition,,,

Joined: 4-July 02
From: My BIG ol TURBO-DIESEL
Member No.: 2,804
1986 Beater BASE aka BFH

Visit Member's Garage

ask me how I know

PM Me Now For Details On Free Weldong Lessons!

GOT ROTARY?:
73 RX-2: 80 MANA 12A/5 Speed, RB Header, dual pre-silencers,RB Muffler, Lowered, 1st Gen Wheels
73 RX-3 SCCA ITA
75 REPU: Another Project (What did you expect)
76 RX-4 ex-ITA car
86 BASE/Poor Man's GTUs: P-Port! :) (S5 NA Internals) SDJ Header , 4.3 LSD, HALTECH E6X install coming soon!

Want Rotary????
I need a another~~~~~~

GOT PARTS?:

Got Diesel?
92 Dodge D250, Cummins Intercooled Turbo-Diesel, POD Injectors, we be BOMBING
99 Kubota G1800 Diesel Garden Tractor

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AnthonyNYC Feb 25 2007, 05:52 PM Post #8



Rotor Nut

Group: Members+
Posts: 79
Joined: 4-February 03
From: NYC
Member No.: 5,015
1993 Rx7

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I know what you mean about the fitment issues, they tend to pop out at times. Before I lower each plate I check them to make sure they are ok and use a lot of frozen vaseline. If I use vaseline that is room temp they seem to pop out more. I leave the vaseline in the fridge for a while and ONLY apply the vaseline to the irons to hold them in place just before I close them together. That works for me.

I just started building motors for others (no porting) and have used them with no issues yet. I also have used them in my motor for a few years and reused them for a few rebuilds with no issues.

Anthony

2005 Rx8 Whitewater Pearl & 580HP 1993 Rx7
10.8 @ 126MPH (T88 34D @ 20PSI)
11.1 @ 122MPH (Stock Twins @ 18/19psi)
Video here... http://www.rx7s.com/tandrracing/movieclips...raj10.8Pass.wmv
Mods - Electromotive TEC3, Streetport, Greddy T88 34D, Kaaz, chromoly axles, Full cage w/swingouts, daily driven.

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heretic Feb 25 2007, 06:05 PM Post #9



Master of the rotary universe

Group: Members+
Posts: 378
Joined: 7-June 04
Member No.: 11,231
pre-owned

Visit Member's Garage

> **QUOTE(BDC @ Feb 25 2007, 03:46 PM)**
> When I go to the RA website, for example, and check out their "13B O-Ring Kit", and see nothing else nor any warnings concerning having to do any extra work, I am fully expecting to spend my money on a kit that's tailoured specifically to the engine that doesn't require any extra "assembly" or "modification" on my part.

True bolt-and-go components in the aftermarket are rare beasts. Almost everything we do involves some modification, tweaking, or fabrication in order to make it fit properly. This seems to go double for so-called "kits", too.

Even the Mazda factory seals aren't formed-to-shape, and require a bit of fiddling to get them to stay seated in their grooves.

---
her·e·tic (P) Pronunciation Key (hr-tk)
n.
A person who holds controversial opinions

A good plan today is better than a perfect plan tomorrow.

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BDC Feb 25 2007, 06:15 PM Post #10

BDC Motorsports

Group: Members+
Posts: 822
Joined: 19-June 03
From: Grand Prairie, TX
Member No.: 6,661

Visit Member's Garage

> **QUOTE(heretic @ Feb 25 2007, 06:05 PM)**
>
> True bolt-and-go components in the aftermarket are rare beasts. Almost everything we do involves some modification, tweaking, or fabrication in order to make it fit properly. This seems to go double for so-called "kits", too.
>
> Even the Mazda factory seals aren't formed-to-shape, and require a bit of fiddling to get them to stay seated in their grooves.

Fiddling is one thing heretic, but having to use a wooden template to mold an o-ring that doesn't otherwise fit or questionably does is something entirely different. It's jacked up three of my builds because those o-rings don't otherwise fit some of the time. Having to do modifications is fine; I've been doing that for 10 years now, but good grief -- when you buy o-rings per an "O-ring kit" you'd expect them atleast be basically reliable, right? They ought to be able to fit the stinkin' engine they're designed for and not give these kinds of annoying problems over and over, right? Not to mention these strange, overheating-like issues they seem to show....

B

Brian D. Cain -/- **bdc@bdcmotorsports.com**
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heretic Feb 25 2007, 07:18 PM Post #11



Master of the rotary universe

Group: Members+
Posts: 378
Joined: 7-June 04
Member No.: 11,231
pre-owned

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It's like anything else aftermarket, if it doesn't work as advertised, then it's not worth using. As you've noted, and done.

We've had similar/worse problems with a certain brand of (high end) cylinder head gaskets that we use. Similar, in that they needed fiddling to use, worse, because sometimes they were just plain manufactured wrong, and we wouldn't know until the engine was fully assembled and installed. I won't name names, because the company has more than made good as far as redesign and compensating us for our losses, and that kind of integrity is rare in this industry. The only reason I don't use them in my non-rotary cars is simply because they don't make them for my tools of choice. (Yet.)

I've had no problems with the 18 gauge wire method for rotaries. Shocked at first that it worked at all, but work it does, and costs a hell of a lot less, too.

---

her·e·tic (P) Pronunciation Key (hr-tk)
n.
A person who holds controversial opinions

A good plan today is better than a perfect plan tomorrow.

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Maxt Feb 25 2007, 07:42 PM Post #12

最大

Rotor Freak

Group: Members+
Posts: 205
Joined: 8-February 03
Member No.: 5,049

Visit Member's Garage

> **QUOTE(heretic @ Feb 25 2007, 08:18 PM)**
>
> It's like anything else aftermarket, if it doesn't work as advertised, then it's not worth using. As you've noted, and done.
>
> We've had similar/worse problems with a certain brand of (high end) cylinder head gaskets that we use. Similar, in that they needed fiddling to use, worse, because sometimes they were just plain manufactured wrong, and we wouldn't know until the engine was fully assembled and installed. I won't name names, because the company has more than made good as far as redesign and compensating us for our losses, and that kind of integrity is rare in this industry. The only reason I don't use them in my non-rotary cars is simply because they don't make them for my tools of choice. (Yet.)
>
> I've had no problems with the 18 gauge wire method for rotaries. Shocked at first that it worked at all, but work it does, and costs a hell of a lot less, too.

I have used a couple of sets of the RA o-rings, then went back to mazda o-rings. I find even though they are not damaged, the engines did use a little coolant. They are nice in that they are reusable, as I took apart one engine many times to try different ports and reused the o-rings, but that motor did sip a little coolant even though the o rings were not damaged in anyway. It was like add

a about a quart every month usage on an over 400 rwhp engine. Never had that with stock o-rings. And the shape of them does suck. With the mazda rings, I can install and stick them to the iron with one hand most of the time. Besides cost I have found no other reason for the aftermarket rings. BTW the petroleum jelly in Japan they use is about twice the thickness of vaseline, I need to find some like that here.
Also the corner seal rubber they supply last about 1000 km's, it turns rock hard and crumbles away to dust in no time at all.

1987 Rx-7 Turbo II
13bt partial bridge
HKS T51s turbo
1600ccx4 injectors
Tein HA coilovers
Spearco Front mount
HKS 6 speed dogmission

OFF CARD PM | REPORT TOP | QUOTE REPLY

AnthonyNYC Feb 26 2007, 04:00 AM Post #13



Rotor Nut

Group: Members+
Posts: 79
Joined: 4-February 03
From: NYC
Member No.: 5,015
1993 Rx7

Visit Member's Garage

Have you contacted Rotary Aviation about it?

Anthony

> **QUOTE(BDC @ Feb 25 2007, 09:15 PM)**
>
> Fiddling is one thing heretic, but having to use a wooden template to mold an o-ring that doesn't otherwise fit or questionably does is something entirely different. It's jacked up three of my builds because those o-rings don't otherwise fit some of the time. Having to do modifications is fine; I've been doing that for 10 years now, but good grief -- when you buy o-rings per an "O-ring kit" you'd expect them atleast be basically reliable, right? They ought to be able to fit the stinkin' engine they're designed for and not give these kinds of annoying problems over and over, right? Not to mention these strange, overheating-like issues they seem to show....
>
> B

2005 Rx8 Whitewater Pearl & 580HP 1993 Rx7
10.8 @ 126MPH (T88 34D @ 20PSI)
11.1 @ 122MPH (Stock Twins @ 18/19psi)
Video here... http://www.rx7s.com/tandrracing/movieclips...raj10.8Pass.wmv
Mods - Electromotive TEC3, Streetport, Greddy T88 34D, Kaaz, chromoly axles, Full cage w/swingouts, daily driven.

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BDC Feb 26 2007, 08:39 AM Post #14

BDC Motorsports

Group: Members+
Posts: 822
Joined: 19-June 03
From: Grand Prairie, TX
Member No.: 6,661

Visit Member's Garage

> **QUOTE(AnthonyNYC @ Feb 26 2007, 04:00 AM)**
>
> Have you contacted Rotary Aviation about it?
>
> Anthony

Nope, I haven't. While it wouldn't be fair to judge them on a motive that I'm not certain of, my guess is they wouldn't go out of their way to make a change to the o-ring or their overall process just because I'm complaining. My suspicion is such because of my perceived lack of quality control on their part when they manufactured and flooded the market initially with their apex seal that was shown to produce rapidly accelerative wear on rotor housings. Because of stuff like that, and because of the randomness of the problems I've had with their o-rings, I wonder if it'd even be worth it in the first place to write them about it.

B

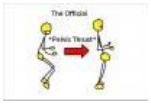
Brian D. Cain -/- **bdc@bdcmotorsports.com**
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EFI Fuel & Auxiliary Injection System Installation, Consulting & Tuning

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ON CARD PM | REPORT TOP | QUOTE REPLY

Baldy

Feb 26 2007, 10:36 AM Post #15



thine barmy

Group: Supporter Moderator
Posts: 3,855
Joined: 26-September 02
From: Tallahassee, FL
Member No.: 3,374
1986 n/a RX-7: goes, but has problems

Visit Member's Garage

I don't see why they couldn't place them on a wooden mold themselves before shipping them out.

> **QUOTE(Node @ Sep 20 2006, 11:43 PM)**
>
> I'd definately be a ninja, dunno about the handgina but parrots freak me out.

ON CARD PM | REPORT TOP | QUOTE REPLY

SpeedMachine

Feb 26 2007, 12:04 PM Post #16

Rotor Freak

Group: Sponsor
Posts: 235
Joined: 22-March 02
From: San Diego, CA
Member No.: 662
1989 RX-7 Drag Car, Falken Tire FD3S, 1988 Drift FC Project

Visit Member's Garage

It's interesting ready Brian. I personally don't have any experience with them, as I won't try anything but the OEM seals because they work every time. If there were an issue with the OE seals not working, then I would be on the hunt for something better to replace them. I have had to stockers up to 150C in the Falken FD, and not had them fail. Infact, I haven't had an O-ring failure in a very long time, and even then, it wasn't the o-rings fault. It was mine (I pinched it) and it was my motor, so no harm no foul

My opinion is for long coolant seal life, it requires annual coolant change and flush, and obviously not overheating the engine to a point that either the o-rings fail or the irons/housings warp. Most of the selection of parts for a rebuild depends on what the builder likes to use. In my case, I prefer mostly OEM parts for gaskets, o-rings and seals as they last well, and install fairly easy.

Dave Gibson

760-727-8700 Ph
760-727-8704 Fax
dave@speedmachineperformance.com

First Import Winner on PINKS!
Builders of the Falken Tire FD3S Drift Car
Builders of the Falken Tire SE3P Drift Car



"it looks like a good rotary motor, it's got a decent size turbo on it. i think it's going to be a good race." -geoff racer right before he lost his civic on pinks

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BDC

Feb 27 2007, 08:45 AM Post #17

BDC Motorsports

Group: Members+
Posts: 822
Joined: 19-June 03
From: Grand Prairie, TX
Member No.: 6,661

Visit Member's Garage

> **QUOTE(SpeedMachine @ Feb 26 2007, 12:04 PM)**
>
> It's interesting ready Brian. I personally don't have any experience with them, as I won't try anything but the OEM seals because they work every time. If there were an issue with the OE seals not working, then I would be on the hunt for something better to replace them. I have had to stockers up to 150C in the Falken FD, and not had them fail. Infact, I haven't had an O-ring failure in a very long time, and even then, it wasn't the o-rings fault. It was mine (I pinched it) and it was my motor, so no harm no foul
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> builder likes to use. In my case, I prefer mostly OEM parts for gaskets, o-rings and seals as they last well, and install fairly easy.

Hi Dave,

I originally started using them because of the superior technology of encaspulation of silicone within a teflon jacket as well as because of the re-usability factor. I liked the idea of popping apart a motor and re-using all the o-rings, therefore potentially reducing rebuild costs. But after the inconsistency with this particular kit, I doubt I'll try it again, unless I have the o-rings made myself. The stockers have been proven to work for a gajillion years, so why fix somethin' if it ain't broke, right?

B

Brian D. Cain -/- **bdc@bdcmotorsports.com**
Performance Rotary Engine Rebuilds & Specialized, High-End Porting
EFI Fuel & Auxiliary Injection System Installation, Consulting & Tuning



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ON CARD PM REPORT TOP QUOTE REPLY

j9fd3s Feb 27 2007, 12:34 PM Post #18



thine piston is stupid

Group: Charter Global Moderator
Posts: 20,405
Joined: 20-May 02
From: menlo mazda
Member No.: 875
5/78 rx-7

Visit Member's Garage

yeah reuseability would be neato, but thats the only real problem with the stockers, that ive seen. sure when you get to 200,000miles and 20 years, the water seals are tired, but so is everything else....

---

pskeeney: well you know what they say, there's beauty in symmetry...of....rectangles
pskeeney: you can quote me on that

nodebat: erm, what quieter?
nodebat: the floors gonna be the noisey part

but pictures are better than words, because some words are big and hard to understand

ON CARD PM REPORT TOP QUOTE REPLY

SpeedMachine Feb 28 2007, 10:18 AM Post #19

SPEEDMACHINE

Rotor Freak

Group: Sponsor
Posts: 235
Joined: 22-March 02
From: San Diego, CA
Member No.: 662
1989 RX-7 Drag Car, Falken Tire FD3S, 1988 Drift FC Project

Visit Member's Garage

> **QUOTE(BDC @ Feb 27 2007, 04:45 PM)**
>
> Hi Dave,
>
> I originally started using them because of the superior technology of encaspulation of silicone within a teflon jacket as well as because of the re-usability factor. I liked the idea of popping apart a motor and re-using all the o-rings, therefore potentially reducing rebuild costs. But after the inconsistency with this particular kit, I doubt I'll try it again, unless I have the o-rings made myself. The stockers have been proven to work for a gajillion years, so why fix somethin' if it ain't broke, right?
>
> B

I agree completely, but you are right, alot of the time the QC isn't what you as the builder would like to see. Like the oil control rings that other companies make out of Viton. One company that makes them, they are a standard size, or are too big, so they are really hard to install. We took the inner and outer o-rings to a local company that makes o-rings out of any type material, and they made them exactly the same size as the stock ones, and they are a piece of cake to install. We don't even sell them anymore because I am running low, and don't want to have to order another 1000 of each size again

But yeah, the old saying still holds more true than anything. If it ain't broke, don't fix it

---

Dave Gibson

760-727-8700 Ph
760-727-8704 Fax
dave@speedmachineperformance.com

First Import Winner on PINKS!
Builders of the Falken Tire FD3S Drift Car
Builders of the Falken Tire SE3P Drift Car



"it looks like a good rotary motor, it's got a decent size turbo on it. i think it's going to be a good race." -geoff racer right before he lost his civic on pinks

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Heath Mar 3 2007, 09:30 AM Post #20



Rotor Freak

Group: Members+
Posts: 203
Joined: 24-July 01
From: Asheville, NC
Member No.: 233

Visit Member's Garage

> **QUOTE(heretic @ Feb 25 2007, 10:18 PM)**
>
> I've had no problems with the 18 gauge wire method for rotaries. Shocked at first that it worked at all, but work it does, and costs a hell of a lot less, too.

Single or multi-strand 18gauge wire? You silicone around it I assume? I think I'm gonna try this on a spare 12a

---
Heath Morgan[br]95 montego blue

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crackheadmel Mar 3 2007, 11:51 AM Post #21

what about 18g wire? for both inner and outer? explaine please

Rotor Freak

Group: Members+
Posts: 119
Joined: 21-July 03
From: New Hampshire
Member No.: 7,048
87 Base TII swap

Visit Member's Garage

OFF CARD PM | REPORT TOP | QUOTE REPLY

Lynn E. Hanover Mar 3 2007, 05:34 PM Post #22

> **QUOTE(crackheadmel @ Mar 3 2007, 12:51 PM)**
>
> what about 18g wire? for both inner and outer? explaine please

Master of the rotary universe

Group: Members+
Posts: 772
Joined: 19-January 04
From: Central Ohio (Hebron)
Member No.: 9,659
95 Mazda RX-7 tube frame race car

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I decided that since I was cutting out a section of the inner "O" ring when building a "J" bridgeport, that the sealing was not that critical because there is only the contact between the rotor housing outboard of the now missing "O" ring and the cast iron. Only a layer of 100% GE silicone tub and tile caulk helps do the sealing.

I came across a supply of aircraft wire with a Teflon insulator and silver tinned stranded copper wire. Very nice wire.

I gave that a try in a 12A engine and used just the wire and a very small bead of silicone in the groove before pressing in the wire. I reused the black outer "O" ring by removing a small piece of the ring by cutting it through with a razor at a steep angle, and placing the joint at the top of the engine, so any leak

would then be visible. With a spot of silicone at the joint, I never had a leak. It ran a whole season. I redid the engine and ran the very same piece of wire another year. A friend of mine did the same thing but with regular Beldon 18 gage hookup wire (maybe Chinese)

He had no problems.

I had never had a problem with the stock seal, but sometimes I didn't have one when I needed to build an engine.

This is not some hop up trick. It just happens to work. If available, I would use the stock "O" ring seals.

This applies to NA 12As and early 13Bs. Inner seal only.

Lynn E. Hanover

Picture is the Mistral aircraft engine based on the Mazda.

Attached thumbnail(s)



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The Ultimate 7

Mar 3 2007, 09:17 PM Post #23

18Gauge wire? Now I've seen everything.

Rotor Nut

Group: Members+
Posts: 65
Joined: 31-October 03
Member No.: 8,686
91,94 Rx7 97 Camry

Visit Member's Garage

OFF CARD PM REPORT TOP QUOTE REPLY

AnthonyNYC

Mar 4 2007, 01:40 PM Post #24



Rotor Nut

Group: Members+
Posts: 79
Joined: 4-February 03
From: NYC
Member No.: 5,015
1993 Rx7

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I sent an email over to RA regarding the O Rings, here is the first response:

"What I CAN say is that I've personally sold over 1000 sets of the telfon rings in the past 5 years - those are just the sales that went out to private builders and do not include the engines that were over hauled by our partner builders. Of those sales, the only complaint I have ever received about the telfon O rings was once when we had a manufacturing error and the rings were too small. Of course we replaced all those rings (5 to be exact) at no charge to the customer. We not only DRIVE these O rings, but we also fly them in our personal plane, and they are also in use in several of our friend's planes. In retrospect, the fact that we can sell any product with so FEW complaints is rather remarkable in itself.

As you know, most the parts that we (or any other parts supplier) sell end up being installed by builders with varying skill sets and experience. The number of variables involved in any single engine overhaul is high. Once the engine is back together, and even if the job is of the highest quality, we then have to deal with how the engine is treated after it is back in service. We have to consider whether any modifications were made to the engine .. whether it was raced.. overheated for any reason.. boosted with nitrous.. the possible variables go on and on and on. In spite of ALL those factors, we run an average of .001% problem rate. I really believe that if there was a consistent manufacturing or design problem with the teflon O rings, we would have received a LOT more complaints and perhaps most significant, we would have experienced problems with our own engines or with those of our close friends. So far, we have not had that happen.

I also want to say that we encourage ANY CUSTOMER WHO HAS A PROBLEM to contact Tracy or I. If there is an issue with any of our products we like to know about it. We stand behind our products and if there is information that a customer is willing to share which will improve the reliability of anything we sell, or if we need to replace a defective item for a customer, we need to hear from the customer.

I will get back to you again after a tech review of the email."

2005 Rx8 Whitewater Pearl & 580HP 1993 Rx7
10.8 @ 126MPH (T88 34D @ 20PSI)
11.1 @ 122MPH (Stock Twins @ 18/19psi)
Video here... http://www.rx7s.com/tandrracing/movieclips...raj10.8Pass.wmv
Mods - Electromotive TEC3, Streetport, Greddy T88 34D, Kaaz, chromoly axles, Full cage w/swingouts, daily driven.

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AnthonyNYC Mar 4 2007, 01:42 PM Post #25



Rotor Nut

Group: Members+
Posts: 79
Joined: 4-February 03
From: NYC
Member No.: 5,015
1993 Rx7

Visit Member's Garage

2nd response:

HI again Anthony - I talked with 4 commercial builders who use our teflon o rings.

I do not want to say anything to offend any builders, (and again, we are NOT saying that product issue can't happen) but the overall consensus is that the cause for "sudden over heating", etc is improper installation of the seals. When properly installed the round seal compresses perfectly into the "square" shaped groove. It IS correct that the seals do NOT install as easily as the stock seals - that is a fact. However, builders who use the seals believe the extra time is worth the increased longevity of the seals (which are usually reusable even after multple engine opens) . We have specific instructions we are going to start adding when we ship the O rings due to the feedback that you forwarded to me. Again, we appreciate the feedback, we are going to add the instructions and hopefully help future builder's to avoid disappointing results with the O rings.

2005 Rx8 Whitewater Pearl & 580HP 1993 Rx7
10.8 @ 126MPH (T88 34D @ 20PSI)
11.1 @ 122MPH (Stock Twins @ 18/19psi)
Video here... http://www.rx7s.com/tandrracing/movieclips...raj10.8Pass.wmv
Mods - Electromotive TEC3, Streetport, Greddy T88 34D, Kaaz, chromoly axles, Full cage w/swingouts, daily driven.

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alexei -- check out my topic in 1st gen specific
alexei -- anyone want to help
alexei -- i have a problem
jwteknix -- 7/8 in like a couple of weeks should come look at the thread

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Review of Rotary Aviation O-Ring Kit, More specifically the inner water jacket o-rings... Options Rating

rotaryinspired Mar 4 2007, 07:12 PM Post #26

Rotor Freak

Group: Members+
Posts: 197
Joined: 31-October 04
From: Oklahoma City
Member No.: 13,016
Montego Blue 94 RX7

Visit Member's Garage

What did you expect them to say. Yeah theres a problem?

I am glad to hear they use them.

Unfortunately I don't feel the same way after building 7 engines w/ them and pulling one apart. I can guarantee the oring wasn't pinched. I personally don't feel they fit the groove as well when torqued down.

Think about something, when you were a kid did any round toy fit into a square one?

Why should I start trying it now.

OFF CARD PM | REPORT TOP | QUOTE REPLY

Maxt

Mar 4 2007, 07:58 PM Post #27

最大

Rotor Freak

Group: Members+
Posts: 205
Joined: 8-February 03
Member No.: 5,049

Visit Member's Garage

> **QUOTE(rotaryinspired @ Mar 4 2007, 08:12 PM)**
>
> What did you expect them to say. Yeah theres a problem?
>
> I am glad to hear they use them.
>
> Unfortunately I don't feel the same way after building 7 engines w/ them and pulling one apart. I can guarantee the oring wasn't pinched. I personally don't feel they fit the groove as well when torqued down.
>
> Think about something, when you were a kid did any round toy fit into a square one? Why should I start trying it now.

LOL....
In my opinion, they use the customer as their R&D department..
Just to add to the square groove, round ring subject, I tried these same style of oring in another application. I was rebuilding solenoid valves with round profile o-rings at work since the square oem rings were 4 weeks delivery, when I got the real rings and did the re-rebuild, I found the round profile ring had been extruded from the square ring land and made into a teflon wafer , they were just starting to leak, the lowest pressure area was to the outside of the valve and the material was being exposed oustide the valve body... Being that the land was round, as was the ring, fitment of the ring to the land wasnt any kind of problem. That application was liquid at 34 F and 60 psi..It might be more than the profile, could be the ring to groove size relationship as well.

1987 Rx-7 Turbo II
13bt partial bridge
HKS T51s turbo
1600ccx4 injectors
Tein HA coilovers
Spearco Front mount
HKS 6 speed dogmission

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BDC

Mar 6 2007, 09:22 AM Post #28

> **QUOTE(rotaryinspired @ Mar 4 2007, 07:12 PM)**

BDC Motorsports

Group: Members+
Posts: 823
Joined: 19-June 03
From: Grand Prairie, TX
Member No.: 6,661

Visit Member's Garage

> What did you expect them to say. Yeah theres a problem?
>
> I am glad to hear they use them.
>
> Unfortunately I don't feel the same way after building 7 engines w/ them and pulling one apart. I can guarantee the oring wasn't pinched. I personally don't feel they fit the groove as well when torqued down.
>
> Think about something, when you were a kid did any round toy fit into a square one? Why should I start trying it now.

Why can't they just be honest about it? They're basically using their customer base as their QC (quality-control) department. Basically, what they're saying is, they've never had any complaints. Well, I'm someone who's complaining who was also a fairly consiistently buying customer. Does my complaint not matter? Am I all the sudden thrown into the categories of not being a "commercial" builder or that I'm automatically "installing them wrong"? Good Lord! It's a ring that fits in the same-sized groove! How the hell can anyone screw that up!?

B

Brian D. Cain -/- **bdc@bdcmotorsports.com**
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BDC Mar 6 2007, 09:39 AM Post #29

BDC Motorsports

Group: Members+
Posts: 823
Joined: 19-June 03
From: Grand Prairie, TX
Member No.: 6,661

Visit Member's Garage

> **QUOTE(Maxt @ Mar 4 2007, 07:58 PM)**
>
> LOL....
> In my opinion, they use the customer as their R&D department..
> Just to add to the square groove, round ring subject, I tried these same style of oring in another application. I was rebuilding solenoid valves with round profile o-rings at work since the square oem rings were 4 weeks delivery, when I got the real rings and did the re-rebuild, I found the round profile ring had been extruded from the square ring land and made into a teflon wafer , they were just starting to leak, the lowest pressure area was to the outside of the valve and the material was being exposed oustide the valve body... Being that the land was round, as was the ring, fitment of the ring to the land wasnt any kind of problem. That application was liquid at 34 F and 60 psi..It might be more than the profile, could be the ring

> to groove size relationship as well.

That's my opinion as well, Max. It seems that's what they're doing, similar to what I felt they were doing with their apex seals when they initially flooded the market with them in late '03 prior to several people coming back with scattered results of abnormal rotor housing and apex seal groove wear.

I still don't get it. Why ammend the installation document with notes regarding their difficulty of installation if there isn't a problem with their o-ring in the first place? (Remember the 0.001% figure) When the o-ring diameter is correct, the o-ring goes right in and is a piece of cake to install. Why make a comment then about their difficulty? Maybe I'm just splitting hairs here but I still feel as if their response to Anthony wasn't an honest one. Does my complaint all the sudden not count? Am I not a "commercial" builder (what the heck qualifies for that anyways?) And, why are they not acknowledging my data regarding random overheating symptoms of motors that have *never* exhibited such symptoms prior nor ever enountered any conditions that would contribute to overheating?

I know all about the stigma associated with warrantying motors. I get asked alot on whether or not I do. I know full well being not only a builder but also an active enthusiast what can happen with a motor when the hardware isn't setup right or is abused or neglected in ways that can contribute to failure. I'm not an idiot. I know what things can happen having caused them myself in the past. With this, and while I'm not a perfect person, it seems to me that it would behoove them to take what I have to say seriously when I assert that I've got motors that I've built *with their o-rings* that are experiencing problems that I may have to potentially fit the bill for (arguably) due to the use of those same o-rings.

Goodness gracious. It's this kind of stuff that really hacks me off and is also one of the reasons why I am no longer a customer.

B

Brian D. Cain -/- **bdc@bdcmotorsports.com**
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j9fd3s Mar 6 2007, 10:55 AM Post #30



not to single RA out, but it seems like there have been so many shops that come out with some product or service, and then they overnight, get this "they are the best" reputation.

and then you wait a few weeks or months and the stuff that was some miracle save all, is now trash.

if you need an example, how about pineapple? or the "anti detonation kit"

thine piston is stupid

Group: Charter Global Moderator
Posts: 20,405
Joined: 20-May 02
From: menlo mazda
Member No.: 875
5/78 rx-7

Visit Member's Garage

---

pskeeney: well you know what they say, there's beauty in symmetry...of....rectangles
pskeeney: you can quote me on that

nodebat: erm, what quieter?
nodebat: the floors gonna be the noisey part

but pictures are better than words, because some words are big and hard to understand

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zoomazda

Mar 6 2007, 10:37 PM Post #31

I certainly share the same feeling. I'm also annoyed about the aftereffects of these components.

F.N.G.

Group: Members+
Posts: 10
Joined: 25-February 07
Member No.: 24,964

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Mazda 5 Accessories - Download The 2006 Mazda 5 Accessories Catalog by Mazda USA

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rotorwiki

Mar 12 2007, 06:29 AM Post #32



> **QUOTE(Maxt @ Mar 4 2007, 08:58 PM)**
> In my opinion, they use the customer as their R&D department..

Rotor Nut

Group: Members+
Posts: 57
Joined: 11-March 07
From: Newberg, OR
Member No.: 25,144
91 NA Under the knife.

Visit Member's Garage

Plenty of companies do this. Microsoft Windows for instance sends bug reports to MS when an application crashes. Same concept.

FAQ:Factory Service Manuals:Fluid Master List:Bolt Size/Thread Master List:Write-ups:Sticky Sunroof:Restoring Leather Seats:Restoring FTP's:Custom OMP Lines:Wiper Switch Fix

OFF CARD PM | REPORT TOP | QUOTE REPLY

rotaryinspired

Mar 14 2007, 07:08 PM Post #33

Rotor Freak

Group: Members+
Posts: 197
Joined: 31-October 04
From: Oklahoma City
Member No.: 13,016
Montego Blue 94 RX7

Visit Member's Garage

> **QUOTE(rotorwiki @ Mar 12 2007, 09:29 AM)**
>
> Plenty of companies do this. Microsoft Windows for instance sends bug reports to MS when an application crashes. Same concept.

But your computer doesn't overheat and ruin parts inside if this happens.

OFF CARD PM | REPORT TOP | QUOTE REPLY

rotorwiki

Mar 14 2007, 07:15 PM Post #34

Rotor Nut

Group: Members+
Posts: 57
Joined: 11-March 07
From: Newberg, OR
Member No.: 25,144
91 NA Under the knife.

Visit Member's Garage

> **QUOTE(rotaryinspired @ Mar 14 2007, 08:08 PM)**
>
> But your computer doesn't overheat and ruin parts inside if this happens.

yeah. hehe. okay. </hijack>

FAQ:Factory Service Manuals:Fluid Master List:Bolt Size/Thread Master List:Write-ups:Sticky Sunroof:Restoring Leather Seats:Restoring FTP's:Custom OMP Lines:Wiper Switch Fix

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BDC

Apr 4 2007, 05:57 PM Post #35

BDC Motorsports

Group: Members+
Posts: 823
Joined: 19-June 03
From: Grand Prairie, TX
Member No.: 6,661

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Update:

I got a customer's motor today that was suffering from the intermittent overheating symptoms that I'd listed prior in this thread. Infact, some of the symptoms I was complaining about were from this same motor.

I tore it down today and, not to my surprise, it had failed due to the exact reasons that I suspected: All four of the inner water jacket o-rings (the RA teflon-encapsulated silicone ones) had breaks in the teflon jacketting around the silicone core in various places; namely from TDC all the way around to BDC (bottom dead center below the intake ports).

Attached are several pictures to illustrate.

B

Attached thumbnail(s)



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Heath Apr 4 2007, 06:31 PM Post #36



Rotor Freak

Group: Members+
Posts: 203
Joined: 24-July 01
From: Asheville, NC
Member No.: 233

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Whoa!

Heath Morgan[br]95 montego blue

OFF CARD PM REPORT TOP QUOTE REPLY

BDC Apr 4 2007, 07:08 PM Post #37

BDC Motorsports

Group: Members+
Posts: 823
Joined: 19-June 03
From: Grand Prairie, TX
Member No.: 6,661

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> **QUOTE(Heath @ Apr 4 2007, 06:31 PM)**
>
> Whoa!

Whatcha think?

B

Brian D. Cain -/- **bdc@bdcmotorsports.com**
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sk8world Apr 4 2007, 07:56 PM Post #38

F.N.G.

Group: Members
Posts: 3
Joined: 15-July 06
Member No.: 22,022
93 VR R-1

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I think those ports look great! Also glad we have the anwser. All the hours upon hours of testing double-triple checking everything is finally over!

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rotaryinspired Apr 5 2007, 07:48 AM Post #39

And RA is telling people to put these in airplanes? Come on.

Rotor Freak

Group: Members+
Posts: 197
Joined: 31-October 04
From: Oklahoma City
Member No.: 13,016
Montego Blue 94 RX7

Visit Member's Garage

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BDC Apr 5 2007, 08:02 AM Post #40

I have another customer with a 3rd gen and 13BREW that I built with these same o-rings that's bringing his car up sometime in May with the same symptoms.

Nobody can tell me with any level of confidence that I installed these o-rings improperly. Nobody can dismiss this as some sort of fluke or whatever the "0.001%" comment thing was all about. This is what's happened and I suspect the four-odd motors that I've built aren't the only symptomatic motors out there.

B

BDC Motorsports

Group: Members+
Posts: 823
Joined: 19-June 03
From: Grand Prairie, TX
Member No.: 6,661

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rotorwiki Apr 5 2007, 08:06 AM Post #41

I am so glad I decided to get Mazda OEM ones.....

Rotor Nut

Group: Members+

FAQ:Factory Service Manuals:Fluid Master List:Bolt Size/Thread Master List:Write-ups:Sticky Sunroof:Restoring Leather Seats:Restoring FTP's:Custom OMP Lines:Wiper Switch Fix

Posts: 57
Joined: 11-March 07
From: Newberg, OR
Member No.: 25,144
91 NA Under the knife.

Visit Member's Garage

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j9fd3s

Apr 5 2007, 10:35 AM Post #42



dude, thats weird, they look twisted?

---

pskeeney: well you know what they say, there's beauty in symmetry...of....rectangles
pskeeney: you can quote me on that

nodebat: erm, what quieter?
nodebat: the floors gonna be the noisey part

but pictures are better than words, because some words are big and hard to understand

thine piston is stupid

Group: Charter Global Moderator
Posts: 20,405
Joined: 20-May 02
From: menlo mazda
Member No.: 875
5/78 rx-7

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j9fd3s

Apr 5 2007, 10:42 AM Post #43



> **QUOTE(j9fd3s @ Apr 5 2007, 11:35 AM)**
>
> dude, thats weird, they look twisted?

its like the back and forth, of heating and cooling physically broke em?

---

pskeeney: well you know what they say, there's beauty in symmetry...of....rectangles
pskeeney: you can quote me on that

nodebat: erm, what quieter?
nodebat: the floors gonna be the noisey part

but pictures are better than words, because some words are big and hard to understand

thine piston is stupid

Group: Charter Global Moderator
Posts: 20,405
Joined: 20-May 02
From: menlo mazda
Member No.: 875
5/78 rx-7

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Comitatus

Apr 5 2007, 10:43 AM Post #44



Master of the rotary universe

Group: Members+
Posts: 610
Joined: 6-December 02
From: Oblivion
Member No.: 4,164
04 RX8

Visit Member's Garage

It almost looks as if they've been melted. Man, this sucks...makes me feel wonderful that these are in my motor right now....

Addicted to the Rotary Machine...



OFF CARD PM REPORT TOP QUOTE REPLY

rotorwiki

Apr 5 2007, 10:59 AM Post #45



Rotor Nut

Group: Members+
Posts: 57
Joined: 11-March 07
From: Newberg, OR
Member No.: 25,144
91 NA Under the knife.

Visit Member's Garage

> **QUOTE(Comitatus @ Apr 5 2007, 11:43 AM)**
>
> It almost looks as if they've been melted. Man, this sucks...makes me feel wonderful that these are in my motor right now....

Just try and keep it under 4k rpms.

FAQ:Factory Service Manuals:Fluid Master List:Bolt Size/Thread Master List:Write-ups:Sticky Sunroof:Restoring Leather Seats:Restoring FTP's:Custom OMP Lines:Wiper Switch Fix

OFF CARD PM REPORT TOP QUOTE REPLY

Comitatus

Apr 5 2007, 11:24 AM Post #46



Master of the rotary universe

Group: Members+
Posts: 610
Joined: 6-December 02
From: Oblivion
Member No.: 4,164
04 RX8

> **QUOTE(rotorwiki @ Apr 5 2007, 02:59 PM)**
>
> Just try and keep it under 4k rpms.

Heh...too late on that one.

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Addicted to the Rotary Machine...



OFF CARD PM REPORT TOP QUOTE REPLY

BDC

Apr 5 2007, 12:47 PM Post #47

BDC Motorsports

Group: Members+
Posts: 823
Joined: 19-June 03
From: Grand Prairie, TX
Member No.: 6,661

Visit Member's Garage

> **QUOTE(Comitatus @ Apr 5 2007, 10:43 AM)**
>
> It almost looks as if they've been melted. Man, this sucks...makes me feel wonderful that these are in my motor right now....

Unless you know otherwise Luke, I don't think I used them in your motor this go-around. If I did, yours was the very last one that had them.

B

Brian D. Cain -/- **bdc@bdcmotorsports.com**
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EFI Fuel & Auxiliary Injection System Installation, Consulting & Tuning

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ON CARD PM REPORT TOP QUOTE REPLY

Comitatus

Apr 5 2007, 01:07 PM Post #48



Master of the rotary universe

Group: Members+
Posts: 610
Joined: 6-December 02
From: Oblivion
Member No.: 4,164
04 RX8

Visit Member's Garage

> **QUOTE(BDC @ Apr 5 2007, 04:47 PM)**
>
> Unless you know otherwise Luke, I don't think I used them in your motor this go-around. If I did, yours was the very last one that had them.
>
> B

Unfortunately, I believe we did use these this time as well as the first time. I purchased the RA O-Ring kit and sent it to you for this last build. I believe they shipped it directly to you.

I think you made this thread shortly after I had talked with you about the coolant leak that I had because we originally thought this was the case for me, but mine

turned out to be the o-rings on the LIM.

So far, my motor has shown no signs of bad coolant rings, but I'm sure it's just a matter of time.

Addicted to the Rotary Machine...



OFF CARD PM | REPORT TOP | QUOTE REPLY

mazdaspeed7

Apr 5 2007, 04:06 PM Post #49



Love hurts. But only if you do it right.
Group Icon

Group: Supporter+
Posts: 2,222
Joined: 20-September 02
From: Savannah, Ga
Member No.: 3,299

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It looks like a material failure to me. I think it would be more localized if it was pinched, or even mishandled at some point. But the split covers so much of the seal, and its not even in the spots where it would make sense to fail like that, such as just below the exhaust port, and at the seam up by the intake port.

On the same note, I still have yet to have a coolant seal failure with these seals, aside from one engine of mine that was grossly overheated on a handful of occasions. But even that engine didnt split the seals like yours.



^ ^ ^New Products Added!^ ^ ^

OFF CARD PM | REPORT TOP | QUOTE REPLY

GMON

Apr 5 2007, 08:43 PM Post #50

Master of the rotary universe

Group: Members+
Posts: 498
Joined: 2-December 03
From: Minneapolis,MN
Member No.: 9,120
TII

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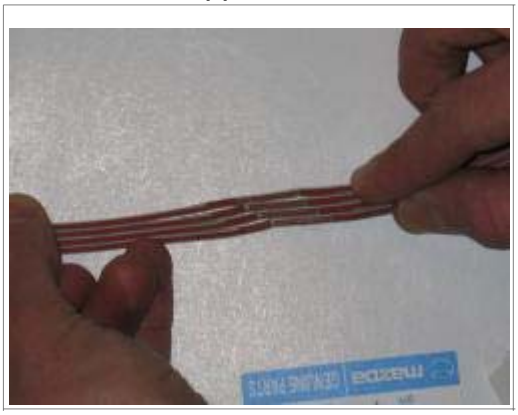
> **QUOTE(rotorwiki @ Apr 5 2007, 08:06 AM)**
>
> I am so glad I decided to get Mazda OEM ones.....

I just ran into this lovely issue. I think mazdatrix had somone clean behind the shelf and that somone
found an anchient set of inner seals. Was cleanin off the hylomar before layin the

housing down and noticed this. Walked over to the package to find 2 others like it.

I whish they had dates on this stuff!

Attached thumbnail(s)



Quote of the month:
Hunter Thompson: "The first impression is always the right one. I rarely change my mind upward about people. Sometimes you're fooled quickly. You want to be fooled. If you can't trust your first impression you're going to have a harder time than you should."

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1 Members: slash



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Latest Shouts In The Shoutbox -- View The Shoutbox

alexei -- check out my topic in 1st gen specificthanks
alexei -- check out my topic in 1st gen specific
alexei -- anyone want to help
alexei -- i have a problem
jwteknix -- 7/8 in like a couple of weeks should come look at the thread

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Nopistons.com Rotary Powered Forums > TECHNICAL FORUMS > Rotary Engine Building and Porting

3 Pages < 1 2 3 ADDREPLY NEWTOPIC

Review of Rotary Aviation O-Ring Kit, More specifically the inner water jacket o-rings... Options Rating

trydis7 Apr 5 2007, 10:09 PM Post #51

F.N.G.

Group: Members
Posts: 6
Joined: 13-October 06
Member No.: 23,208
hard to ID from behind

Visit Member's Garage

> **QUOTE(BDC @ Apr 4 2007, 09:57 PM)**
>
> Update:
>
> I got a customer's motor today that was suffering from the intermittent overheating symptoms that I'd listed prior in this thread. Infact, some of the symptoms I was complaining about were from this same motor.

> I tore it down today and, not to my surprise, it had failed due to the exact reasons that I suspected: All four of the inner water jacket o-rings (the RA teflon-encapsulated silicone ones) had breaks in the teflon jacketting around the silicone core in various places; namely from TDC all the way around to BDC (bottom dead center below the intake ports).
>
> Attached are several pictures to illustrate.
>
> B

Damn- thanks for the update? I think I am going back to stock everything.

There was some discussion regarding the TES orings on the rotaryeng list years ago.

?Did the o-rings only split/fail facing the combustion chamber?

To start off:
Some of the suggested sizes on rotaryeng.net were sligthly off and had to be stretched. The stretching concerned me so I measured and purchased slightly different custom oring sizes from Creavey.com at a slight increase over stock mazda OEM prices. Mine required no stretching and were just slightly larger ID than the inner wall - still a painIA to hold in place when turning a plate over...

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One major concern was the expansion of the orings at temperature in both length(diameter) and thickness.
There was a nasty pic of an (oversized?) oring that expanded and managed to break a large loop of the oring through the iron's groove wall into the water passage.
The TES orings have a fairly high expansion rate and can exert a fair amount of force.
To work the orings need a certain recommended crush (something like .020-25? IIRC). They would conform to the grooves, but you also need to leave enough (20-30%?) room for them expand with temperature in the groove. I had visions of them sliding around inside the groove or forcing the plates apart at temp.

Personally I ordered the inner o-ring with a smaller 0.093 thickness in the 500F variety - and I was concerned there might not be enough space for them to expand.
?Can someone measure the diameter of the RA inner oring? 0.098?

The orings I had were an opaque tubular teflon casing with a reddish silicone core.
The only splice joint I could see was one end inserted into the other. The splice joint was placed in the upper intake area.
?Are the RA seals the same?

I'm guessing based on your pics that either the orings were a lower temperature

variety or they opened enough of a gap to be exposed to exhaust gases...
?do you know the tension bolt torque used?
?were any of them loose when you cracked the keg?

Thanks :(
Trydis7

OFF CARD PM REPORT TOP QUOTE REPLY

Lynn E. Hanover

Apr 5 2007, 11:24 PM

Post #52

Master of the rotary universe

Group: Members+
Posts: 772
Joined: 19-January 04
From: Central Ohio (Hebron)
Member No.: 9,659
95 Mazda RX-7 tube frame race car

Visit Member's Garage

QUOTE(trydis7 @ Apr 5 2007, 11:09 PM)

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> ?were any of them loose when you cracked the keg?
>
> Thanks :(
> Trydis7

The idea of a very specialized "O" ring being required I think, came from the stock ring being made of a number of materials, and for years they came with a metal seal strip that was fitted along the outside of the ring groove, in the combustion area.

"O" ring protectors are common in high pressure hydraulic situations, where the "O" ring is in danger of being extruded into a microscopic gap between the groove and the covering material.

The "O" ring protector is usually a strip of flat plastic several layers deep and looking like a spiral lock snap ring.

So the metal strip in the Mazda kit was to keep combustion gasses from extruding the stock compression ring from extruding into the coolant area. It was on the wrong side of the seal to protect it from the combustion pressure. So, now there is no protector in the kit. Am I to guess that there was never a need for it. Or that materials are now so good that it is not needed? Or, perhaps it never was neede.

It is technically correct to mount round "O" rings in square and rectangular grooves. Any "O" ring catalog will have the rules for groove sizes for each kind of "O" ring material.

There needs to be a bit of space left over after the piece is assembled. The groove surfaces should be flawless. Pressure from the area being sealed can leak into the groove, and force the ring against the outer wall of the groove. This force only makes the seal better, as the ring deforms to take on the shape of the groove walls.

If the "O" ring is known to increase its size with heat, that must be accounted for in selecting the ring thickness for a particular application.

The stock square rings fill the groove nearly 100% and do a great job of sealing combustion gasses when hot. And on cooldown where there is still coolant pressure pushing the other direction, can still seal well enough that coolant is not lost into the combustion chamber or out the intake. There may not be enough pressure to do this with the round "O" ring that has become stiff from heat or long term use.

Also the stock ring is more tollerant of dirt and or damage in the grooves. The round ring needs slick smooth grooves to workat all.

There are often failures of stock rings due to freezing of the coolant, that later has gasses leaking into the coolant, and on inspection looks like a sheared ring during assembly.

If the grooves are spotlessly clean and dead smooth, almost anything will work as the seal. The real work is done at the junction of the iron and the housing faces under several tons per square inch of pressure.

It seems to me that specalized rings are an answer to a question nobody is asking. The stock rings work perfectly and are not all that expensive.

Lynn E. Hanover

OFF CARD PM | REPORT TOP | QUOTE REPLY

banzaitoyota Apr 6 2007, 06:13 AM Post #53



I eat EMU's
Group Icon

Group: Charter Moderator
Posts: 4,672
Joined: 4-July 02
From: My BIG ol TURBO-DIESEL
Member No.: 2,804
1986 Beater BASE aka BFH

Visit Member's Garage

I chased this problem a while back. Custom made nuclear grade metallic rings are great, but overkill. I tend to spend more time prepping the O-Ring groove than before

---
PM Me Now For Details On Free Weldong Lessons!

GOT ROTARY?:
73 RX-2: 80 MANA 12A/5 Speed, RB Header, dual pre-silencers,RB Muffler, Lowered, 1st Gen Wheels
73 RX-3 SCCA ITA
75 REPU: Another Project (What did you expect)
76 RX-4 ex-ITA car
86 BASE/Poor Man's GTUs: P-Port! :) (S5 NA Internals) SDJ Header , 4.3 LSD, HALTECH E6X install coming soon!

Want Rotary????
I need a another~~~~~~

GOT PARTS?:

Got Diesel?
92 Dodge D250, Cummins Intercooled Turbo-Diesel, POD Injectors, we be BOMBING
99 Kubota G1800 Diesel Garden Tractor

OFF CARD PM | REPORT TOP | QUOTE REPLY

j9fd3s Apr 6 2007, 06:58 AM Post #54



thine piston is stupid

Group: Charter Global Moderator
Posts: 20,405
Joined: 20-May 02
From: menlo mazda
Member No.: 875
5/78 rx-7

Visit Member's Garage

QUOTE(GMON @ Apr 5 2007, 09:43 PM)

I just ran into this lovely issue. I think mazdatrix had somone clean behind the shelf and that somone
found an anchient set of inner seals. Was cleanin off the hylomar before layin the housing down and noticed this. Walked over to the package to find 2 others like it.

I whish they had dates on this stuff!

i had a set sit outside for a year, and it did the same thing.

they do have lot numbers on em, might translate to a date if we knew how

---

pskeeney: well you know what they say, there's beauty in symmetry...of....rectangles
pskeeney: you can quote me on that

nodebat: erm, what quieter?
nodebat: the floors gonna be the noisey part

but pictures are better than words, because some words are big and hard to understand

ON CARD PM | REPORT TOP | QUOTE REPLY

BDC

Apr 6 2007, 09:51 AM Post #55



BDC Motorsports

Group: Members+
Posts: 823
Joined: 19-June 03
From: Grand Prairie, TX
Member No.: 6,661

Visit Member's Garage

QUOTE(trydis7 @ Apr 5 2007, 10:09 PM)

Damn- thanks for the update? I think I am going back to stock everything.

There was some discussion regarding the TES orings on the rotaryeng list years ago.

?Did the o-rings only split/fail facing the combustion chamber?

Yep that appears to be it and it was predominately on the sides at TDC and BDC. Some at the 90*ATDC area as well all throughout.

QUOTE

To start off:
Some of the suggested sizes on rotaryeng.net were sligthly off and had to be stretched. The stretching concerned me so I measured and purchased slightly different custom oring sizes from Creavey.com at a slight increase over stock mazda OEM prices. Mine required no stretching and were just slightly larger ID

> than the inner wall - still a painIA to hold in place when turning a plate over...

This is what I've encountered on several occasions with these o-rings in the past prior to discontinuing use. I'd had several batches show up that were ever-so-slightly too small and would require "re-molding" of the o-ring into the groove. Needless to say, it caused alot of trouble and made some of my rebuild times go through the roof. This occurred enough times to make me skeptical about what the next o-ring batch would be like -- right on the money or too small.

Remolding the o-ring may not be as problematic on a square-ring land that's facing up, but imagine the concern it raises when placing them on the rear iron housing as well as the front combustion chamber side of the centre plate -- both of which face down during an engine assembly. Gravity has a chance to pull them out.

> **QUOTE**
>
> Creavey.com had several grades of o-rings, some were good to higher temps 400F/500F. I am not sure if these are the same as the RA orings.

I believe Creavey is the original manufacturer but I could be mistaken about that. Creavey was referenced pretty much consistently on the ACRE NL list, with regards to TES o-rings, during the same time I was an active member of that list a few years back. Seeing as how Rotary Aviation is comprised primarily of the one, remarkably successful RE aircraft pilot (Tracy Crook) who produces and sells products for the budding RE aviation market, who is (or was) an active member of that same newsletter list and seems to be the "go-to guy" that the newsletter owner promotes, it seems safe in my opinion to assume that the same o-ring manufacturer spoken of on a regular basis back then would be the one that they would turn to to have their rings made. I even spoke to the rep at Creavey.com about 4 years ago about having some o-rings made specifically for my engine based on the dimensions of the different o-rings that were posted up on the list.

Again, I could be mistaken about it. Secondly, my intent here in posting my concerns about these o-rings isn't to point a finger at Creavey.com or any other o-ring manufacturer per se; it's to raise an issue of the use of *these* particular o-rings from *this* particular, aftermarket o-ring package and to convey that the way this o-ring is made might not be being applied correctly to how are engines are constructed and what they demand from that inner o-ring. I'm still sold on the TES/TEV technology; I just don't think these o-rings here are indicative of a good and well-tested application of that to our 13B's.

> **QUOTE**
>
> One major concern was the expansion of the orings at temperature in both length(diameter) and thickness.

> There was a nasty pic of an (oversized?) oring that expanded and managed to break a large loop of the oring through the iron's groove wall into the water passage.
> The TES orings have a fairly high expansion rate and can exert a fair amount of force.
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One of my fears was whether or not the pressure from the o-ring expanding in a then too-small groove would be the potential breaking of the o-ring land on the iron at certain spots where it's thin.

> **QUOTE**
>
> Personally I ordered the inner o-ring with a smaller 0.093 thickness in the 500F variety - and I was concerned there might not be enough space for them to expand.
> ?Can someone measure the diameter of the RA inner oring? 0.098?
>
> The orings I had were an opaque tubular teflon casing with a reddish silicone core. The only splice joint I could see was one end inserted into the other. The splice joint was placed in the upper intake area.
> ?Are the RA seals the same?

Theirs has a translucent/clear teflon jacketting with an orange-ish silicone core from what I can tell. They've consistently been like that from what I recall in the past when I first began purchasing from them. I've purchased a few sets of TES o-rings from McMaster-Carr.com (part # 9319 K239; approx $10ea.) that were slightly fatter but looked almost identical to the RA ones.

> **QUOTE**
>
> I'm guessing based on your pics that either the orings were a lower temperature variety or they opened enough of a gap to be exposed to exhaust gases...
> ?do you know the tension bolt torque used?

Approximately 32ft/lbs (starting at 13ft/lbs, then 22ft/lbs, then 32ft/lbs) strictly according to the bolt-torquing pattern shown in the shop manual. I've done it so many times I finally memorized it.

My guess is the same -- Although I'm not skilled in the technical differences between the types of teflon, silicone, and what not that's used in constructing these things, if I

do recall correctly, however, there are a few different temperature variations that are available when having these rings constructed. Perhaps the type of teflon used here was a lower temperature type. I don't know. Since there's some blackish around the split area of the teflon jacketting, and since those splits are facing the chamber side rather than the cooling jacket side, my guess is they split from heat and exposure -- I think they were cooked.

> **QUOTE**
>
> ?were any of them loose when you cracked the keg?

On the sides, yes. Otherwise, I had to use a very small, thin, flat-head screw-driver to pop them out.

> **QUOTE**
>
> Thanks :(
> Trydis7

Hope this has helped.

B

Edit: To Fix quote screwups.

This post has been edited by **BDC**: Apr 6 2007, 09:53 AM

Brian D. Cain -/- **bdc@bdcmotorsports.com**
Performance Rotary Engine Rebuilds & Specialized, High-End Porting
EFI Fuel & Auxiliary Injection System Installation, Consulting & Tuning



Check out my eBay store specials - http://stores.ebay.com/BDC-Motorsports

ON CARD PM REPORT TOP QUOTE REPLY

BDC Apr 6 2007, 10:00 AM Post #56



BDC Motorsports

Group: Members+
Posts: 823

> **QUOTE(Lynn E. Hanover @ Apr 5 2007, 11:24 PM)**
>
> The idea of a very specialized "O" ring being required I think, came from the stock ring being made of a number of materials, and for years they came with a metal seal strip that was fitted along the outside of the ring groove, in the combustion area.

Joined: 19-June 03
From: Grand Prairie, TX
Member No.: 6,661

Visit Member's Garage

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The "O" ring protector is usually a strip of flat plastic several layers deep and looking like a spiral lock snap ring.

So the metal strip in the Mazda kit was to keep combustion gasses from extruding the stock compression ring from extruding into the coolant area. It was on the wrong side of the seal to protect it from the combustion pressure. So, now there is no protector in the kit. Am I to guess that there was never a need for it. Or that materials are now so good that it is not needed? Or, perhaps it never was neede.

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If the grooves are spotlessly clean and dead smooth, almost anything will work as the seal. The real work is done at the junction of the iron and the housing faces under several tons per square inch of pressure.

Lynn, you're amazing. 

> **QUOTE**
>
> It seems to me that specalized rings are an answer to a question nobody is asking. The stock rings work perfectly and are not all that expensive.

Exactly -- What's the point of pursuing a super-duper, gee-whiz, ninja o-ring when the stock ones aren't broken in the first place?

> **QUOTE**
>
> Lynn E. Hanover

B

Brian D. Cain -/- **bdc@bdcmotorsports.com**
Performance Rotary Engine Rebuilds & Specialized, High-End Porting
EFI Fuel & Auxiliary Injection System Installation, Consulting & Tuning



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ON CARD PM REPORT TOP QUOTE REPLY

trydis7

Apr 6 2007, 11:54 AM Post #57

F.N.G.

Group: Members
Posts: 6
Joined: 13-October 06
Member No.: 23,208
hard to ID from behind

Visit Member's Garage

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The color was an orange-ish core, not reddish - brainfade. I think they were something like $7 a piece from Creavey for the custom size 500F 0.093 orings.

Was this engine a high powered turbo/race car/daily driver?

Could you measure the thickness, in a few good places, on one of the failed orings - might be useful info.

Thanks

dis7

OFF CARD PM REPORT TOP QUOTE REPLY

Lynn E. Hanover

Apr 7 2007, 05:13 AM Post #58

Master of the rotary universe

Group: Members+
Posts: 772
Joined: 19-January 04
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95 Mazda RX-7 tube frame race car

Visit Member's Garage

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>
> Could you measure the thickness, in a few good places, on one of the failed orings - might be useful info.
>
> Thanks
> dis7

If every you want to try this style of ring material, or some other material, just buy some bulk stock on spools, or made up rings that are to big for the application.

Cut the ring at a steep angle, fit it in the groove, and cut off the excess length at the same steep angle.

Place the junction on the intake side of the engine. If skittish about the seal, just add a drop of silicone to the splice.

The Navy used to have $2,000.00 splice kit, that contained a heating iron with grooves of various sizes and a cover that had the other half of the grooves on a hinge. You would cut off however much bulk material you needed, cut the ends off square and put a drop of goop on each end and push them together and clamp on the cover and turn on the heating element. The goop would cure as if part of the original ring and when pulled to destruction, the ring would never fail at this joint. I discovered a high consumption rate for this vulcanizing set and asked some of the users why they seemed to fail so often.

I discovered that the set had been superceded by another set that included several sizes of bulk material on spools. That set used a drop of super glue to join the ends of the bulk material. There were NSNs for the glue and the bulk spools listed in the kit.

The users still ordered the older vulcanizing kit to get the long heavy duty electrical power cord, which they cut off when discarding the brand new vucanizer, and the fabulous wooden (Maple with dovetailed joints and brass fittings) box the vucanizer kit came in.

I published a new NSN for just the box. (about $30.00) I linked the New kit NSN to the old kit NSN, so no matter which one you ordered, you could only buy the new kit. All approved by the Navy.

The point was that when compressed in its groove the ring trys to get longer, and cannot so it generates a very firm pressure. The part about adding this or that glue is almost a mental trick to help the installer believe this will work. If there is still a worry, make the shelf splice where the ring is reduced by half its width over a half inch or so, and the mating end is also done the same but in mirror of the first end. Glue it if it makes you feel better.

If possible place the joint in a location where a leak will have no, or little effect, and the leak might be detected.

Notice when the rings are removed even for a short time that they grow in length and can not be reinserted into the grooves.

Note that if you forget to pin the grooves in a "J" bridgeport that the ring material extrudes 1/2" into the intake port.

Everything used by the US Government has a special P/N assigned to it. It is known as the National Stock Number, or NSN.

Lynn E. Hanover

US Navy 59-63

Attached thumbnail(s)



OFF CARD PM REPORT TOP QUOTE REPLY

banzaitoyota



Apr 7 2007, 04:30 PM Post #59

The "new" navy splice kit from 81-92 had superglue in it

PM Me Now For Details On Free Weldong Lessons!

I eat EMU's
Group Icon

Group: Charter Moderator
Posts: 4,672
Joined: 4-July 02
From: My BIG ol TURBO-DIESEL
Member No.: 2,804
1986 Beater BASE aka BFH

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GOT ROTARY?:
73 RX-2: 80 MANA 12A/5 Speed, RB Header, dual pre-silencers,RB Muffler, Lowered, 1st Gen Wheels
73 RX-3 SCCA ITA
75 REPU: Another Project (What did you expect)
76 RX-4 ex-ITA car
86 BASE/Poor Man's GTUs: P-Port! :) (S5 NA Internals) SDJ Header , 4.3 LSD, HALTECH E6X install coming soon!

Want Rotary????
I need a another~~~~~~

GOT PARTS?:

Got Diesel?
92 Dodge D250, Cummins Intercooled Turbo-Diesel, POD Injectors, we be BOMBING
99 Kubota G1800 Diesel Garden Tractor

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fitzrx7

Apr 22 2007, 09:47 AM Post #60



F.N.G.

Group: Members+
Posts: 15
Joined: 21-December 04
Member No.: 13,444
'93 RX-7 TGM base

Visit Member's Garage

Sorry I'm a little late on this one, but I just took apart my motor with the RA seal kit, and although it wasn't exibiting any of the coolant loss symptoms, on examining the inner coolant seals I also noticed one o-ring with the exact same damage as to what you posted BDC. Unfortunately I had already removed them from the irons so I don't know on exactly what part they came from, but it is on a straight section of the seal so I would suspect combustions area and not intake side. Anyway just thought I would throw in my 2 cents and also comment that I will not be using a RA rebuild kit (or TE o-rings) or the RA seals as there was a little bit of chrome wear and grooving on my housings so it is back to OEM for me.

Fitz

> **QUOTE(BDC @ Apr 4 2007, 08:57 PM)**
>
> Update:
>
> I got a customer's motor today that was suffering from the intermittent overheating symptoms that I'd listed prior in this thread. Infact, some of the symptoms I was complaining about were from this same motor.
>
> I tore it down today and, not to my surprise, it had failed due to the exact reasons that I suspected: All four of the inner water jacket o-rings (the RA teflon-encapsulated silicone ones) had breaks in the teflon jacketting around the silicone core in various places; namely from TDC all the way around to BDC (bottom dead center below the intake ports).
>
> Attached are several pictures to illustrate.

B

Fitz
'93 TGM base



Streetported T4/GT40 with a few other little mods...

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BDC May 14 2007, 01:02 PM Post #61

BDC Motorsports

Group: Members+
Posts: 823
Joined: 19-June 03
From: Grand Prairie, TX
Member No.: 6,661

Visit Member's Garage

Update:

Local guy with a Turbo II I did a motor for in Sept 2005 is experiencing problems with nearly identical symptoms using the same brand o-ring kit. No history of over-heating. The motor, while built a year and a half, has only been recently running for about 2-3 months. Has about 1500 miles on it. Didn't experience problems from the get-go to my knowledge. Looks like I'll be tearing it down here pretty soon.

B

This post has been edited by **BDC**: May 14 2007, 01:02 PM

Brian D. Cain -/- **bdc@bdcmotorsports.com**
Performance Rotary Engine Rebuilds & Specialized, High-End Porting
EFI Fuel & Auxiliary Injection System Installation, Consulting & Tuning

Check out my eBay store specials - http://stores.ebay.com/BDC-Motorsports

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Time is now: 20th June 2007 - 01:48 PM



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