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The Army GPS Newsletter Since 1994

An informal electronic newsletter published for the GPS user community by PM GPS. Information presented is based on published and submitted news items of interest to the general user. Widest dissemination and reproduction is encouraged. Newsworthy items are solicited for inclusion. Editor Don Mulligan at PM GPS, Aberdeen Proving Ground MD DSN 298-9372 or (410) 278-9372 or email: Donald.Mulligan1@us.army.mil

Volume 17 Issue 02 *Visit Us Online at* **https://gps.army.mil** **April 2010**

"No Mission Impact but PM GPS Becomes PD GPS"

From The Product Director

Hello GPS Users!

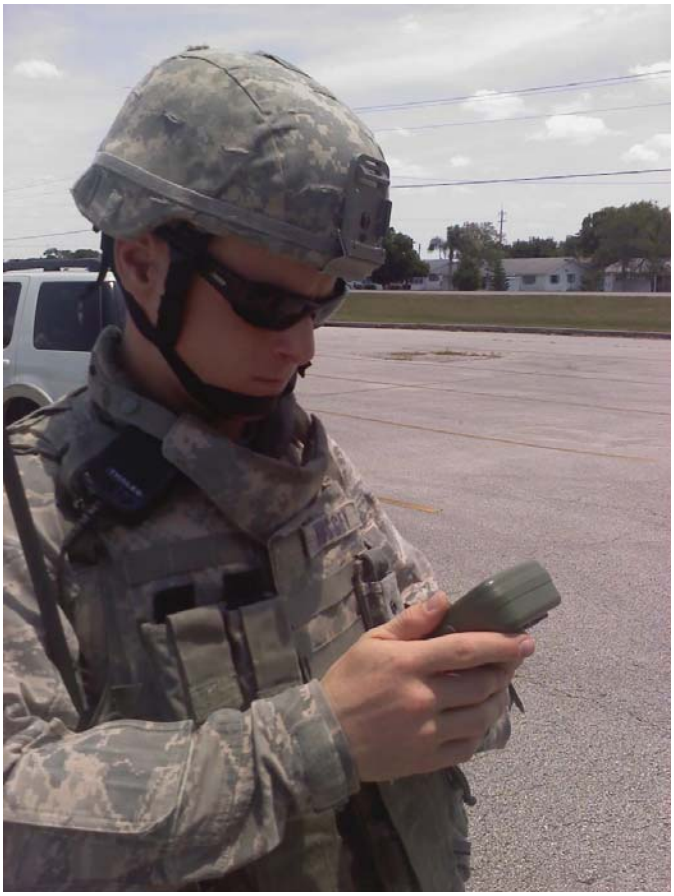
LTC Spencer recently departed PM GPS and his replacement will report for duty in the near future. During LTC Spencer's tenure, PM GPS passed the milestone event of fielding over 225,000 DAGR to the Army and PM GPS began working with the Rapid Equipping Force (REF) to bring a smaller, lighter military GPS receiver to the Army. That effort, known as the Soldier Wearable Advanced GPS Receiver or SWAGR continues.

Our organization will now be led by a government civilian, hence the name change from Manager to Director in our title. As Acting Product Director, GPS my priority is to ensure continuity of operations and support to soldiers. Our primary activities remain DAGR fielding, New Equipment Training NET and host platform integrations.

I have to reiterate the importance of keying your DAGR for all military operations!

If you have any questions regarding military GPS, please contact me or any member of my staff. Use the link at the GPS Website or the "contact us" info on the back page of this newsletter.

Eric Adair
Acting Product Director, GPS



Senior Airman Hussey using handheld DAGR at the recent Atlantic Strike VII Exercise where PD GPS provided on-site DAGR reprogramming support and participated in Close Air Support drills. For more on the exercise, please see the article on page 3.

Only a keyed military GPS receiver provides you with SECURE GPS.

What's Up with Commercial GPS?

As most readers are aware, the "official" Army GPS receiver today is the AN/PSN-13A Defense Advanced GPS Receiver DAGR. Dept of Defense and Army policies mandate the use of a keyed Precise Positioning Service (PPS) capable GPS receiver, such as DAGR for combat missions.

As most readers are also aware, the use of "commercial" SPS-rated (see sidebar at right) GPS receivers in the Army is widespread. Official Dept of Defense policy allows the use of commercial GPS on the battlefield "to enhance personal situational awareness and logistics material tracking". However that same policy upholds the mandate to use keyed PPS receivers for "critical military operations such as weapon delivery coordination, target location, fire support, close air support, extraction and rendezvous".

So what does all this mean for the soldier and PD GPS? Your chain of command is authorized to procure commercial GPS receivers for personal situational awareness with unit **operation and maintenance** funds. However, PD GPS is in the Army Acquisition chain of command and we are still prohibited from spending **Army procurement** funds to purchase commercial GPS receivers.

That leaves military units and their operating chain of command on their own if they choose to purchase commercial GPS receivers.

The policy that allows unit purchase of commercial GPS receivers has several 'strings' attached: 1) The quantity and cost of commercial receivers purchased must be reported through the chain of command to the Army GPS roadmap; 2) Soldiers authorized to use commercial GPS receivers must be educated on the risks associated with the SPS signal;

Typical commercial handheld GPS receiver. (Garmin)

3) Techniques, Tactics and Procedures TTP should be employed to ensure soldiers never use SPS in lieu of PPS for critical missions.

By the way, if you operate a military GPS receiver like the DAGR without a COMSEC key, you are not accessing the PPS signal and therefore not using the equipment as it was designed.

Much as PD GPS might like to be involved with providing all GPS receivers to Army customers, the current Army policy prohibits this organization from purchasing or supporting commercial GPS receivers. The only time we get involved with commercial GPS is when they enter the government disposal system and we are asked to confirm them as SPS or PPS.

As we develop the next-generation hand-held military GPS receiver we are looking at technologies to let PPS receivers provide many of the "user-friendly" features that make commercial GPS receivers so appealing.

One possibility we are pursuing is the use of an attached or nearby wireless secure device that provides a short range broadcast of the PPS signal to a nearby commercial GPS receiver. This would combine a secure PPS signal with the design features of the commercial GPS receiver.

In the near-term we are pursuing the SWAGR product (see update elsewhere in this issue) to provide a lightweight device that utilizes SAASM technology. SWAGR will compliment the DAGR by providing a sub-set of DAGR functions, those needed by the individual soldier.

We are working with Army R&D agencies and GPS industry to find solutions to bridge the gap between PPS military GPS and SPS commercial GPS receivers.

It is not a Typo: SPS and PPS are two different signals!

Standard Positioning Service (SPS) is the standard GPS signal that is available to anyone, anywhere using a commercial or military GPS receiver. For example, your personal GPS receiver, your automobile, and Civil Aviation (with enhancements) all use the SPS signal.

Some years ago the President ordered that the intentional error in the SPS signal be reduced to zero so your SPS signal is relatively accurate for general purpose position location under peacetime operations.

Precise Positioning Service (PPS) is the enhanced GPS signal that is only accessible to authorized users. Access to the PPS signal is controlled through cryptology so all PPS capable GPS receiver contains a COMSEC-activated cryptographic device. By "keying" your PPS GPS receiver, you gain access to the military battlefield advantages (enhanced accuracy and signal protection) that only come with a PPS rated GPS receiver.

"Lighten the Load Exercise Includes Lightweight GPS"

The Army Rapid Equipping Force (REF) recently outfitted a unit in Afghanistan with a suite of lightweight gear under the sponsorship of PEO Soldier and the Asymmetric Warfare Group's "Lighten the Soldier's Load" assessment program.

The bottom line was a reduction in soldier-carried load from 42 pounds to 29 pounds. The REF provided 16 items ranging from body armor to T-shirts. Every item provided equal or better performance compared to "standard" equipment, with reduced size and or weight. One of the items was a commercial wrist-watch GPS receiver to provide a sub-set of DAGR functions for ground-mobile soldiers.

According to REF After Action reports, although the wrist-watch GPS receiver had some shortcomings (the cases tended to come apart and the rechargeable battery was an issue, coming up short on the longer missions), it did have the powerful advantages of reduced size and weight over the military standard DAGR (about 3 ounces versus 1 lb).

General feedback from the exercise also indicated that commercial handheld GPS receivers remain the soldier's first choice for non-critical daily use such as obtaining references for passing positions and front-line traces. That statement reflects the common use of commercial GPS as discussed elsewhere in this issue: Commercial GPS is OK for 'personal situational awareness' but not for critical mission tasks.

PEO Soldier plans to use much of the "Lighten the Load" assessments to benefit the rest of the Army. With regard to the GPS receiver, PD GPS is working on a military version of wrist-mounted GPS, similar to the GPS product tested in the assessment. See the update on our cooperative efforts with the Army REF agency to develop the SWAGR elsewhere in this issue. The big difference is that SWAGR will be a PPS-rated product, not commercial.

If your organization wants lightweight commercial GPS receivers today, the commander has the option to purchase them with unit O&M funds but be aware of the restrictions in the article on page 2.

Read the complete "Lighten the Load" story in The May 3rd issue of Army Times.

The X10 wrist watch, one of two commercial GPS products used in the "Lighten the Load" program. Photo courtesy Suunto

PD GPS Participates in Atlantic Strike VII

Several PD GPS personnel recently supported Atlantic Strike VII, a close-air-support exercise conducted at the Avon Park, FL test range from May 8 through May 15. The Atlantic Strike exercise involved more than 600 military members spread across several operating locations.

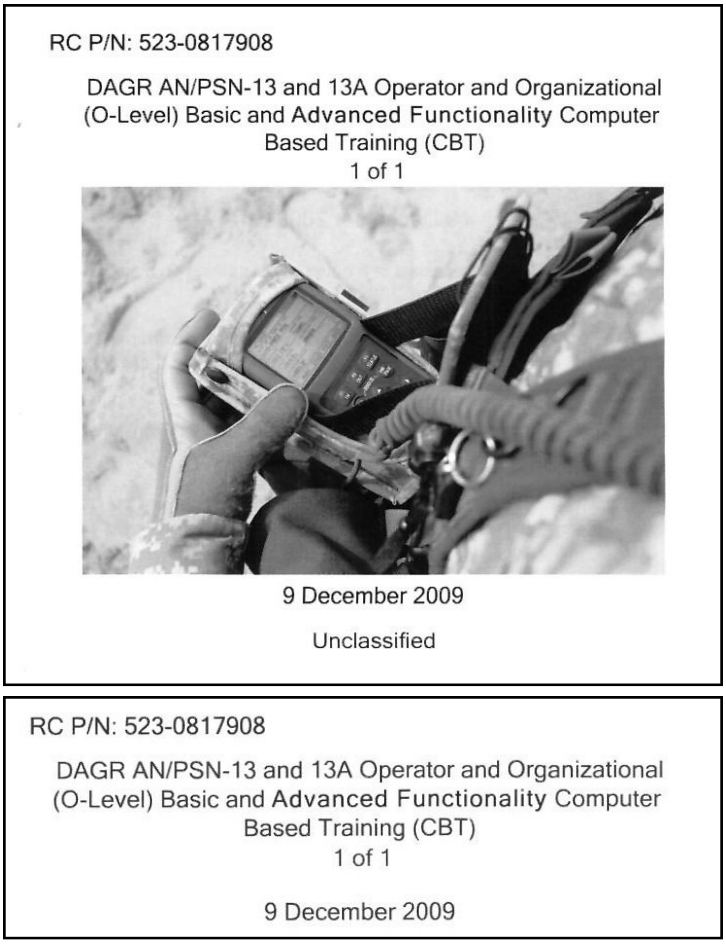
During the sortie periods, aircraft from locations around the southeastern U.S. participated from their home stations. Aircraft included E-8C Joint Stars aircraft from Robins AFB, GA and close-air-support aircraft such as the A-10 from MacDill AFB and F-16 Fighting Falcons from Homestead Air Reserve Base near Miami.

Overall, Atlantic Strike challenges the full communications process from the aircrew in the aircraft to the Airmen and Soldiers on the battlefield, and the Air Support Operations Center.

The PD GPS personnel provided o n -the-spot software updates to GPS receivers that didn't have current software and they actively participated in close air support calls. The Atlantic Strike exercise is great preparation for deployment for aircrews, maintainers and the boots on the ground calling for close air support.

TSGT Hill, USAF, ***participating in Atlantic Strike VII Exercise at Avon Park FL.***

New Computer Based Training (Basic and Advanced) Now Available



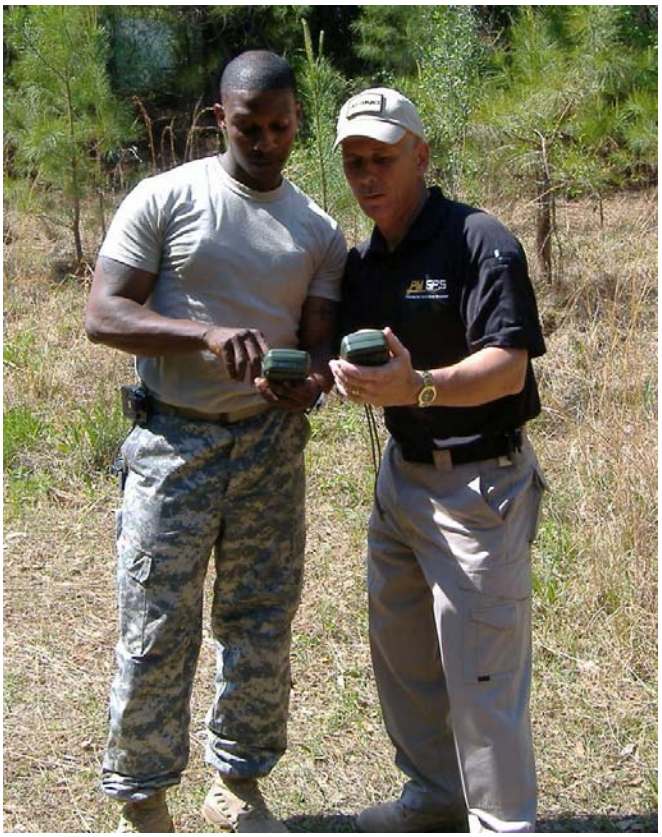
The new version of CBT has been approved for release. The new version adds content and divides material into Basic and Advanced Sections.

The content update reflects changes in DAGR operating software and new functions added as a result of soldier input. We recommend that all operating units upgrade their CBT disks to the current version.

The new CBT is issued as part of the "leave behind" sustainment training support package during DAGR New Equipment Training (NET). Units that already received DAGR NET can obtain copies of the new CBT through training resource channels such as the Reimer Digital Library. DoD users can also register at the GPS website and download the CBT to your PC or just use the website "user request" function to request a copy on disk. We will mail up to 6 copies to your location.

Look for DAGR AN/PSN-13 and 13A Operator and Organizational (O-level) Basic and Advanced Functionality Computer Based Training (CBT) part number 523-0817908, dated 9 December 2009.

New Equipment Training (NET) at FT Bragg Provides Soldiers an Edge



Tony Hutchinson, Senior GPS NET Instructor (right) works with a soldier on DAGR field exercise.

Recently members of the PD GPS DAGR New Equipment Training (NET) Team travelled to Fort Bragg, NC to train soldiers of the 3/82nd. The DAGR NET Team trained more than 60 soldiers on the basic and advanced features of the DAGR. The soldiers trained by the NET team, as part of the Army's "Train the Trainer" concept, will now be the subject matter experts on the DAGR and will be responsible for training members of their unit on the DAGR.

The training consisted of two four day classes and culminated with an urban land navigation course. Lead trainer Tony Hutchinson explained that the DAGR is deceptively simple, he equated it to a cell phone, "Anyone can make a phone call with a cell phone but it can make you so much more productive, like send text messages, track appointments, reminders, synchronize with other devices, etc. Well the DAGR is the same way, anyone can turn it on and get their current location but it can do so much more, continuously update and save your current location, **(cont'd next page)**

DAGR New Equipment Training (NET) Visit to Fort Bragg.

(***Cont'd from page 4)***
guide you from point to point or along a route, warn you if you are in areas you want to avoid and synchronize with other devices to get accurate time and synchronize with Laser Range Finders to provide off set positioning."

The first three days of training consisted of classroom instruction, demonstration and practical exercises. First the soldiers learned to inspect the DAGR and conduct an operational checkout check-out to verify that it was operating correctly. Then the soldiers learned to setup and customize the DAGR to provide them the most accurate information possible in their current operating environment and to provide the information in the format desired by the operator.

Over the next several days the soldiers learned to create waypoints, routes, alerts and to navigate utilizing the DAGR. They also learned to create a Track History which basically automatically records and stores their movement which can later be turned into a route and transferred to other DAGR's.

Finally they learned to load crypto variables into the DAGR. Charles Golden, the Assistant Instructor, explained that the ability to load crypto variables into the DAGR is what sets in apart from civilian GPS's, "With crypto variables loaded you get a 50 percent reduction in your position error, you have the ability to resist jamming and spoofing, no civilian GPS can do that."

The last day of the course consisted learning to utilize the DAGR's Fire Support page to calculate a grid location to a target. Tony Hutchinson explained that basically if you are tracking satellites the DAGR knows where it is, you input an azimuth and a distance and the DAGR does the rest, providing you a grid to the targets location. The DAGR eliminates the need to convert the azimuth from magnetic to grid and plotting on map.

The soldiers also learned that the DAGR can be connected to a Laser Range Finder (LRF) such as the Mark VII and Vector. If the DAGR is connected to an LRF the azimuth and distance to the target is automatically generated and input into the DAGR and the DAGR calculates the grid location to the target in seconds.

Next the soldiers learned to utilize the Close Air Support (CAS) 9 line page which is basically an electronic CAS 9 line; again the DAGR does many of the calculation for the soldier and provide warning when warranted. Finally the soldiers completed an urban land navigation course consisting of 8 points, three to five hundred meters apart.

Charles Golden explained that each point was marked by a 3 x 5 card with a state name written on it. "We aren't conducting a Delta force land navigation, we are trying to build the soldiers confidence in their abilities and the capabilities of the equipment. If they can travel 3 to 5 hundred meters and find a 3 x 5 card then they will be able to navigate 30 to 40 kilometers just as easily."

For more information about Sustainment Training material available to help your unit maintain DAGR proficiency after the NET team departs, visit the GPS website or contact us!

PD GPS currently employs 19 personnel as DAGR New Equipment Trainers. They are geographically dispersed to support NET missions across the USA. NET trainers also travel to provide on-site training in European and Asian commands but we do not conduct DAGR NET in deployed theater of operations. When supporting DAGR Total Package Fielding (TPF), NET instruction is provided to the gaining unit at no cost.

We recognize that there will be situations where due to personnel turnover and a pending deployment, a refresher NET course or a senior leader NET course may be of interest. In those cases, PD GPS is willing to dispatch a NET team to provide on-site training but such assistance has to be paid for on a "pay as you go" basis and provided without disruption to scheduled TFP NET. If you have the funds, we can usually work out a schedule to support you. A lot of DAGR sustainment training material is available but there is no substitute for an experienced NET team instructor. Please contact the NET manager if you are interested in having the DAGR NET team pay you a visit. Jorge Pinargotte at (732) 542-8080 extension 206. Jorge.pinargotte@us.army.mil

SWAGR Micro-DAGR Update

The Rockwell Collins Micro-DAGR shown above is currently undergoing testing by the Army REF office.

KEY DESIGN FEATURES Of SWAGR!

- Soldier Oriented nav functions
- Small enough for ACU pocket
- Can be worn using wrist strap or lanyard mount
- water –resistant and shock resistant package
- Touch screen
- Color display
- Moving maps, internal compass

The January 2010 issue of Pathfinder contained an article announcing the plans for Soldier Worn GPS Advanced Receiver SWAGR which is being procured by the Army Rapid Equipping Force (REF) Office. Here's an update:

The big difference between SWAGR and the commercial GPS receivers recently provided to a unit under the "Lighten the Load" assessment is the addition of SAASM technology which would enable the military wrist-mounted military GPS receiver to be used in critical mission operations.

Secretary of Defense "rules of engagement" restrict the use of commercial GPS to 'personal situational awareness'. The rules specifically prohibit using commercial GPS for combat and critical mission tasks.

As of April 2010, the SWAGR program is running behind schedule. The REF office awarded an initial contract to Rockwell Collins whose entry is called the Micro-DAGR. Rockwell Collins recently delivered the first batch of Micro-DAGRs to the government. They were immediately put to the test by soldiers.

Keep in mind this first product is a "prototype" for the larger SWAGR program that will follow. Also, know that SWAGR will not replace the multi-purpose DAGR. SWAGR will provide a sub-set of DAGR functions, those needed by ground-mobile and airborne soldiers. For the full description of SWAGR, see the January 2010 issue of Pathfinder elsewhere on this website.

Testing revealed some problems with this first batch of Micro-DAGRs so they were returned to the manufacturer. The REF Office plans to conduct a second field test before they endorse this product for purchase by field units.

Purchase? Yes, purchase because this initial model will not be fielded as a replacement for DAGR. Several agencies have expressed an interest in buying and there is a limited number available.

If your unit is interested in being notified when the Micro-DAGR is available for purchase through the REF Office, please contact Mr Willie Jackson at PD GPS.

DAGR Software Update

The new version of Defense Advanced GPS Receiver (DAGR) software is being released shortly:

984-2461-017 for AN/PSN13 or **984-3006-007** for AN/PSN-13A

The new DAGR Software provides Mission Planning capabilities and other operating enhancements.

Look for announcement of the new software via your MWO or TCTO process.

When it is approved for release, we will also post a copy at the GPS website where registered DoD and authorized users can download it.

Check your DAGR to see what version software you have: Watch the screen display when you turn on the DAGR or use the menu to see the software status screen.

PS MAGAZINE

Check out our latest article in PS Magazine! DAGR battery packs !

See the April 2010 issue (#689) at the LOGSA website or at the GPS website homepage/publications!

GPS Mil WIKI and Mil Blog are here!

PD GPS has implemented Army Knowledge Management (KM) Principles with several online tools.

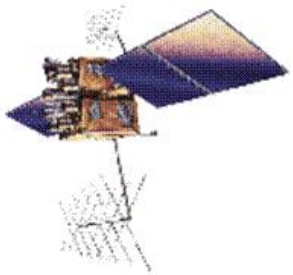
PD GPS milSuite products that are available to you include:

Mil-WIKI, milBlog and milBook.

We invite readers to use the Mil Blog or WIKI to contact PM GPS and the rest of our Team!

https://www.kc.army.mil/milsuite and search "PM GPS" or "GPS".

Update on GPS Satellite Control Problem



In January 2010, the USAF GPS Wing introduced new Control Segment operating software, referred to as Advanced Evolution Plan, AEP Version 5.5. The intent was to add new capabilities to the GPS system but the new software had unintended impacts on certain GPS receivers in the Use Equipment Segment of the GPS system.

For Army users, the software affected a relatively small number of SAASM-based GPS receivers built by certain manufacturers. Fortunately, the bulk of Army GPS receivers manufactured by Rockwell Collins were not affected by the Control Segment problem.

Army PD GPS, the GPS Wing and the CECOM Directorate for Safety issued a FOUO Advisory Message dated 29 Jan 2010 on the subject. That message identified the host platforms that may have been impacted and it asked users to report any problems they experienced. (Get a copy of the message from CECOM Safety or by request to PD GPS).

GPS engineers have worked out plans to mitigate or resolve the problem. Weapons managers were directly contacted. If you have questions you can contact Army PD GPS via the User Info Request link on this website.

Update on PBUSE for DAGR Accounting

Since 1 April 2009, all PM/PDs have been required to use PBUSE to document the transfer of serial-numbered property when fielding equipment to units. Now that we have a year's worth of experience under our belts, it's time to share our lessons learned.

Before getting into "lessons learned" let's explain a little about the process PD GPS uses to facilitate the transfer. The fielding team uses a Personal Digital Assistant (PDA) to scan the serial number of each DAGR to a specific Unit Identification Code (UIC). The fielder then downloads that information to our Issuing Software to create a DD Form 1348 issue document. Lastly, the fielder will create an XML file that uploads that unit file of DAGR serial numbers into PBUSE. At this point the transaction is out of our hands. PBUSE will send a notification to the gaining Property Book Officer (PBO). After verifying the DD Form 1348 with the incoming lateral transfer the PBO should accept the transfer within 3 working days.

Now, the "lessons learned" from our year of experience with DAGR transactions in PBUSE:

Lesson Learned 1: The PBUSE document number doesn't match the DD Form 1348. PD GPS issues equipment using a DD Form 1348 and using a PD GPS generated document number. We do not upload the serial numbers into PBUSE until after the issue has taken place. Solution: while we cannot know the exact document number at the time of issue we can hand write the Team UIC on the document. The PBO can then match the Team UIC with the incoming transactions

Lesson Learned 2: Units not accepting equipment within the 3 day window. While we understand that units and PBO's are extremely busy we do need the equipment accepted in a reasonable time period. We won't hold you to the 3 day window, but we have some that are weeks and months overdue. In this case we must refer the issue to the MACOM G4. Solution: The fielder and PBO need to work together to ensure lateral transfers are accepted. The fielder should leave a copy of all issue documents with the gaining PBO.

Lesson Learned 3: Duplicate serial numbers. We have on occasion run into duplicate serial number problems. Duplicate serial number? No, there are not two DAGRs with the same serial number; this is a case where a DAGR had been previously issued to another unit's property book; most likely as a result of a warranty repair transaction. We cannot upload the DAGR serial number into PBUSE against a new owning property book until it is removed from the first owning property book. So the problem is that a unit turned a DAGR in for repair, received another DAGR back, but forgot to do an Administrative Adjustment Report (AAR) on the new DAGR.

Solution: When you turn in a DAGR for repair it is very unlikely you will receive the same one back. The people at Rockwell-Collins will simply verify the fault and send you a replacement DAGR so be sure to execute an AAR on that serial number exchange.

We have leaned other lessons in the past year using PBUSE, but the three discussed above are the most glaring issues that you should be aware of at the unit level. With a little attention you can resolve or avoid these issues and help keep everyone's records straight.

If you've had DAGR accounting issues with PBUSE that you'd like to share with us, good or bad, please let us hear from you.

How to Contact PD GPS https://gps.army.mil

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Mr. Dennis Rotenberry
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Dennis.Rotenberry@us.army.mil

Logistics Manager

For Army Logistics Issues
(vacant)
(410) 278–9405, DSN 298-9405

For Other Service Logistics issues on DAGR, PLGR
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GPS Chief Engineer

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Army Weapon System Integrations—GB-GRAM

Mr. Mike Vincelli
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Who to Call for Army Issues?

Call the Army PD GPS Logistics Manager (position is vacant but Ana will direct your call) for:

- Army GPS User Equipment Policy
- User Equipment Authorizations & Procurement
- Maintenance Status or GPS Loans

Call the Army Fielding Manager for Army DAGR fielding and NET issues.

Other Service/Civilian Agencies?

Contact our representatives at the GPS Joint Service Support Office at Warner Robins AFB, Georgia: Stephen Morrissey or Frank Rowe as listed in the column at left.

Or use the User Information Request Form

Go to https://gps.army.mil

Click on the "Contact PD GPS" tab at the homepage.

Or use the GPS Help Line

by contacting Mr Willie Jackson (info at left) or Jim Buggy at DSN 298-9030, james.buggy@us.army.mil

Please Note

If you have trouble reaching anyone at GPS, please use the "contact PD GPS" tab at our homepage and we will route your query to the right person.

Why Use Military instead of Commercial GPS?

Soldier Safety! Mission Accuracy! Signal Protection!

View the video on the GPS homepage! https://gps.army.mil