

BROADCAST

The Monthly On-Line Voice for Resistor News

Issue #160 January 2018

PRODUCT NEWS

FSR SERIES - FORCE SENSE RESISTORS

The first of three new products to start the new year!

The sensor market is picking up steam and Ohmite is not to be left in the dust. Following Ohmite's other sensor introduction, the FST series, Ohmite is looking to expand on our resistance-based sensor offering. Introducing the Ohmite FSR series. This Force Sensing Resistor changes resistance based on the amount of pressure applied. The application idea is simple, but design of this special product is not. A special thick film formulation is printed and adhered to a flexible substrate. This flexible substrate has a "pigtail" extending on one end with an industry standard connector. The FSR series will be available in a Square, Circle, and Strip designs. All three designs have an adhesive backing for easy attachment. The most familiar application for this type of product would be an airbag sensor. Typically located in the seat, when an occupant is seated, the resistance of the sensor changes. This resistance change tells the computer that someone, or something, is located on the seat. Depending on the complexity of the circuit and software, the weight of the object can be calculated from the resistance change. This would let the logic in the software know if it should activate the circuit based on a low end or upper end limit. The FSR NPI package will be sent out to our distribution partners in the next week.



New Product #2—Surface Mount Potentiometers

Ohmite has offered potentiometers and rheostats for many years. All with single turn functionality but now we have the SMU series of surface mount potentiometers. The SMU series offers a maximum power dissipation of ½ watt. This matches other non-surface mount versions available on the market today. The SMU is designed to keep the lowest profile. This is done by having the adjustment location on the top of the potentiometer. The adjustment of the full range of resistance can be accomplished with a single turn.

More on P2

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CAR MARQUE? FIND OUT ON P8**

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NEWS

This provides the user with a quick adjustment. The adjustment can also be completed with either a flat head or "Phillips" screw driver, adding another layer of ease for the user. The SMU series is offered in standard values from 50 ohms up to 2M ohms and the outer casing meets UL 94V-0 requirements. The SMU NPI package will be sent out to our distribution partners in the next week.

**New Product #3 - Ceramic Heatsink**

Following up on the WC series ceramic heatsink, Ohmite introduces the CA series. This dual version of the WC series offers the same advantages of all ceramic heatsinks. The larger body provides dielectric

isolation up to 6Kv. This is up from 4Kv on the WC series. This is

attained by positioning the mounting feet further away

from the clip and device mounting locations. The

CA series can support two high voltage devices

in a TO-247 or TO-264 package size and

outperforms aluminum heatsinks in forced air

applications. The same self-centering cam clips

are used for mounting the devices and provides easy no-tool mounting. The

Pat. Pending clip system produces even pressure to the heatsink for maximum

thermal efficiency. The NPI package on the CA series will be available in the

coming week.

**COME AND VISIT**

This year's Applied Power Electronics Conference will be held in San Antonio from March 4 - 8 and Ohmite will be there. APEC focuses on the practical and applied aspects of the power electronics business. We look forward to you visiting our booth where we'll have a number of new products on display.

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NEWS**DISTRIBUTECH[®]**
CONFERENCE & EXHIBITION

Ohmite participated in DistribuTECH 2018, knowing that the future of our electricity grid exceeds the demands of today. What better place to show off our wire wound and stamped grid load banks. We were with thousands of the brightest minds in electric transmission and distribution – as well as renewable generators, looking to make a serious leap into grid implementation. Over 520 companies filled the exhibition hall with information, products and services related to electricity delivery automation and control systems, energy efficiency, demand response, renewable energy integration, advanced metering, T&D system operation and reliability, communications technologies, cyber security, and more. Ohmite is investing significant resources in developing dynamic braking

and high current load banks for the power distribution industry. We also offer custom assembly options and engineering assistance as few requirements are ever exactly the same.

Ohmite also can collaborate closely with Davies Molding when overmolding silicone around thick film power resistors. If you missed us in San Antonio, we have already registered for next years show in New Orleans, Louisiana. Mark your calendars to visit the Ernest N. Morial Convention Center February 5-7, 2019.



Totally in control at Distributech - Pedro Valdez, Derran Smith, Kurt Devlin and Brandon Metzger

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From the desk of Greg Pace
President of Ohmite



**2018 is in full swing, if you are on time,
you are actually late!!!**

OHMITE I know, I know, time flies when you are having fun and for the most part we did in 2017. While not 100% in hitting our sales growth goals and other objectives we did pretty well. I would like to mention a few items, plans, areas where we need improvement and a few other tidbits as one year ends and the next begins. Product offerings continue to grow exponentially as we bring to market more and more line items and product families. Look for an increased sensor line in 2018 and perhaps even a larger entry into thin film. We are hoping to drive to lower PPM's with thick film, roll out a globally low-priced program on all axial wire wounds and have planned on a minimum of 10 new product families. Led by John Kaltinger, our warehouse Manager in Brownsville we have totally rehabilitated the warehouse, the processes, added more AI and transformed the location into a very efficient operation. Debasis Roy has settled in as Product Manager and Senior Engineer in our new offices. Kirk is focused on the new product initiatives and helped to design our cutting edge new offices in the warehouse. Mike West has been focused on solving customer needs with the team and John Orso has reorganized his production team to better address the changes in the market. We were successful in adding new surface mount equipment to the rejuvenated axial, rheostat and lug line improvements allowing the sales team led by Kurt Devlin to score design wins. While we miss our Director of Finance Rick Lange, we are thrilled with the improvements Peter Hills has brought to us. Inside Sales and the Sales Managers have their assignments and we are ready to go.

ARCOL Richard McMullin took over in Q3 as General Manager and has not looked back! Showing a much improved aptitude for the needs of the customer and with a much stronger management aptitude than previous managers, he too is rejuvenating the manufacturing process to drive excess days of production out. ARCOL had another record year! Darrel Oliver as you remember was recently promoted to Director of Sales in EMEA and Asia, and he has many projects in the process of booking now. Both Ohmite management and ARCOL management and for that matter Davies management have lent a hand of support into each company's manufacturing challenges. And yes, Peter Craik is still selling for us for all three companies!

DAVIES MOLDING Davies is set for big double-digit growth. Remember this is just not a knob and handle company, but a world class injection and two shot molder. We have shown that their engineering is second to none, and those of you who have brought in custom ideas have been rewarded with big sales opportunities. Just call Scott Kennedy at Logix in Texas or Bob Foertsch at Win-Cor! I think we can bring a few select distributors into this selling arena too. Thanks to Bob Reisel for leading the way here with Mr. Devlin. This company has plenty of new equipment and additional capacity so think of us more please.

These companies offer thermal solutions, resistive technology, sensors, increasing thin film offerings, heat sinks, custom parts, thermal plastic, custom plastic, knobs, handles, power solutions, heaters and more. All in all, if you are selling Ohmite/ARCOL/Davies you will be able to look at more deals and with more opportunities than ever before. And for the title of the article? It comes from one of my operations mentors meaning, if you are on time for your customer needs, you are actually late....think about it, and remember, Happy Selling in 2018!

Happy Selling!
Greg

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**From the desk of Greg Pace
President of Ohmite**

SUCCESS WITH OUTGOING CALLS!

I have decided to publish most of an email from Alan Pearlman, our Western Regional Sales Manager for Ohmite/ARCOL/Davies. In it he outlines a very successful effort by our Carrie Stathas (right), Inside Sales for the West and Alan's sales partner. Carrie has been with us now a few months and is a quick learner. We are trying to move towards more of a sales culture than "quote and go" or "expedite and move" culture. Since this email there has been other success so we all need to think this way. From Alan:



"I wanted to take a minute and share a success story. Carrie and I had a strategy call and we outlined how we were going to use the FTB reports and get penetration deeper into each territory. After highlighting the report for customer, product and Qty related buys we focused on Colorado where I was traveling in 2 weeks (this week). Carrie was able to make a good contact with "ABC Company" in Fort Collins, CO. I closed the loop and make the appointment. Turns out we had never focused on this account since they use "XYZ Company" and "L & M" as CM's. Qtys are not huge but the ASP is nice. I think the TAM is over \$100K with this account. These folks use our heat sinks and TEH100 series parts already and there are other Ohmite parts they use but we did not specifically discuss them as time was limited. The interesting part of the call is they use a number of other standard and custom Heatsinks and are a decent user of EBG products (600W). I took a look at the largest user for EBG which is being designed into a new design and we do not have a cross. It is a 4 terminal device and has a different footprint than our TAP600 series. We will need to help them design around our parts or at least a dual footprint moving forward. James mentioned to me that he tries to design around parts that have Automotive grade specifications – specifically the extended temp range. We discussed a number of our parts that he was not aware we do AND have the extended range he is looking for. When he searches using Automotive grade our parts don't come up in the parts returned since we don't have the "Auto Grade" But we do have parts with extended temp ranges and we discussed those series. Gaining access to this account has opened Ohmite up to another POWER customer we did not previously have any knowledge of. We already have action items to send him info on our other Thick film high power / High Current options. Our new aggressive calling program is working and I wanted to give Carrie qudos for making the calls and qualifying the customer so I was able to make the appointment."



Thank you Carrie and Alan for aggressively "making the call and asking the question"

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**From the desk of Greg Pace
President of Ohmite**

ORSO'S GO BACK TO THE "40'S"

John Orso along with charming wife Keri and son John recently attended a family reunion to celebrate John's fathers 75th birthday. The theme was "the 40's", and we think this is one of the best dressed trio's we have seen in. And yes, John looks that good while in the plant attending to all of our production needs!



WE ARE A VERY TALENTED INDUSTRY!



I have been very lucky to be a part of the evolving community of electronic components. We work with sales reps, sub-contractors, other manufacturers, customers and distributors. One gets a chance to get to know his or her contacts and relationships quite well, so when you find out something interesting about an associate, it's always fun. In this case, our VP of Product and Supplier Management from Allied Electronics and Automation, Frank Cantwell has an interesting talent that I was unaware of for years! Frank is a notch above most of us athletically and I bet many of you never knew he was a professional athlete, at least for a moment! Frank was a ... professional bowler! Yes, he was, and at the highest level! Over dinner one evening we talked about sports and all, and he "matter of factly" revealed to me he was a



state champion many times over (you are talking TEXAS here, a big competitive state) and he had rolled a few events at the professional level. I will let him fill you in on the many other facts, but I do remember asking him if he had ever bowled a "300" game. "Yes", was the answer, "and 23 times of which 13 were sanctioned!" You are kidding me! That's the perfect game, the 63 at Oakmont, the triple double in the finals! Yes, our very athletic Frank was a "pro jock." I coaxed out of him a picture of his trophies and all, as well as a nice picture of his family, wife Alisa, and children McKenzie (13) and Garrett (7). What I did not get was that "Big Ern McCracken" picture of him rolling for the win in Las Vegas....maybe one day soon. Punch line here, is you meet all sorts of talented folks in our industry!

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**From the desk of Greg Pace
President of Ohmite**

NEW AUTOMATION AT DAVIES IS UP AND RUNNING!

Yes, that's a robot now working at Davies Molding, it sands, buffs and polishes our knobs all day and all night long. It has eliminated a nasty dirty job for one of our associates and allowed them to move over to a much more challenging role in post manufacturing for us. Stop over one day and have a tour of Davies, you will like what you see. We offer all sorts of standard knobs and handles but where we really shine is with custom products. Call us anytime! By the way our new robot "associate" does not have a name yet, we should probably figure that out one day. Send your recommendations to Jenny at Davies



PLEASE GIVE DARREL YOUR SUPPORT

On March 25th, Arcol's Darrel Oliver (right), Director of Sales in EMEA and Asia, will be going for a bit of a jog in London. In fact, it's a half marathon which he'll be running in aid of The Royal British Legion, more commonly known in the UK as the organisers of Poppy Day every November, and an organisation that helps ex-servicemen and women in many different ways. For those of you who don't know, Darrel is a former submariner with the Royal Navy, hence his chosen charity. For this reason, I'm asking you to support him and his dedicated charity by donating via the link below.



www.justgiving.com/Darrel-Oliver



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APPLICATIONS CHRONICLES**HAVE YOU GIVEN ANYBODY A QUICK FLASH LATELY?**

It's always nice to get a "thank you", so when Arcol received this copy of an article published in the Lotus Elan Owners Newsletter, we were specially pleased. Brian Buckland had a problem which we helped solve and keep a great British motoring legend of a car going as it should. This is his story.

Many years ago when the world was young during the first few euphoric days of Elan ownership, one evening I raised the headlight pods absent mindedly without turning the switch on. The lights immediately began to flash which at the time not knowing much about the car, proper flummoxed me!!! However after investigation I discovered that the headlights on an Elan are designed to flash automatically in this way. The Plus 2 also has this facility. Standard flasher units for indicators work by the electrical current heating the switching mechanism, some 42 watts in this case. The Lotus 'Special' flasher unit was designed to work on the control coil of the normal 6RA relay which only has a minute electrical load. After 40 odd years the flasher units are 'beginning' to wear out and as these special flasher units are not available anymore the flashing facility is lost. I recently decided I would like my headlights to flash again so I set about experimenting to sort the problem. I rigged up a wiring jig on the work bench, exactly as the Lotus wiring diagram, and with a flasher unit kindly supplied by Sue Miller, connected the jig up to a battery. As I expected nothing worked. I connected a 6 watt side light bulb across the relay coil with a couple of crocodile clips to provide some load and "bingo" the headlight began to flash immediately. I was 'rather' pleased. The side light bulb also flashed and a flashing bulb under the bonnet is, I believe, not legal. So I investigated with the aid of a manufacturer, Arcol UK Ltd Resistors, to find a suitable resistor to replace the bulb. I was kindly sent a free sample. It was all connected up on the workshop bench the same day as received. 12 volts was applied and the headlight began to flash. However before I could say "Yippee", the resistor exploded with rather a loud bang which I have to say frightened the life out of me. Back to the drawing board with the resistor manufacturer. I went down to Truro to see them for a technical meeting and showed them the exploded bits of the original unit. After their own check to see what had happened to this unit, they suggested a larger unit and this one worked perfectly. The resistor is an Arcol HS50 25RJ which can be purchased from Radio Spares if



'trade' but probably better from Sue Miller complete with Flasher unit. Mindful of originality I fitted the resistor to my car behind the left headlight where it cannot be seen (sneaky) and it would take an Elan Sherlock Holmes to notice what had been done. The wiring diagram is available from the Club or even from me. Thanks are due to Arcol for their professional help with this problem. I have had a few emails regarding the trip to Spain in my Elan during

October and mentioned in the last Lotus News. 'Aren't you brave,' 'Check your foreign recovery insurance,' 'It will never get there,' are samples of some that I received. Well just to give one in the eye to the 'Lots Of Trouble Usually Serious' brigade, my Elan covered the 3153 miles without missing a beat. I drove it 18000 soul satisfying miles last year... You know where I am for help, elanman26@gmail.com Brian Buckland



TECH TALK**BATTERY RESEARCHERS CLAIM LITHIUM METAL BREAKTHROUGH TO TRIPLE ELECTRIC CAR RANGE**

In the latest battery breakthrough claim, researchers from the University of Waterloo released a new paper claiming a breakthrough involving the use of negative electrodes made of lithium metal. They claim that it has the potential to “dramatically increase battery storage capacity,” which could triple the range of electric vehicles. The main issue with Li-metal batteries is the quick degradation due to dendrites forming in the cells. Quanquan Pang, who led the research while he was a PhD candidate at Waterloo (now a post-doctoral fellow at MIT), claims to have solve the issue by “adding a chemical compound made of phosphorus and sulfur elements to the electrolyte liquid that carries electrical charge within batteries.” They claim that the compound reacts with the lithium metal electrode in an already assembled battery to “spontaneously coat it with an extremely thin protective layer.” It enables them to use lithium metal electrodes in battery cells and take advantage of their greater storage capacity without the safety risks and faster degradation. Pang commented: “This will mean cheap, safe, long-lasting batteries that give



people much more range in their electric vehicles.” He and his team published their findings in the journal *Joule*. In the paper, they claim to have completed “over 400 cycles at 5-C rate” in prototype cells and that they have achieved a “close to 100% coulombic efficiency.”



A single-ion-conducting protective layer is created on the Li surface *in vivo*

Membrane lowers interface charge transfer resistance, Li plates underneath

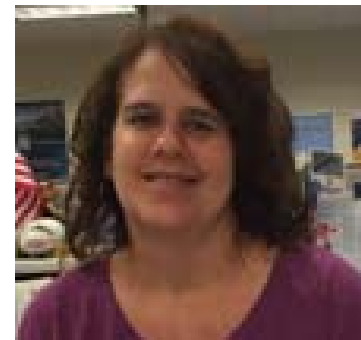
Stable, dendrite-free Li plating in long-life symmetric cells up to 8 mA cm^{-2}

Full cells using high-loading LTO electrodes demonstrate close to 99.99% CE at 5°C

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Ohm-Made Treats

In our continuing monthly feature, our Customer Service Team of Norma Redmond, Judy Heyse and Carries Stathas will be delivering delicious recipes of their own, and those submitted by you, the readers, for everyone to enjoy. This column is theirs to use as they please, but you can count on something new to try in your kitchen each month. And following the success of her previous dishes, Michelle Sprainis (right) of TTI has opened her secret recipe book again to share another of her recipes. This time it's for Split Pea Soup with Ham which Michelle would makes as a winter favourite. We Thank you Michelle and hopefully this will spur on more of our readers to share in their culinary delights. Send 'em in.



SPLIT PEA SOUP WITH HAM

INGREDIENTS

Ham bone
 Few pieces of ham
 2 slices of canned pineapple
 4 Cups of Chicken broth
 2 Chicken bullion cubes with 2 cups of water prepared according to directions
 1 LB Green split peas dried
 ½ stalk of celery
 2 onions chopped
 3-4 carrots chopped
 3 red potatoes small, chopped with skins left on
 2 cloves of garlic chopped

METHOD

Put Ham bone in a large crock pot. Add all vegetables and spices then add pieces of ham, pineapple and chicken broth and Chicken Bouillon prepared with water. Then add 1 LB Split green peas on top. Cook 6-8 hours on low.





Kirk's Corner

Kirk Schwiebert
Director of Strategic Planning and
New Product Development

WORLD CUP POOL PREVIEW

Last month we profiled Groups A and B. This month we will move on to look at Groups C and D, in order to help you make your picks before submitting them.

GROUP C



FIFA WORLD CUP
RUSSIA 2018



FRANCE - this team is so loaded with talent it almost seems unfair, but they have been known to disappoint, so nothing is assured. Les Bleus wear one star on their jersey, having been crowned World Cup champions in 1998, on home soil. They have to be considered among the favorites to win in 2018. On defense you have Koscielny (Arsenal), Umtiti (Barcelona), Varane (Real Madrid), among other stars. The midfield boasts Pogba (Man U), Lemar (Monaco), and Kante' (Chelsea). Up front, even with Karim Benzema banned from the team, you have Griezmann (Atletico Madrid), Mbappe (Paris SG), Martial (Man U), Fekir (Lyon) and my son's favorite, Alexander Lacazette (Arsenal). Pity there is only 1 ball on the pitch.



AUSTRALIA - the Socceroos (Americans are not the only ones who call this game soccer) are probably the long shot in Group C. While talented and competitive, they have no players who compete in top division Europe, but many who play for second division teams. Aaron Mooy of Huddersfield is probably their most dangerous scorer. They will fight to the end and could pull off a surprise, but don't bet on it.



PERU - was the last team to qualify from South America, edging out Chile, and they nearly lost the services of their top scorer due to a drug scandal, but that matter was settled. It is never a good idea to underestimate South American teams. They play hard, on the edge of the rules, and Peruvian players will be looking to make names for themselves this summer. Los Incas will be following the lead of European players like Renato Tapia (Feyenoord) and Jefferson Farfan (Lokomotiv Moscow). Picking to advance out of this group would not be a bad call.



DENMARK - this minor European power qualified over the likes of Italy and Holland. Goalkeeper Kaspar Schmiechel starts for Leicester in the EPL and the team leader is the talented Christian Eriksen (Tottenham). The Danes are tall, win lots of balls in the air, and have the talent to advance out of this group. It's a difficult decision who to pick as the number 2 finisher after France.



Kirk's Corner

Kirk Schwiebert
Director of Strategic Planning and
New Product Development

WORLD CUP POOL PREVIEW—Part 2

GROUP D



ARGENTINA - means Lionel Messi, like Captain Ahab, chasing the one prize which has always eluded him, a World Cup Title. Diego Maradona won 2 (1978, 1986) for the Albicelestes, and the people of Argentina never let Messi forget that he has yet to deliver one. Messi will be 31 in June, has played 123 times for his country, and scored 61 times. He would gladly score zero goals this summer if only he could lift the trophy. The talent around him is enough to win it, with Sergio Aguero (Man City), Angel Di Maria (Paris SG), and a talented you Paolo Dybala (Juventus) all prepared to accept brilliant Messi assists and convert them to goals. The drama will be immense.



ICELAND - everyone loves this little country of 300,000 Vikings. They made it to the quarterfinals of Euro 2016, led by Gylfi Sigurdsson (Everton), and now have qualified for their first World Cup Final. This team also boasts more slashes, umlaut-looking things and other hash marks on or through the letters of their names, every one of which ends in "son". They have a chance to advance out of this group, but they have a hill to climb.



CROATIA - with their striking red and white checkered jerseys, the Croatians are fun to watch and have serious talent to carry them through the group stage. 32 year old Captain Luka Modric (Real Madrid) is one of the best playmakers in the world. Ivan Perisic (Inter) and Ivan Rakitic (Barcelona) make for a dangerous midfield. The Croats have a solid group of starters, but many are 30 or older, and while they can get through this group, lack of team depth may halt their progress in the knock-out stages.



NIGERIA - The Super Eagles make their 7th appearance in the World Cup Finals and 3rd in a row. Can they survive this group? The Goalkeepers have very little international experience, but they can score and have young, talented players who can make some noise in Russia. Wilfred Ndidi, Kelechi Iheanacho, and Ahmed Musa (all with Leicester City) will have good chemistry since they all play on the same club team. Alex Iwobi (Arsenal) can add his speed and quickness to the mix, and who knows?



FIFA WORLD CUP

RUSSIA 2018

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Peter's Page

Peter Craik

International Sales Director EMEA
(Europe, Middle East and Africa)

Just as the transfer window closes, we take a look at our teams. Will Sanchez and Mkhitaranyan do well under their new bosses? Giroud goes to Chelsea and the Gunners get Aubameyang. Not an exciting transfer window, but it moves the cash around. Will it make a difference to Brandon Metzger and Graham Maggs who top their respective divisions? Graham would appear to have a commanding lead over Keri Orso, but look who's chasing Brandon. He just won't go away will he? The transfers will be finishing as we go to Press, so Wildcards at the ready as there may be some bargains. Good Luck - PETER CRAIK



PREMIER DIVISION

TEAM		MANAGER	POINTS
MAXIMUM		Brandon Metzger	1337
DIAMOND LIGHTS		Felix Corbett	1329
EVANS OLDIES		Martin Evans	1311
THE STONE MOSES		Jimmy Craik	1304
ORSO		John Orso	1279
CAMEROON DIAZ AC		Kirk Schwiebert	1252
BUDDIES TEAM		Matthew Evans	1248
BAVARIAN BULLDOGS		Geoff Breed	1246
AMRUT XI		Amrut Annigeri	1214
THE CRYSTELLES		Mark Gallier	1207
TIGA TIGA		Keith Gallier	1204
AZUL		Sergio Baez	1196
THE LONE CRUS'ADE'R		Adrian Reed	1079

OHMITE FANTASY
LEAGUE SUPPORTS



CHAMPIONSHIP

TEAM		MANAGER	POINTS
POMPEY MAGIC		Graham Maggs	1368
MRS ORSO		Keri Orso	1307
UH OZIL		Andrew Schwiebert	1266
GR UNITED		Gitte Russell	1266
THIRTEEN STONE LOSER		Jill Thompson	1258
NEXT CHAMPIONS		Miguel Quintinalla	1252
SOFI STRIKERS		Seta Hovsepien	1246
ORSO		John Orso Jnr	1242
VIVA LA RAFFALUCION		Peter Craik	1231
CHAIRMAN'S XI		Dominic Melville	1222
MRS MOUSEY XI		Grace Thompson	1218
ROCKnROLLA FC		Dave Saunders	1214
GUNNERS SPEND BIG		Peter Larcombe	1195
SILENT KILLERS		Darrel Oliver	1182
BIG BERTHA		Alex Herrera	1151
CLOSETED MAN		Daniel Evans	1129
MOTTLEY CREW		Gary Mott	1063
8 DEMONS FC		Antonio Escobedo	909
SHOW ME DA MANE		Peter Hills	888

