



PATHFINDER

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, Ft Monmouth NJ DSN 992-6137 or (732) 532-6137 or email: Donald.Mulligan1@us.army.mil

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April 2009

Warfighter's Panel is Clear about What They Want from GPS

From The Product Manager

Hello GPS Users!

The Warfighter's Panel was the highlight of the GPS Partnership Council held recently in Los Angeles. The panel of Army Rangers, Navy SEAL, USAF Special Ops and others provided feedback on today's DAGR as well as advice on future GPS receivers designs.

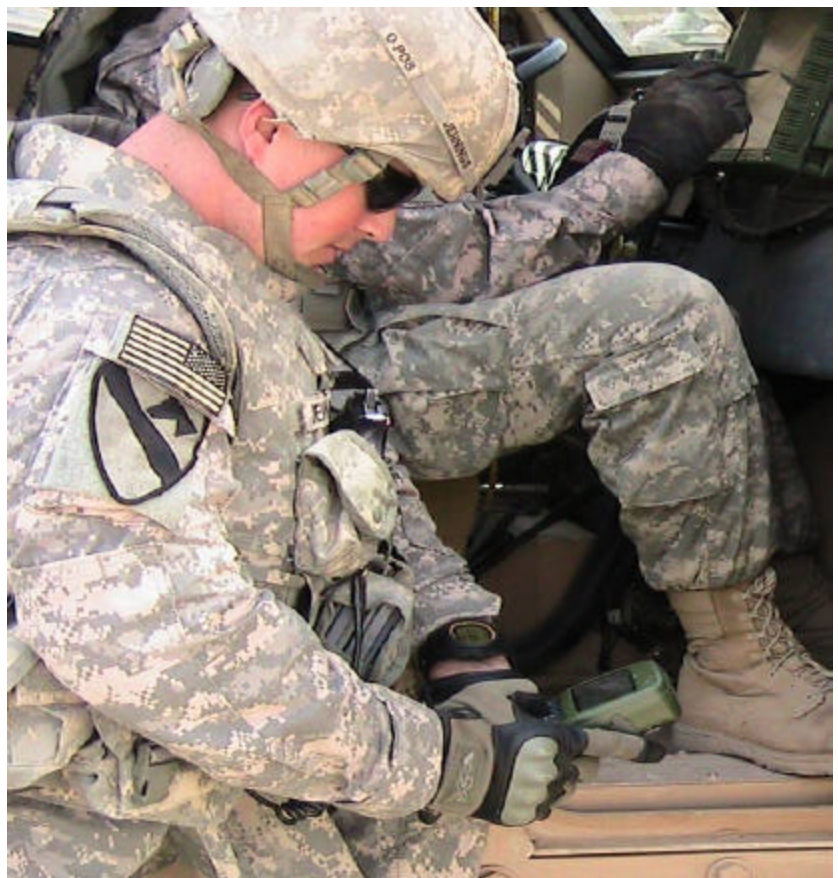
As the Product Manager for Army GPS, I've accepted the challenge to supplement DAGR with a simplified handheld device and to introduce a wrist-mounted GPS device. The Warfighter's Panel feedback was great but I also want to hear from as many of you as possible. Help me make the new GPS products the best they can be. Use the DAGR surveys at the GPS website to share your opinions!

Meanwhile, keep your DAGR up to snuff with new operating software, see the details elsewhere in this issue.

Other questions or comments? See the Contact Info on the back page!

Jay Spencer

**LTC, QM,
Product Manager, GPS**



A unit commander from 3BDE, 1st CAV syncs a non-secure commercial GPS wrist mounted receiver with his DAGR and FBCB2 before a mission in Iraq.

Although we do not offer a wrist-mounted military GPS receiver today, PM GPS is taking action to develop one and wants your feedback on this and any other GPS requirements that you feel are going unfulfilled! Your input will influence the future of military GPS receivers!

Only a keyed military GPS receiver can provide you with SECURE GPS.

The 300,000th DAGR!



The Rockwell Collins workforce at the Coralville Iowa facility paused briefly last month to celebrate the delivery of the 300,000th DAGR to the government. (Above left) Colonel Dorothy Taneyhill, PM for Navigation Systems receives a plaque marking the event from Mr. Bruce King, Vice President & General Manager, Surface Solutions, Rockwell Collins. (Above right) Mr. King presents a plaque to Major Alexander Babington, Assistant PM GPS, Current Systems. Frank Rowe, Senior Engineer, PM GPS also received a plaque representing the Joint Service GPS team at Warner Robins Air Force Base in Georgia. Photos courtesy Rockwell Collins.

DAGR is manufactured by a team of 85 employees at the Coralville and Cedar Rapids, Iowa facilities of Rockwell Collins.

DAGR first entered Army service in late 2004 to begin replacing the predecessor PLGR handheld GPS receiver. DAGRs are used in handheld mode by ground-mobile and airborne forces and are also installed to a wide range of Army weapons and C4 systems.

There was one hardware change early in DAGR production which resulted in the AN/PSN-13 and AN/PSN-13A versions. Several software updates have been issued as well.

Although the next-generation of military GPS receivers is on the drawing board, DAGR will remain a primary source of GPS for military users for many years to come.

The government recently awarded a "follow-on" contract to Rockwell

Collins for DAGR production. This award provides an uninterrupted supply of DAGRs which will allow PM GPS to completely equip Army units with DAGRs by 2015.

The Army Acquisition Objective or AAO is the "authorization" by which PM GPS purchases DAGR. The AAO for DAGR now stands at over 354,000 DAGRs!

As of April 2009, Army PM GPS has purchased over 270,000 DAGRs.

Details About DAGR Reprogramming

The new DAGR operating software reduces the effects of 'multi-path' signal distortion, something that can affect any GPS receiver, military or commercial.

When reprogramming, you need to use the right cable. A common USB cable doesn't cut it. Use the DAGR-to-PC cable. If you can't find yours, requisitioning a new one won't help

because DLA is out-of-stock for NSN 5995-01-521-3198. However, the good news is that the PLGR-to-PC cable will work just fine and DLA still has that one in stock, NSN 6150-01-375-8664. By the way, the PLGR cable costs a lot less than the DAGR cable!

Once you have the right cable and you have installed the DAGR reprogramming software package to

your PC or laptop, connect a DAGR with any version of software. The host reprogramming software will interrogate your DAGR, select the necessary software components and update your DAGR to the same level of functionality as a new DAGR.

One last detail: Read the note on the facing page about limitations on DAGR-to-DAGR reprogramming!

DAGR Software Update - Extension for Completing Installation

MWO 11-5820-1172-20-4

Recent newsletters (Available at the website) provide details on new DAGR operating software. Versions **984-2461-016** for AN/PSN-13 and **984-3006-006** for AN/PSN-13A are now available. Authorized DoD users can obtain the software through their supporting MWO coordinator, CE-COM LAR or direct from Army PM GPS via the GPS website.

The MWO cited above directs Army users to load new SW within 30 days of receipt of the MWO or to request an extension of that time period. It is important that new DAGR SW be loaded as soon as practical missions and equipment availability may prevent completing work in 30 days. Therefore PM GPS has obtained a blanket extension of 90 days.

The extension memo is at the GPS homepage under "Breaking News".

DAGR-to-DAGR Reprogramming

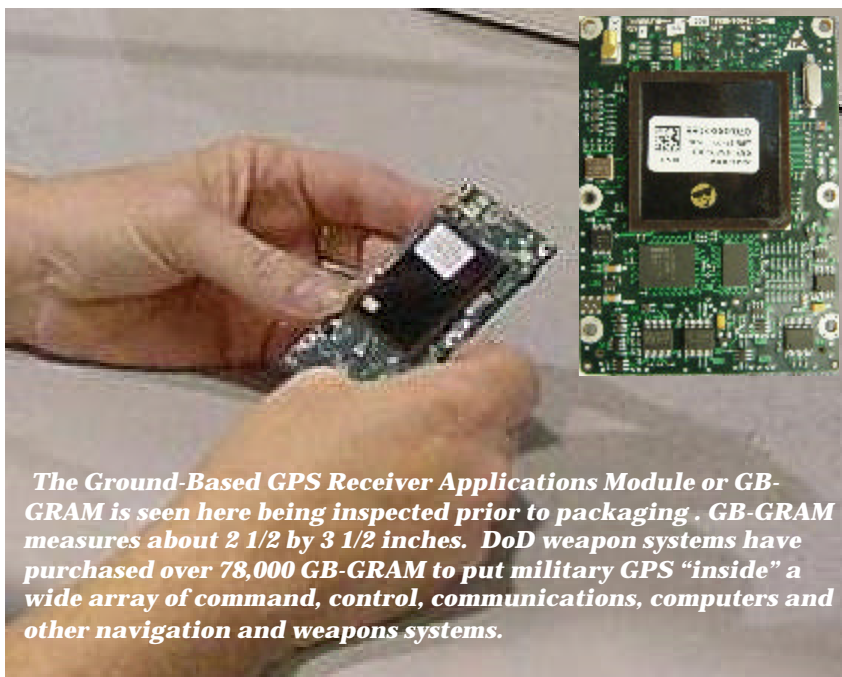
New DAGR Software allows for DAGR-to-DAGR reprogramming but this feature has limitations: It should be obvious that the "sending" DAGR needs 006 or 016 SW. What isn't so obvious is that the "receiving" DAGR can only be out-of-date by one SW version. In this case, that means the "receiving" DAGR must have either 005 or 015 SW for DAGR-to-DAGR reprogramming to work.

ONE LAST DETAIL!

Remember AR 750-10 requires Army units to report the serial numbers of updated GPS receivers to the Modification Management Information System (MMIS). For more info:

<https://www.mmis.army.mil>

New Army Policy on Embeddable GPS!



The Ground-Based GPS Receiver Applications Module or GB-GRAM is seen here being inspected prior to packaging. GB-GRAM measures about 2 1/2 by 3 1/2 inches. DoD weapon systems have purchased over 78,000 GB-GRAM to put military GPS "inside" a wide array of command, control, communications, computers and other navigation and weapons systems.

The Army recently issued new policy on embeddable GPS. The policy documents dated 20 February 2009 were signed by the Assistant Secretary of the Army for Acquisition, Logistics and Technology. They are available at the LIBRARY/POLICY tab at the GPS website. Here is a synopsis of the policy statements:

The memo titled "Embedded Global Positioning System (GPS)" directs that Army weapon systems that do not have a dismantled GPS requirement are to use embeddable GPS instead of handheld GPS effective 2012. The policy is not retroactive to systems that already use PLGR or DAGR but new systems are directed to use an embeddable GPS receiver. Why?

If the system capabilities document doesn't require a detachable GPS receiver for crew use (e.g., survival, escape and evasion), an integrated GPS receiver will cost less to purchase, install and maintain than a DAGR. An embedded GPS receiver is also usually easier on the operator since it is controlled by the host

system computer. This means there is one less 'box' to be installed and one less set of cables to get snagged or broken.

The memo titled "Management and Procurement of Global Positioning System (GPS) User Equipment (UE)" provides guidance on how weapon system managers should procure GPS or request waivers to the policy requires the use of keyed military GPS receivers for combat, combat support or combat service support missions. It also directs Army PMs to coordinate with Army PM GPS regarding GPS technology and solutions.

The bottom line impact of the new Army policy is to: 1) increase the number of DAGR available for handheld use and to 2) increase the use of less expensive embedded GPS whenever the host system does not require a detachable GPS receiver for crew use.

For more information on DoD policy affecting the use of military GPS in weapons or C4 systems, please contact Army PM GPS.

GPS Integration Conference at Picatinny Arsenal

135 people attended the recent GPS Integration Conference at Picatinny Arsenal, Dover, New Jersey.

Picatinny is an armament research and development center for munitions, fire control systems fuses, propellants and related products used by Army mortars, tanks and artillery systems.

GPS is already incorporated into many of the systems based at this Northern NJ installation and GPS will be part of most new systems under development at Picatinny.

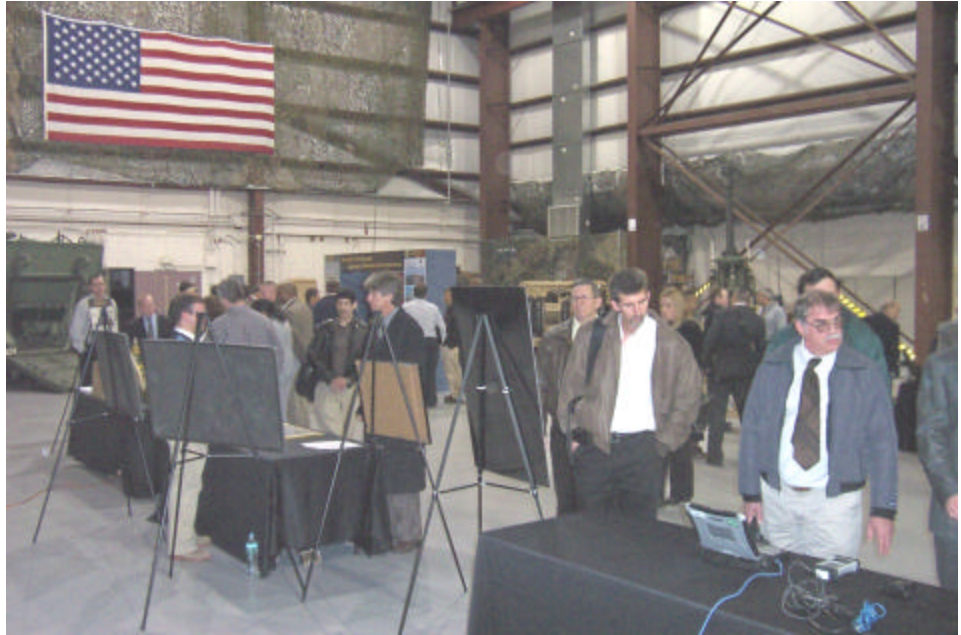
Over a dozen weapon system managers including several based at Picatinny presented briefings on how they use GPS today or their plans for making greater use of GPS in the future. Conference attendees were also updated on new initiatives for GPS technology, recent changes in GPS policy (discussed elsewhere in this newsletter) and other technical and logistical topics related to the use and support of GPS.

One of the conference highlights was the exchange of information across systems where briefers and the audience discussed lessons learned during their installation or integration of GPS.

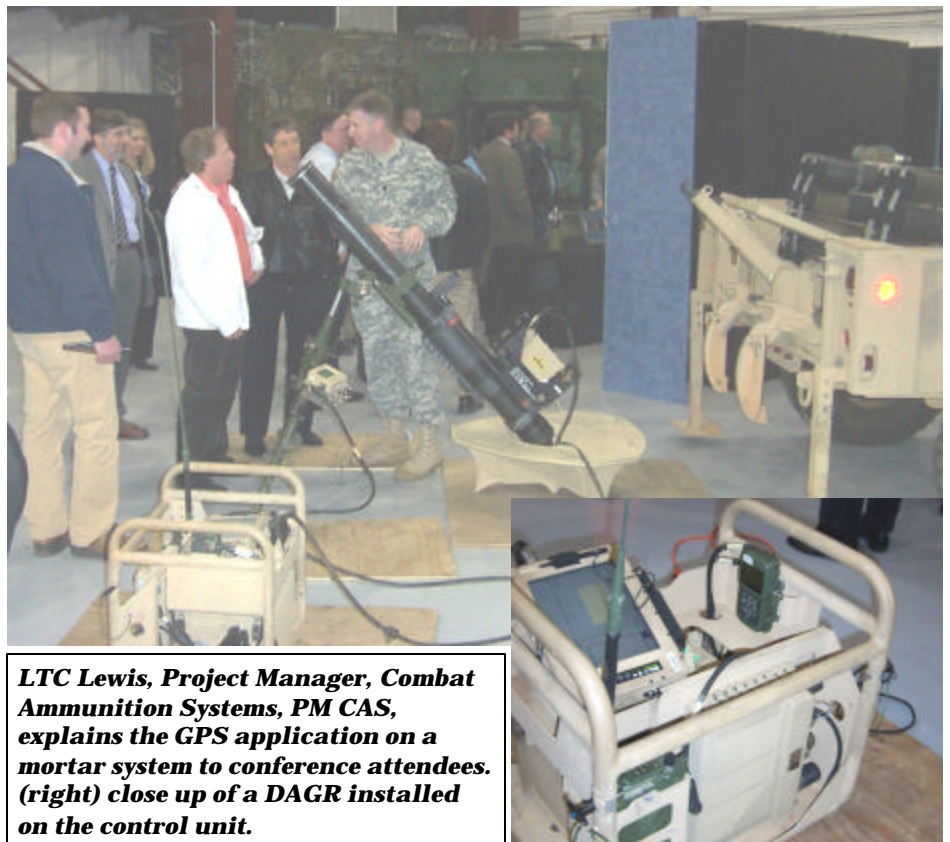
Another highlight was the display of hardware from 10 weapons systems managers and product developers who demonstrated how GPS is used in their system (see accompanying photos).

The publically releasable briefings have been posted at the GPS website under the IPT Team Folders.

If you are a DoD weapons system manager or a contractor providing technical or logistical support to a DoD weapon system, you may find these briefings of great interest.
Continued next page.



An overview of the equipment displays at the Picatinny GPS integration conference. The equipment ranged from artillery systems to various targeting and mapping applications on laptop computers. The common theme was the use of military GPS to provide war-fighters with the proven battlefield advantage of Precise Positioning Service GPS Equipment.



LTC Lewis, Project Manager, Combat Ammunition Systems, PM CAS, explains the GPS application on a mortar system to conference attendees. (right) close up of a DAGR installed on the control unit.

GPS Integration Conference at Picatinny Arsenal



(left) Willie Jackson receives an award from LTC Jay Spencer, Army PM GPS in recognition of his support for PLGR and DAGR installations to a wide range of weapon systems. (right). Mike Vincelli only got a handshake! Mike is the Army lead for embedded GPS applications. Together, Willie and Mike are primary Points of Contact for installing and integrating military GPS to Army systems. Their Contact info is on the back page.

Continued from previous page.

Army PM GPS maintains a list of website users titled "GPS Integration Group". Members of this group have website access to briefings presented at the Picatinny conference as well as those presented at previous integration meetings.

To join the GPS Integration Group, first register at the GPS website, then contact Willie or Mike (contact info on back page) and tell them you want to join the Integration Group.

The next GPS Integration Conference is scheduled for September 2009 in Sterling Heights, MI. Get onboard the GPS Receiver Integration Team now and you'll be apprised of conference details and other news on the subject of GPS Integrations!



Greg Roerich of the Firestorm product office explains the application of GPS in his system to conference attendees.

Updated Demilitarization and Disposal Guidance for GPS Receivers

Over the years, PM GPS has provided the Defense Reutilization & Marketing Service (DRMS) with demilitarization advice for obsolete military GPS receivers. DRMS distributes that advice to their Defense Reutilization & Marketing Offices (DRMO) who provide local disposal services to DoD agencies.

Local disposal of military GPS is not authorized because military GPS receivers contain an internal Communications Security (COMSEC) chip that enables the receiver to access the military-only GPS signal for enhanced accuracy and signal protection.

The demilitarization to remove COMSEC chips has to be performed by an agency accredited for that task by the National Security Agency (NSA). In most cases, military GPS receivers are returned to the original manufacturer for demil and disposal.



A recent change in demil policy has been approved for certain model PLGRs.

The early production model, NSN 5825-01-374-6643, usually tan in color, is non-reparable due to obsolete parts; it is no longer needed due to ongoing fielding of the successor DAGR. The Army has obtained NSA approval for demil and disposal of the tan PLGR at an alternate facility.

Note this change **only applies** to the tan PLGR! The demil and disposal advice for all other military GPS receivers remains in effect.

If you have GPS receivers and are not sure about the correct demil or disposal requirements, check with your supporting DRMO. If they can't help you, contact Army PM GPS via the "Contact PM GPS" tab at the GPS homepage. Provide whatever info you have available including the NSN if it has one, the part number, nomenclature and good POC info so we can assist you.

More News from the Recent GPS Integration Conference

Got a problem with bees?

A swarm of bees is one of the environmental effects that can impact ground-mobile forces using GPS-aided Laser Range Finding LRF systems. Other effects like heat waves and sand storms, anything with a credible 'mass', can also bounce a laser beam and give you an inaccurate measurement.

This effect is similar to the environmental impact of large flat surfaces that was addressed in several CECOM Ground Precautionary Advisory (GPA) messages issued in recent years. The GPAs informed GPS users that GPS signals can bounce off large flat surfaces, taking multiple paths to reach your GPS receiver, hence the title "multi-path effect" that can throw off your GPS calculations.

This isn't anything new and it affects any device that relies upon Line-of-Sight signals that are subject to environmental factors.

Obviously, users have little control over the operating environment but you can "be aware" of the potential and keep a good "situational awareness" frame-of-mind; know your surroundings and how environmental conditions may affect the performance of any electronic system including GPS.

Can't turn off the Sun

At a much higher level (literally), one of our GPS program engineers briefed the impact of sun spots and other surface-of-sun activities on the GPS signal.

Like a swarm of bees, the sun is something that is a little hard to control so we have to live with it and it is again a case of being aware of the environment.

The detailed Sun Activity briefing along with many other briefings presented at the Picatinny conference can be accessed by members of the GPS Integration Group at the GPS website. As noted on page 5, you can request membership in the GPS integration group which provides access to these briefings.

If you would like to see the Sun Activity Briefing outside of the GPS Group, just use the Contact PM GPS tab at the website homepage and submit your request for a copy of the briefing in the comments section.



DAGR NET in Massachusetts

During February 2009, PM GPS delivered 188 DAGR systems under the Total Package Fielding concept to an Engineer Battalion of the Mass Army National Guard. 65 soldiers received New Equipment Training (NET) which represented 35% of the unit strength. The PM GPS goal for NET training is 20% of unit strength so the Engineer unit took full advantage of the opportunity for NET when it had the chance!

In addition to the full 3-day NET program, training included the use of the Simple Key Loader (SKL) to load cryptovisible (CV) keys to the DAGR and two DAGR Advanced Functions to support Laser Range Finder (LRF) equipment and Azimuth Determination which was of great value to the Cannon (13B) series MOS NCOs. The unit has a Guided Laser Illumination Device (GLID) and the NET instructors walked through the use of DAGR with that system as well.

The pre-NET training test scores averaged 32%. After NET, the unit scores increased to 94%. 55 out of 65 students rated the NET program as Very Good.

The Senior GPS NET Instructor, retired 1SG Tony Hutchinson, said "this unit is well-prepared and able to use the DAGR in any situation".

DAGR FIELDING - EVER FORWARD!

Just a partial list of units the Army PM GPS Fielding and NET teams have visited in 2QFY09! USFPO stands for United States Property and Fiscal Officer. These fielding totaled over 6,400 DAGR systems!

USPFO MS, Jackson, MS

40th CAB, Fresno, CA

11th ACR Ft. Irwin, CA

90th RRC, Little Rock, AR

2/34th IBCT Camp Dodge, IA

USPFO WI, 32nd IBCT

TAG NC, 30th HBCT, Camp Shelby, MS

1/1 ID, Ft. Riley, KS

4th MEB, Ft. Leonard Wood, MO

10th MTN DIV, Ft. Drum, NY

USPFO KY, 138th FIB, Frankfort, KY



(above—both pictures) NET Instructor Tony Hutchinson at center conducts the NET practical exercise in typical Massachusetts weather! (below) training on the tri-pod mounted GLID laser guided illumination device.





How to Contact PM GPS <https://gps.army.mil>

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Ft Monmouth, NJ, Warner Robins, GA and Aberdeen Proving Grounds, MD

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Army Fielding Manager

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Logistics Manager

For Army Logistics Issues
Mr. Rodney Griffin
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For Other Service Logistics issues on DAGR, PLGR
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GPS Chief Engineer

Mr. Frank Rowe
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Army Weapon System Integrations—DAGR

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Army Weapon System Integrations—GB-GRAM

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Who to Call for Army Issues?

Call the Army Logistics Manager 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: Frank Rowe or Willie Jackson as listed in the column at left.

Or use the User Information Request Form

Go to <https://gps.army.mil>

Click on the “Contact PM GPS” tab at the homepage.

Or use the GPS Help Line

by contacting Mr Willie Jackson at Warner Robins GA (see his contact info at left column)

Please Note

We have had some recent personnel changes.

If you have trouble reaching anyone listed, please use the “contact PM GPS” tab at our homepage to submit your question or comment 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>