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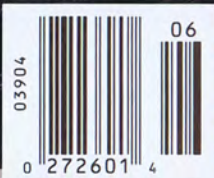
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sound-officer

with, Mike O'Conner and his GemSen staff kept the event running smoothly all weekend. Now in its 5th year, the contest draws a strong contingent of competitors from both Canada and the United States.

When all was said and done, Amateur

OKLAHOMA IASCA REGIONAL Oklahoma City, Oklahoma Sound Q Results		
CLASS	NAME	SCORE
NOVICE 1-150	Mike Terrinke	263
	James Gan	257
	Vincent Kimball	242
	Richard Kozik	237
	Scott Casey	222.5
NOVICE 151-300	Michael Carlton	302
	Brett Berdine	296
	Ahmad Hugger	259
	Budiono Heng	250
	Don Duncan	221
NOVICE 301-600	Ryan Ezell	347
	Mike Napurano	336
	Mary Nash	336
	Kyle Hurt	330
	Ricky Nelson	314.5
NOVICE 601+	Jason O'Rourke	335
	Jeremy Meadows	334
	Exiquito Gonzalez	329.5
	Brian Bender	273.5
AMATEUR 1-150	Calvin Hickerson	359.5
	Aaron Whitehead	345
	Chris O'Bryan	325.5
AMATEUR 151-300	Eric Cano	378
	David Eubank	349.5
	Brian Mathis	328.5
	Dan Murray	325.5
	Carter Raley	318
AMATEUR 301-600	Mickey Brones	387.5
	Chuck Barbosa	360
	Joanna Duncan	350.5
	Brian Tabor	326.5
	Larry Carter	268.5
AMATEUR 601+	Jason Shoefstall	365
	Scott Sheperd	345.5
	Randy Coles	320.5
	Kenneth Holmes	296.5
PRO 1-150	Frank Rougeau	337.5
	Kelli Casler	286.5
	Jeff Bowdler	247.5
PRO 151-300	Mike Hudson	319
	Louis Marx	293
	Jerome Yang	258
	Chris King	247.5
PRO 301-600	Gary Biggs	363.5
	Earl Zausmer	298
	Pat Hill	243
	Tony McHenry	231
	Skip McCain	100
PRO 601+	Rob Rice	361.5
	Scott Campbell	279
	Jeremy Colby	246.5

151-300 winner Neil Batson was crowned Best of Show, scoring 353.5 points in the Sound Q category.

dB DRAG CITY

Wayne Harris' dB Drag Racing collective is making major changes in 1998, including the charging of membership fees for both competitors and retailers. Competitor membership is \$30, retailer memberships are \$100. Several rule changes are being implemented as well, the most controversial being the method used to rate amplifier power (and, hence, divide power classes). According to the association's Web site, www.termpro.com, "Amplifiers will be rated based on the highest continuous rms output power as specified by the manufacturer in the owner's manual, product brochure, advertisements, or price sheet."

This radical change in power ratings (which has some competitors grumbling) has also forced a change in dB Drag's power-class structure. At regional and national-level events, the following classes will be used for Amateur and Pro divisions: 1-5,000 watts, 5,001-10,000 watts, and 10,001-50,000 watts. In addition, the Extreme power class has been added for vehicles meeting any of the following criteria: if they're commercial or manufacturer's vehicles, vehicles with more than 50,000 watts of power, or vehicles with homemade or non-commercial amplifiers or speakers (including equipment not originally designed for operation in the 12-volt automotive environment).

The 1998 rules also specify that a competitor must use a conventional source unit such as a CD or cassette head, thereby outlawing the use of signal or tone generators. And, at regional and national events, competitors will be required to use the official dB Drag Racing CD, *dB Jams Volume 1*, as the program material.

dB Drag also added numerous rules regarding vehicle and system construction, yet provided a loophole by stating, "Vehicles that participated in the 1997 IASCA or USAC Finals may be 'grandfathered' at the sole discretion of the dB Drag Racing Association." Hmm. Further dB Drag info can be accessed at the aforementioned Web site or by calling 602-517-3079. ■

Terry Miller welcomes encouraging words regarding his AudioSports shows and Waffle House menu items at info@audiosports-usa.com. You can also visit his Web site at www.audiosportsusa.com for schedules, scores, information, and "interesting" links.

AUDIOHUNDER IASCA REGIONAL Toronto, Ontario Sound Q Results		
CLASS	NAME	SCORE
NOVICE 1-150	Krista Corallo	263
	Jessica Sloan	242.5
NOVICE 151-300	Peter Ferreira	326
	Rex Arpachinda	322
	Dan Sonnerich	298.5
	David Grey	298
	Sean Williams	294.5
NOVICE 301-600	Kevin Grierson	304
	Nelson Chan	273.5
	Roman Ismael	262
	Tony Hernandez	239
	Martin Sookhoo	238
NOVICE 601+	Stanley Sum	275
	Chris Jaggi	241.5
	Jason Wood	234.5
AMATEUR 1-150	Derick Wong	351.5
	Jason Grossenbauer	343
	Mike Zuliani	331.5
	Mike Galligan	315
	Donald Carter	307
AMATEUR 151-300	Neal Batson	353.5
	Jay Torres	333.5
	Alan Arneil	332.5
	J.P. Lalonde	331
	Andrew Crawford	321
AMATEUR 301-600	Jeff Gasier	338.5
	Todd Halstead	322.5
	Ken Bellamy	320
	Andrew Scheuller	284.5
	Adam Mandos	280.5
AMATEUR 601+	Mike Arsenault	350
	Jeff Sickles	332.5
	Doug Donaldson	314
	Robert Young	296
	Glen Crombach	292
PRO 1-150	Tom Petropoulos	352.5
	Joshua Enos	330.5
	Donald Carter	323
	William Thorne	319.5
	Nick Russo	271.5
PRO 151-300	Jamie Edmunson	343.5
	Troy Babcock	342.5
	Shawn Marston	326
	Brian Morris	324.5
	William Gaudet	315
PRO 301-600	Larry Chijner	334
	Tim West	300.5
	David Giles	228.5
	Jesse Paulson	222
	Jody Sprung	191.5
PRO 601+	Tyrone Chesnut	323.5
	Leo Weeks	320.6
	Ken Myers	291
	Dino Saliccioli	281.5
	Roger Legault	256
EXPERT 1-600	Mark Liggett	340
	Steve Wenger	337.5
	Bruce McGiver	277.5
EXPERT 601+	Jason Planck	353

Ampere Group

Tested: Lightning Audio alternator and battery, Pursuit security BY MICHAEL MICHNAY & MICAH SHEVELOFF

Lightning Audio

LA8100-160 Alternator and SBX1500 Battery

LAST ISSUE, I DISCUSSED THE IMPORTANCE OF ELECTRICAL power and the benefits of outfitting your sound system with a high-quality power-distribution system. This issue, I'd like to examine the sources of the electrical power in your vehicle: the alternator and the battery.

Even though these 2 components function separately, their operating relationship is quite symbiotic. A battery's primary function is to provide the initial burst of energy needed to start your car. Its secondary duty is to act as the alternator's backup. While the vehicle's engine is running, the alternator is ultimately responsible for all of the electrical energy needed to operate the automobile (stereo system included). If the vehicle's overall demand for electricity exceeds the output potential of the alternator, the difference is drained from the battery. When the electrical demand is less than the alternator's output potential, the surplus energy is used to recharge the battery.

When choosing an electrical power supply for your roadster, my motto is that it's better to be safe than sorry. Select components that'll produce enough juice to power your vehicle as well as all of your mobile-electronics toys. Nearly any high-quality automotive battery will suffice. However, I recommend using the highest-capacity battery that'll fit into your car's battery tray. When purchasing an aftermarket alternator, a good rule of thumb is to pick a device with an amperage rating that's 15 to 20% higher than the vehicle's average ampere draw. This extra output potential will allow the alternator to handle any load put on it (such as an extra-large burst of sound from your car-stereo system) and still be able to recharge the battery.

Seeing Lightning Audio's new line of accessories at January's Consumer Electronics Show in Las Vegas clinched my project idea for this month. Choosing the test vehicle for my electrical-source upgrade idea was easy; I've always felt that the stock alternator in my buddy's 1997 GMC Yukon, which is outfitted with a killer 650-watt sound system, was woefully under-powered. I confirmed my suspicions by dragging out my trusty Cornwell FI40 battery/charging analyzer and taking a barrage of

electrical measurements. With only the engine running, I measured the amount of current needed to power the stout sport-utility vehicle. At idle (650 RPM), the Yukon's engine-management system drew 21 amperes of current. The alternator was producing 34 amperes (the 13-ampere surplus was being used to replenish the charge the battery lost while starting the vehicle). The stock battery held a steady charge of 13 volts.

Next, I turned on the Yukon's headlights, fan, rear defrost, and front wipers. The current draw jumped to approximately 89 amperes. At idle, the alternator produced only 75 amperes, a deficit of 14 amperes. The battery's voltage reading dropped to 12 volts and kept falling as the vehicle drained energy from the battery to sustain operation. Revving the engine to 1,800 RPM (the average cruise RPM) increased alternator output to 105 amperes (its rated output). The voltmeter attached to the battery immediately jumped to 12.5 volts. As the alternator replenished the battery, its current output steadily dropped to approximately 89 amperes and battery voltage leveled off at 13.1 volts.

Finally, I fired up the sound system to a normal, yet slightly hot, listening level. With the engine still revved to 1,800 RPM, average current draw jumped to 108 amperes (3 amperes more than the alternator's rated output) and battery voltage dropped to 12.2 volts. The voltage reading continued to drop.

From these readings, I concluded that the Yukon's stock alternator just didn't have the muscle to power a moderate audio system under relatively normal driving conditions.

Considering all of the above data, I figured an alternator rated at 145 amperes or more at 1,800 RPM or less would satisfy the Yukon's energy desires, so

I had Lightning send me their new CS Series LA8100-160 160-ampere alternator (\$799; pricing depends on configuration, size, and type of alternator). Remember, it's important to determine the average RPM range that your



Flash pods: Lightning Audio battery and alternator energize a Yukon

vehicle's engine generally runs at and purchase an alternator that's capable of reaching its highest rated output within that RPM range.

I must say, the LA8100-160 is a real beauty. CS Series alternators are designed to be direct factory replacements; no special mounting bracket was required for the Yukon. They're available in a wide range of amperages and can be custom engineered to your specifications for an additional fee. The LA8100-160 is available in 3 finishes (raw, chrome, or blue); custom powder coating is also available.

The LA8100-160 slipped right into the stock alternator location, no fuss and no muss. I upgraded the stock charge wire from 6- to 2-gauge cable and ran a 2-gauge ground cable directly from the battery to the back of the alternator case. This virtually guarantees near-perfect positive and negative connections.

To see how the alternator performed on its own, I fired up the Yukon, cranked the stereo, grabbed my FI40, and started measuring. The LA8100-160 delivered 80 amperes at 12.2 volts at idle. When the engine was revved to the ascribed 1,800 RPM, the alternator generated a healthy 156 amperes at 14.25 volts. Standard practice is to rate maximum amperage at 13.5 volts, so I added additional load to the system using the FI40's built-in load resistor and dropped the battery charge down to 13.5 volts. The LA8100-160 output a whopping 165 amperes. This alternator produced more than enough juice to keep up with the Yukon's normal, everyday power demands, and still had some to spare. Very impressive.

My next move was to upgrade the Yukon's stock battery. With the quite-capable LA8100-160 in place, replacing the stock battery really wasn't necessary. But, as I said earlier, using a battery that offers a substantial amount of reserve energy is highly recommended; you just never know when you might need it. So I exchanged the stock battery for Lightning Audio's Storm SBX-1500 Lightning Cell battery (\$399).

The compact SBX1500 is rated to deliver a 1,500-ampere peak discharge and 850

cranking amperes, and it features a voltmeter, er, excuse me, a digital monitor that's sunk into the top of the battery, letting you evaluate the condition of your ride's electrical system right at the source.

The SBX1500 easily slipped into the Yukon's stock battery tray. To trigger the digital monitor's remote-turn-on terminal, I ran a wire from an ignition source so that the display monitor would illuminate while the engine was running. The monitor provided an easy way to evaluate the condition of the electrical system at its source.

The Lightning Audio LA8100-160 alternator and SBX1500 battery upgrades delivered all of the power the Yukon could ever need or want. They were able to increase performance and reliability, and left the Yukon with plenty of juice to spare.

But I'm not done yet. Next issue, I'll bring the Yukon's electrical system up to competition spec by adding a second Lightning Audio battery and a Lightning Audio capacitor and battery isolator. See you then.

—Michael Michnay
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Pursuit by Audiovox The Predator IMO-700 Security System

VEHICLE-SECURITY NEEDS ARE VERY different from person to person and family to family. Take Mr. and Mrs. Workerbee, for instance. Mr. Workerbee parks his car in an unsecured outdoor lot and

catches a commuter train to work each day, leaving his automobile vulnerable the entire day. Mrs. Workerbee, on the other hand, parks her car within the relative safety of a monitored garage during her office hours. Even though Mr. and Mrs. Workerbee's security needs are different, they'd both feel better knowing that their respective automobiles are fully protected by something more than the factory-installed keyless-entry systems. However, the Workerbees are on a very tight budget—and who isn't these days? Well, kiddies, I've got something sizzling hot for security show-and-tell this month that just about everyone can afford: The Predator IMO-700 Immobilizer Anti-Theft System from Pursuit by Audiovox.

The Predator IMO-700 (\$150, uninstalled) is an ingenious dual-circuit disabling system (i.e., both the starter and ignition switch can be disabled simultaneously) that makes driving off into the sunset a near impossibility for any would-be thief. Normally, I don't throw around words like "ingenious" all that often, but the beauty of The Predator IMO-700 is that it requires no interaction on the part of the vehicle operator. That's right: No buttons to press, no key to insert, no high-frequency dog whistles to blow. The user simply enters his or her car, inserts the key in the ignition, and drives away. It's that easy. The Predator IMO-700 is automatically activated and deactivated by a tiny transponder (it's shaped like a shark's dorsal fin) that dangles from the user's key chain.

The Predator IMO-700 comes boxed in a rather plain-jane package; if you want lots of flashy color photos and marketing mumbo-jumbo, you won't find it here. Inside the box, you'll find a main control module, an

Exciter/antenna



Hot Pursuit:
The Predator's
a steal at \$150

coil, a red LED, a red master transponder, 2 black user transponders, and all of the necessary wire harnesses and accessories, including an in-line fuseholder and 5-ampere fuse.

The control module is compact, yet it conceals 2 high-current relays brawny enough to interrupt both the starter and ignition circuits on any vehicle. The circuitboard layout is very neat and clean; no sloppy point-to-point wire connections here. The plugs provided to mate the wire harnesses to the control unit were well secured to the circuitboard. And all of the harnesses were fashioned with good-quality wire except for the LEDs. The LED wire was put together with fragile wire and terminated with a microscopic plug.

The Predator IMO-700's installation manual was well written and relatively clear, making installing it in a 1997 Mitsubishi Montero easy as pie. (This may not be the case with every make/model of automobile, however. The manual suggests wrapping the Exciter/antenna, which looks like a little electronic lasso, around the ignition-key cylinder. This requires the removal of the plastic shroud that surrounds the steering column. While removing this shroud was a very simple procedure in the Montero, this might be a different story in your vehicle.) Once installed around the ignition-key cylinder, the antenna loop is completely hidden from view, giving a would-be thief no indication of what he's up against.

Once I'd chosen a secluded location under the dash to conceal the main control unit, the rest of the wiring procedure went smoothly. The only confusion was in deciphering the wiring diagram that detailed the 4-wire interrupt plug. Each wire must go to the proper location to work correctly, but the drawing in the manual is a little vague; at first, I was unsure of the control module's orientation in the illustration. However, after studying it for a few minutes, I got my bearings.

Interrupt and power connections, including the primary 12-volt connection, were obtained from the factory ignition-switch harness. Pursuit should be complimented for insisting in the instructions that the main 12-volt source be fused, and for providing the necessary fuse and fuseholder. After completing these connections, I replaced the original vinyl wrap and loom that covered the factory

harness so that all of the wiring under the dash looked stock. A negative door trigger, which tells the Exciter/antenna to energize whenever the driver's-side front door is opened, was also installed. This

connection was made in the Montero's driver's-side kickpanel, and was hidden from view.

The final step was to mount the LED on a blank switch panel on the Mon-

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tero's dashboard. The red LED flashes when the system is armed and protecting the vehicle. When the transponder is within about 6 inches of the antenna, the LED goes out and the system is disarmed. The LED is also used when programming new transponders in the event that one of the original fins is misplaced. A simple sequence of activating the ignition after disarming the system with the red master transponder opens a programming mode, and new fins can be added to the system as needed.

Installed carefully, the Predator IMO-700 is a truly tough nut to crack for even the most hardened car thief. No modern-day automobile can be push-started or "hot-wired" when its ignition circuit is defeated without dedicating a tremendous amount of time and effort to the task. I tested transponder effectiveness several times to make sure the fin-shaped devices would reliably arm and disarmed the immobilizer system. Every time a fin got within a few inches of the ignition switch, the vehicle would start up immediately. When I removed the transponder from the Montero's key chain and attempted to start the hearty SUV, the truck sputtered like it was out of gas and refused to turn over.

The Predator IMO-700 is an innovative, easy-to-use, and well-built automotive security device. At \$150, I think The Predator is an amazing vehicle-security value for every Workerbee who needs to protect their automobiles but doesn't want to break the bank to do so.

—Micah Sheveloff
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WE NEED YOUR Qs

In August, Parts & Security will be dedicated to answering your P&S questions. Address them to "Parts & Security Q&A," CAR STEREO REVIEW, 1633 Broadway, 45th floor, New York, NY 10019.