PATHFINDER

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

Volume 14 Issue 4 **Website: *https://gps.army.mil*** October 2007

Keep Your DAGR Operating Software Current!

From The Product Manager

Hello GPS Users!

The production and fielding of handheld DAGR and embedded GPS receivers has continued at a strong pace throughout 2007.

GPS Fielding and New Equipment Training teams have been on the road to issue equipment and train soldiers worldwide.

We believe in the "don't fix it if it's not broke" rule and are confident that the DAGR provides the best source of secure GPS data on the move. But like all software-driven products, the DAGR occasionally needs a Software Update.

Please take a look at the Software Update on page 2. Although operating changes are largely "transparent to the user", the new software is important to keep your position location reference data current. The new software also supports several new operating features demanded by certain users. Check it out!

If you have questions, please contact me or any member of my staff!

Jay Spencer

LTC, QM,
Product Manager, GPS

What is Happening Here? *Reprogramming DAGR! It is an easy process: Download DAGR Software from the GPS website, connect your PC to your DAGR and execute! The DAGR software update keeps your receiver current. For more information read the article on page 2 or visit the website!*

In This Issue

Precise Positioning Service (PPS) is Secure GPS. Commercial GPS Is Not.

Current and New Software for AN/PSN-13 and AN/PSN-13A DAGR

CURRENT SOFTWARE

AN/PSN-13

SW # 984-2461-**012**

AN/PSN-13A

SW # 984-3006-**002**

FUTURE SOFTWARE

AN/PSN-13

SW # 984-2461-**015**

AN/PSN-13A

SW # 984-3006-**005**

Expected Release Mar 08

Current and New Software for AN/APSN-11 / AN/PSN-11(V)1 PLGR

CURRENT SOFTWARE

AN/PSN-11 Baseline 2 (tan) SW #613-9854-**005**

AN/PSN-11(V)1 Baseline 3+ (mostly green) and all V(1)

SW # 613-9868-**008**

FUTURE SOFTWARE

AN/PSN-11

SW # 613-9854-**006**

AN/PSN-11(V)1

SW # 613-9868-**009**

Expected Release Dec 07

SOFTWARE CHANGES COMMON TO PLGR AND DAGR

Magnetic Variation (MAGVAR):

- This is the delta or variance between true north and magnetic north.
- Magnetic North appears in compasses & most targeting systems (Laser Rangefinders).
- Must convert to true north for accurate targeting.
- The National Geospatial Agency or NGA updates the World Magnetic Model (WMM) every 5 years to account for variations in the earth's magnetic field.
- Current PLGR/DAGR software uses WMM2000 which is now considered out-of-date. It is especially important for target location that all GPS receivers be equipped with the most current version of WMM.

Plus These DAGR UNIQUE CHANGES

Gun Laying System Improvements

- Numerous safety / usability concerns.
- Defined & tested by TSM-Cannon (Ft Sill).

Laser Range Finder

- More User-friendly.
- Three-shot process is now similar to PLGR+96.
- User is prompted to switch from Basic to Advanced Mode when a LRF shot message is received.

Other Improvements Include

- Marked Waypoint now the same in PLGR and DAGR.
- Allows updates to data such as WMM coefficients without requiring a baseline software change.
- Improved Ionospheric Measurement Outputs.

Plus These PLGR UNIQUE CHANGES

Earth Gravity Model (EGM)

- Defines delta between WGS-84 ellipsoid and Mean Sea Level (MSL).
- Updated from 1984 to 1996 model.
- Uses 10x10 degree grid + interpolation.

Other Improvements Include:

- Cleaner Data transfer process.
- PVT Initiation (elevation, track, ground speed).
- Corrected Track Value (avoids mismatch between MAGVAR & grid coordinates).
- Auto Off timer (timeout causes tilt on receiving unit).

DAGR MAP TOOLKIT SOFTWARE

Current Version: 984-3095-**005** (released Feb 07)

New Version: 984-3095-**006** (planned release Feb 08)

An improvement in DAGR Map Toolkit Software has to do with map previews and temporary files:

The 005 version added map previews. That was great but it created a problem with large temporary map files.

The 006 version will resolve this problem by saving smaller version map files (no impact on the user) while it allows your PC to present a 16-color (4 bit) preview. As soon as it is released, we will post the new version of DAGR Map Toolkit Software at the GPS website!

PLGR REPROGRAMMING

Although DAGR is the "state-of-the-art" military GPS receiver today, its legacy brother, the AN/PSN-11(V) PLGR remains an important member of the GPS family.

PLGR reprogramming is a little more involved than DAGR. You need the reprogramming cable and a power supply along with your host computer for the download and operating software. Details are spelled out in MWO 11-5825-291-30-4, available at the GPS website.

Requisition the cable and power supply (if you don't already have them from prior PLGR reprogramming). As an alternative, you can borrow a PLGR reprogramming kit with cable and power supply. Contact us at the GPS website or call the Georgia or NJ offices.

Ground-Based GPS Receiver Applications Module (GB-GRAM)

GB-GRAM is the military GPS receiver that you don't see very often because it is fielded inside something else! 15 weapons systems already use GB-GRAM as an embedded source of military GPS data and the numbers are growing! Shown clockwise beginning at right are the Lightweight Laser Designator Rangefinder, Lightweight Handheld Mortar Ballistic Computer and Mark VII E Rangefinder.

These 3 represent the variety of devices that use GB-GRAM (right) in lieu of a cable-connected GPS receiver. This saves weight and reduces complexity of operation for the user.

GB-GRAM measures 3.4 X 2.4 inches and weighs in at 3.5 ounces.

Since the GB-GRAM is built by the same manufacturer of the DAGR and PLGR, it also had a software update. GB-GRAM now comes with many of the "system level" improvements applied to DAGR and PLGR. However GB-GRAM is not reprogrammed by the field user. If you are a host platform manager using GB-GRAM, please contact the POC for Army Integrations on the back page for information about reprogramming GB-GRAM.

GB-GRAM SOFTWARE

GB-GRAM # 987-1856-032

SW # 984-2692-**005**

GB-GRAM # 987-1856-023

SW # 984-2662-**004**

These current version SW were released in Jan 2007

Notes From the DAGR Repair Depot

You don't have to be a rocket scientist to appreciate that if thousands of DAGRs are in daily use, there will be wear & tear and battle damage to repair.

As of August 07, 1,600 DAGRs have been returned to the repair depot in Cedar Rapids Iowa for 2007.

Of these, about 700 repairs were covered by the warranty and a replacement was shipped from the depot in less than 3 days. The rest of the DAGRs were rated as "exclusions to warranty" which means the government paid for the repairs. Cracked display screens or other physical damage resulting from hard use may be unavoidable but there is one other source of warranty exclusion repairs that can be controlled. Please read on to understand the "Battery pack Issue" and help us avoid unnecessary repair charges!

In the July 2007 issue of PATHFINDER we reported that some DAGR were being returned for warranty service without the battery pack. This problem is continuing and we need your assistance.

Although the battery pack is detachable as shown in the photo at upper right, the battery pack is actually a component part of the DAGR receiver. If you return a DAGR for warranty repair without the battery pack, you return an incomplete end-item. That means a new battery pack is required to "Make it Whole" in order to put it into the replacement pool.

When returning a DAGR for service, remove the main power batteries, but reattach the empty battery pack! Another reason for keeping the battery pack with the DAGR is the seal between the two parts which is part of the moisture barrier protecting the DAGR's guts and power contacts from environmental exposure.

The DAGR battery pack (without batteries) at left must be re-attached to the DAGR before returning the unit for warranty repair!

You want "spare" battery packs so you can swap out battery packs instead of individual batteries? Requisition them under NSN 6135-01-521-3064.

Help reduce the warranty-void charges for replacing the battery pack! Return a "whole" DAGR so it can be repaired and re-issued to your fellow soldiers!

Updates at the PM GPS Website
https://gps.army.mil
(Don't forget the "s" in https for Secure!)

PM GPS continues to refine the Army GPS website in response to user feedback. Our objective is to provide current advice and assistance for the operation, repair and installation of GPS.

Some of the recent changes at the website include:

- Updating the FAQ to provide current version information on software and technical manuals.
- Adding info on GPS crypto-key loading devices.
- Improved "query form" to answer your questions.

PLEASE KEEP SENDING US YOUR FEEDBACK!

Updated Battery Calculator

Power Optimizer for Warfighter Energy Requirements (POWER)

"POWER", the updated battery calculator is now available from the Army CECOM Power Sources Team.

POWER is a spreadsheet calculator. Download it to your PC to calculate portable battery requirements. The new version includes updated features and current battery pricing. Use POWER to build your Unit Basic Load (UBL) to save $$ and weight. You can find POWER at the CECOM LRC Power Sources website below or use the link at the GPS website.

www.monmouth.army.mil/
cecom/lrc/lrchq/power/rechargebat.html

On the Road with DAGR New Equipment Training (NET): 196th IN BDE

(Left) 196th IN BDE personnel gather with NET instructor, Fazel Culbreath who was recognized with a certificate of appreciation (above) from Master Sergeant Balatico on behalf of his extraordinary efforts to support the unit.

During a recent family vacation in Oahu, DAGR New Equipment Training (NET) instructor Fazel Culbreath had an opportunity to provide impromptu DAGR training for soldiers of the 196th Infantry BDE. During FY07, over 31,000 DAGR were fielded to Army units and over 3,000 soldiers received DAGR NET training. NET is an opportunity not to be missed! Once the NET team has departed your station, they are on to the next mission so make the best of their visit! For information about where the NET and fielding teams are headed next, contact the Fielding or NET Managers at Fort Monmouth NJ (see contact info back page).

Improvements to SAASM

The GPS Security Device:

The "warfighter" video at the GPS home page clearly makes the case for the important distinctions between commercial and military GPS receivers.

Of the distinctions between commercial and military GPS receivers, the most important one is the security device or "security chip" that provides military GPS receivers with a battlefield performance edge.

The security device used in all new production GPS receivers including DAGR is called the Selective Availability Anti-Spoof Module or SAASM. The SAASM is not available in any store! The National Security Agency controls SAASM production and use for the manufacture of military GPS receivers.

Secretary of Defense policy mandates the use of SAASM for all GPS operations involving combat, combat support and combat service support.

A synopsis of OSD policy is at the GPS website (click on "About GPS"). If your command wants to see the details of GPS policy, contact PM GPS.

SAASM has been around for 4 years and PM GPS has embarked on a significant product improvement plan for SAASM.

The soldier will benefit from improved SAASM performance, including a reduced power drain which translates to longer battery life. The government will benefit from reduced unit costs.

Okay, its not much to look at but even at less than 2 square inches, the current SAASM is the "heart" of a military GPS receiver!

PM GPS will ensure that SAASM improvements are 'transparent' to the user, meaning the new version works the same as the current version, just faster and with less power.

Another benefit of SAASM improvement is reduced size which will support PDA-type devices where the current embeddable GPS receiver is too large to fit. SAASM will eventually be replaced by the next generation of security architecture beginning sometime after 2012.

But Remember This! For SAASM to function properly, the GPS receiver must be operated in keyed mode!

DAGR ACCESSORIES

"required versus optional"

PM GPS uses the Total Package Fielding (TPF) process to field handheld GPS receivers. Under TPF, PM GPS provides the gaining unit with the authorized number of GPS receivers based on the MTOE or TDA or other basis of equipment authorization.

The numbers are confirmed with the gaining command in advance of fielding during the New Material Introductory Briefing or NMIB.

PM GPS also provides DAGR accessories as part of TPF. The most common accessories are the PC interface cable, the external antenna and its cable, and the external power cable. The accessory list also includes a COMSEC crypto-fill cable, installation mount, carry-case. In fact, there are some 50 accessories available for DAGR!

During the NMIB meeting, PM GPS Fielding personnel go over the list of accessories to reach agreement with the gaining command about which accessories will be issued and in what density during the fielding.

A set of "Basic Issue Item" accessories or BII is provided for each receiver (see BII list below). Other accessories are typically provided on a one-per-10 DAGR basis.

For the field unit to maintain proper accountability for a "DAGR set" comprised of a receiver + BII, refer to the current version TM to see what items are included in the BII. These items make up a complete "DAGR set".

PM GPS is now updating the BII for DAGR for the next edition of the DAGR TM scheduled for publication in 2008. Until then, the current BII defines a complete "DAGR "set".

NOTE: Operating units have the option of requisitioning any other DAGR accessories and maintaining accountability as they see fit.

If you would like information about DAGR BII and other accessories, check the TM or contact Army PM GPS at either the Georgia or New Jersey offices.

CURRENT DAGR BII

NSN	Accessory Description
• 5975-01-521-3063	Installation Mount
• 5895-01-502-6692	Antenna, Remote RA-1
• 5995-01-504-1762	Cable, DAGR to RA-1 (5 meter)
• 6150-01-521-6757	Cable, DAGR DC Power (fused) 5 meter
• 5895-01-521-3111	Personnel case

COMSEC for GPS

The War-fighter Tool: Simple Key Loader (SKL)

Product Manager Net Operations (NetOPS) at Fort Monmouth, NJ is the proponent for the AN/PYQ-10 Simple Key Loader or "SKL".

The SKL is your preferred means of uploading COMSEC keys to a variety of unit equipment including the PLGR and DAGR.

The SKL is the latest version of a Data Transfer Device available for field use.

SKL is a Personal Digital Assistant (PDA) type product measuring 7.4" X 4.2" X 1.8" with "user friendly" Windows CE operating software.

SKL is a "backwards compatible" replacement for the legacy data loader known as the AN/CYZ-10 Data Transfer Device (DTD). SKL design improvements over the DTD include a 64 MB RAM and flash memory and a 1/4 VGA color display.

A feature of the SKL operating software is the ability to select "PLGR" from a menu of equipment profiles. The SKL uses screen displays to walk you through the steps necessary to load PLGR with keys.

PM NetOPS plans to add DAGR to the equipment profile in the SKL. Until that software update is available, you can use SKL to load DAGR keys by selecting the "Unknown DS101 Protocol" on the SKL equipment profile page. The current SKL UAS version 4.0 software was released in June 2007. The SKL software update is scheduled for July 2008.

As of 30 Aug 07, PM NetOPS has procured over 105,000 SKL and is fielding SKL to Army units through 2010.

What about the SDS? The AN/KIK-20 Secure DTD2000 System or "SDS" is an alternative to the DTD and SKL but the Army has only authorized the SKL for key loading. The SDS is not sponsored by NetOPS.

For more information about SKL, please contact Chris Caputo, SKL Project Lead at (732) 532-3236.

For help with GPS keys, see your COMSEC Custodian or contact the PM GPS engineer at Warner Robins GA. (see back page for contact info).

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

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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