Testing the New COILTEK 15" All Terrain X-TERRA 7.5kHz coil.

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I spent a great deal of time recently, testing the new Coiltek 15" ALL TERRAIN X-TERRA 7.5kHz coil. I tested it in my test plot, the local park and some "wide open" farm sites. In testing, I made direct comparisons on all targets with both the 10.5 inch Minelab DD at 7.5 kHz as well as the 9-inch concentric at 7.5 kHz. Here is a summary of my results…..

As one might expect, none of the three coils implemented the same Noise Cancel Channel at any given location. However, the proper channel was selected for each coil, prior to testing procedures. The Threshold level was checked for each coil and a setting of 2 was chosen for my 705, using Gray Ghost NDT headphones. I operated with a volume setting of 30 for each coil at all locations. I compared the coils using All Metal and in a modified Pattern, as well as in Prospecting mode. Targets in my test plot range from US coins, various gold and silver jewelry and modern "trash" items. In the parks, the modern trash was substantially more abundant. And in the open farm sites, older ferrous trash was the primary "culprit".

I used both Automatic Pinpoint as well as Sizing Pinpoint. In many situations, there were so many adjacent targets that it was difficult to implement either Pinpoint mode. As such, I used either Prospecting or the All Metal "hunt mode" where I simply X over the target while slowly working the coil back toward my feet. As the target leaves the detection field, the audio response will drop out. At that point, the target is located under the front tip of the coil. The 15" coil performed quite well with this process.

Ground balance

Although the soil in this part of the World is relatively "moderate" in mineralization, I made an effort to perform many of my tests in areas that I knew had some of the highest levels of magnetic mineralization in this area. Throughout the tests, I found the Ground phase setting required for the 15" coil to be very similar to that required of the 10.5-inch DD. For example, at one particular site, with a Sensitivity setting of 10, the 15-inch coil ground balanced at 27, the 10.5-inch DD ground balanced at 26 and the 9-inch concentric coil required a setting of 5 to compensate for the mineralization. When I raised the Sensitivity to 20, neither DD coil required a different ground phase setting. The concentric required making a more positive ground phase setting of 3. And when boosting the Sensitivity to 30, the 15-inch coil was ground balanced at 26, the 10.5-inch coil at 25 and the concentric settled in at 1. Honestly, I had never encountered a site with the amount of mineralization which required the ground phase of the concentric to be set so low.

Sensitivity

Although I am typically able to operate smaller coils with near maximum sensitivity, I found the 15-inch required a somewhat lower setting. Especially in rough terrain. For example, at one particular site, I was able to run the 9-inch concentric with a Sensitivity setting of 28, the 10.5-inch DD with a Sensitivity setting of 27, but had to drop the 15-inch coil down to 24 to eliminate the false signals. I tried adjusting the Noise Cancel channel to reduce the chatter, to no avail. I also tried to run

with a slight negative ground balance, in an effort to quiet the coil, but found the depth of detection was reduced more than if I simply lowered the Sensitivity. To maximize the depth of detection, I operated the 15-inch coil with a reduced Sensitivity and a slightly positive ground phase, compared to each of the Minelab coils. I also found that slowing my sweep speed greatly improved the performance and lessened the false signals. I attribute both of these phenomenon's to a greater volume of soil being analyzed by the larger coil, at any one time.

TID accuracy

On air tests and shallow targets, I found the TID of the three coils to be very similar. On target depths of 6 inches or less, the visual TID of small silver and copper coins had a tendency to bounce more with both DD coils than with the concentric coil. It didn't concern me as I had found that to be true when I tested the other X-TERRA coils early on. I was able to "trace" the size and shape of the targets (somewhat) by using Prospecting mode. However, with the larger coil (and adjacent targets), it is a more difficult task than with a smaller coil. With the Minelab coils, I can usually implement TID stability to help "lock in" the numbers. However, with the 15-inch coil, TID stability did not seem to improve the accuracy of the visual TID. Once again, I believe that is due to the extreme amount of soil being analyzed at any one time.

Depth of detection

In the field hunts, I was able to locate one target with the Minelab coils that I could not get a definitive signal with the 15-inch coil. It ended up being a US dime, on slight edge. Honestly, had I not found it initially with the concentric, I doubt I would have found it with the 10.5 inch coil. But after marking the target locations, I was able to relocate it with the 10.5, and not the 15-inch coil. On the other hand, I found *several targets* with the 15-inch coil that neither the 10.5-inch DD , nor the 9-inch concentric could detect. They were simply too deep! Not even after I had the target location marked. Unfortunately, during these tests, none of those targets resulted in deep coins. But I have to say, the 15-inch coil is definitely a deep seeking coil!

Air test comparisons on US coins

I don't believe we can rely on "air tests" to provide any useful information on locating coins in the field. But I do find them useful when comparing multiple coils on one detector, or multiple detectors on the same coil. Detector settings: Auto Noise Cancel, Tracking, Sensitivity 30, Volume 30 without headphones. All tests were made with detector isolated from any metallic objects and coil suspended horizontally at a distance of 4 feet above the ground. The distances recorded were those producing a distinguishable audio response. Fainter audio responses were heard. But not to the degree that they would have made me stop if I was hunting in the field. Here is a brief outline of those results:

	Minelab 9" Concentric	**Minelab 10.5" DD**	**Coiltek 15" DD**
Copper - 1 cent	10 inches	10 inches	13 inches
Nickel - 5 cent	9 inches	11 inches	13 inches
Silver - dime	9.5 inches	10.5 inches	11.5 inches
Silver – quarter dollar	11.5 inches	12 inches	13.5 inches

Silver – half dollar	12.5 inches	13.5 inches	16 inches
Washington clad dollar	12.5 inches	13 inches	14 inches

Closing thoughts

I found the 15-inch coil to be a very deep seeking coil. All in all it is very stable, if you don't run the Sensitivity too high. Although I've used the 15" ALL TERRAIN coil (WOT) on both my Musketeer Advantage and Sovereign, I was always able to compensate for the "balance" by mounting the control box under the arm cup. However, in the X-TERRA series, the control box is stationary. As such, the fulcrum remains the same, regardless of the size of the coil. With that in mind, I did find the 15-inch DD to be a little heavier than the stock coils. This is to be expected because of the larger size of the coil but found it to be light for its size. I adjusted the rod one segment "shorter" and this helped the feeling of being "nose heavy". However, the shorter rod length resulted in more narrow "swaths" and an accelerated sweep speed. And as I mentioned previously, the 15-inch coil responds better to a slower sweep speed than the other available X-TERRA coils. Target separation left/right is good.
I can see this coil becoming quite popular for relic hunters, gold prospectors and beach hunters.

Regards,

Randy