

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT				1. CONTRACT ID CODE J	PAGE OF PAGES 1 7
2. AMENDMENT/MODIFICATION NO. P00011		3. EFFECTIVE DATE 04-Mar-2015	4. REQUISITION/PURCHASE REQ. NO. SEE SCHEDULE		5. PROJECT NO.(If applicable)
6. ISSUED BY INSTAL & VEHICLE SUP CONTRACTING DIV 6501 E. 11 MILE ROAD WARREN MI 48397-5000		CODE W56HZV	7. ADMINISTERED BY (If other than item 6) INSTAL & VEHICLE SUP CONTRACTING DIV JASON D. LADD CCTA-HSA-1/MS 350 JASON.D.LADD2.CIV@MAIL.MIL WARREN MI 48397-5000		CODE W56HZV
8. NAME AND ADDRESS OF CONTRACTOR (No., Street, County, State and Zip Code) TECHNICAL PROFESSIONAL SERVICES, INC. ARNALDO R. RODRIGUEZ 211 W SUPERIOR ST WAYLAND MI 48348-1259			9A. AMENDMENT OF SOLICITATION NO.		
			9B. DATED (SEE ITEM 11)		
			X 10A. MOD. OF CONTRACT/ORDER NO. W56HZV-12-C-L531		
			X 10B. DATED (SEE ITEM 13) 29-Jun-2012		
CODE 3EF48		FACILITY CODE 3EF48			
11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS					
<input type="checkbox"/> The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offer <input type="checkbox"/> is extended, <input type="checkbox"/> is not extended. Offer must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended by one of the following methods: (a) By completing Items 8 and 15, and returning _____ copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.					
12. ACCOUNTING AND APPROPRIATION DATA (If required) See Schedule					
13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACTS/ORDERS. IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.					
A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.					
B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(B).					
X C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF: Mutual agreement between parties					
D. OTHER (Specify type of modification and authority)					
E. IMPORTANT: Contractor <input type="checkbox"/> is not, <input checked="" type="checkbox"/> is required to sign this document and return _____ copies to the issuing office.					
14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.) Modification Control Number: laddj15269 1. The purpose of this bilateral Modification P00011 is to make the following changes: a. Work Directive 003 Rev 3 has been incorporated in the contract, revising travel locations. b. Work Directive 004 Rev 3 has been incorporated in the contract, revising travel locations. c. CLIN 1007AB shall be reduced by \$1,353.14 from \$2,952.00 to \$1,598.86. Purchase Request # 0010395413 d. CLIN 2007AB shall be incorporated for travel in the amount of \$1,353.14. Purchase Request # 0010395413 2. As a result of this modification, the contract value remains unchanged at \$1,937,847.04. 3. All other terms and conditions, except those addressed by this modification, remain in full force and effect.					
Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.					
15A. NAME AND TITLE OF SIGNER (Type or print)			16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print) JEFFREY B. YEAGER / CONTRACTING OFFICER TEL: 586-282-6200 EMAIL: jeffrey.b.yeager2.civ@mail.mil		
15B. CONTRACTOR/OFFEROR (Signature of person authorized to sign)		15C. DATE SIGNED	16B. UNITED STATES OF AMERICA BY <i>Jeffrey B. Yeager</i> (Signature of Contracting Officer)		16C. DATE SIGNED 03-Mar-2015

SECTION SF 30 BLOCK 14 CONTINUATION PAGE

SUMMARY OF CHANGES

SECTION SF 30 - BLOCK 14 CONTINUATION PAGE

The following have been added by full text:

WORK DIRECTIVE 003 REV 03

WORK DIRECTIVE

CLIN: **1007AA & 1007AB**WD NO.: 003 **Rev 3**

CONTRACTOR: Technical Professional Services (TPS) CONTRACT NO.: W56HZV-12-C-L531

CONTRACT REFERENCE: C.3.0(a)(b)(d); C.3.0(a)(b)(i); and C.3.0(b)(i)(h)

PROGRAM: Ground Vehicle Power and Mobility (GVPM)

OBJECTIVE: Provide GVPM program office with design, engineering, technical expertise and analyses, project/program management, logistical analysis and support, concepts, prepare for future operations, identify and support transformational technologies for ground vehicles, demonstrators and other Ground Vehicle Mobility platforms.

The contractor shall perform the following:

Propulsion test lab /research support - 973 hrs - Scientist Researcher III

The contractor shall act in accordance with C.3.0(a)(b)(d) . The contractor shall provide modeling and simulation of vehicle systems to provide guidance for propulsion space claim, power, fuel, and cooling requirements, for new concept vehicles, JLTV, and up-powered and up-weighted Stryker as well as MRAP, HMMWV, CAT C7, Paladin PIM vehicles and tactical Army Trucks (all current fleet). This shall include the construction of spreadsheets that can be used by GVPM personnel in the future to assess vehicle thermal loads, cooling needs, turbocharger requirements, transmission data, and manifold conditions IAW CDRL 006 . These spreadsheets will be set up for vehicles such as the Stryker, HMMWV, CAT C7, JLTV, and Paladin PIM vehicles. The contractor shall provide guidance for vehicle requirements for these vehicles including power, torque, cooling and size restrictions. The contractor shall perform thermal management study to decide the cooling needs for different engines including the Cummins 903, the HMMWV engine, the Hercules 1790, and the MTU family of engines IAW CDRL 003. The contractor shall train GVPM and TARDEC associate on all aspects of ground vehicle propulsion including vehicle propulsion at least 4 hours per week by sharing experiences and showing government employees the spreadsheets created as well as how to use them. The contractor shall include the following deliverable: Monthly Contract Progress Status and Management Report (IAW DI-MGMT-80227, CDRL 001).

Travel:

One trips to Toronto, Canada for 4 days for a supplier visit to Kertrain to conduct progress review.

Estimated cost is \$1,470.00 total.

Gas turbine test lab/research support – 1217 hrs - Scientist Researcher III

The contractor shall act in accordance with C.3.0(a)(b)(i) . The contractor shall provide engineering services for gas turbines including the Abrams AGT 1500. The contractor shall support test mission profile testing of the AGT 1500 at TARDEC GVPM facilities. The contractor shall provide guidance on test set up standards such as air flow and cooling requirements. The contractor shall provide expertise on the data collected during testing and ensure the test is meeting the standards set forth in the government testing plan. Contractor shall provide guidance to TARDEC on

technical reports to be written upon completion of the testing. The contractor shall support ongoing AGT testing which occurs at Yuma proving grounds. The contractor shall recommend and implement analysis methods and tools for turbo machinery (primary power gas turbines, auxiliary power units, turbochargers, fluidic torque converters). The contractor shall support effort to upgrade and modernize the Abrams fleet by providing technical guidance, and providing simulation results for components affected by the upgrade. The contractor shall include the following deliverables: Monthly Contract Progress Status and Management Report (IAW DI-MGMT-80227, CDRL 001).

Travel:

**One trip to Phoenix, AZ for technical analysis supporting PM MBTS for 5 days: Estimated cost is \$1,879.00.
One trip to Phoenix / Yuma Proving Grounds for 5 days to observe testing: Estimated cost is \$1,600.00 total.
(P00005)**

Test Engineer support - 973 hrs - Engineer IV

The contractor shall act in accordance with C.3.0(b)(i)(h). The contractor shall provide technical expertise in the area of on-board vehicle power architectures, power management, thermal management and data analysis on the following projects within GVPM: Electrical Systems Research Laboratory (ESRL), Stryker, Modular Power Engine Generator System (MPEG), GVPM robotics test track and Li-ion and PbA Battery technology. The contractor shall develop a autonomy software. The software is to be a vehicle propulsion software package to be used in thermal management in military vehicles. The contractor shall aid in the development of Advanced On-board Power and Energy and Thermal (AOPET) lab. This project will include the researching and recommending hardware, electronic components and cooling components for the Bradley vehicle. The contractor shall perform analysis of vehicle power architecture modeling, stochastic data analysis, mobile data acquisition systems, government process, electrical component modeling, power generation systems and provide a report on any results found. The contractor shall run the lab software programs Matlab, Microsoft Office Applications, and Labview to generate necessary data and create reports for the projects stated above. The contractor shall perform electrical power optimization, stochastic power utilization, electrical power management and, power distribution and electrical component modeling (generators, fuel cells, power converters, batteries and, loads) as it pertains to the AOPET lab. The contractor shall include the following deliverables: Monthly Contract Progress Status and Management Report (IAW DI-MGMT-80227, CDRL 001), Technical Report-Study/Services (IAW DI-MGMT-80508, CDRL 003).

WORK DIRECTIVE 004 REV 03

WORK DIRECTIVE CLIN: 2001AA, 2001AB, 2001AC, 2001AD, 2003AA, 2003AB, 2003AC, 2007AA,
2007AB WD NO.: 004 REV 03

CONTRACTOR: Technical Professional Services (TPS) CONTRACT NO.: W56HZV-12-C-L531

CONTRACT REFERENCE: C.3.0(a)(b)(d); C.3.0(a)(b)(i); and C.3.0(b)(i)(h)

PROGRAM: Ground Vehicle Power and Mobility (GVPM)

OBJECTIVE: Provide GVPM program office with design, engineering, technical expertise and analyses, project/program management, logistical analysis and support, concepts, prepare for future operations, identify and support transformational technologies for ground vehicles, demonstrators and other Ground Vehicle Mobility platforms.

The contractor shall perform the following:

Propulsion test lab /research support 1728 hrs - Scientist Researcher III

The contractor shall act in accordance with C.1.3.a. The contractor shall provide modeling and simulation of vehicle systems to provide guidance for propulsion space claim, power, fuel, and cooling requirements, for new concept vehicles, JLTV, and up-powered and up-weighted Stryker as well as MRAP, HMMWV, CAT C7, Paladin PIM vehicles and tactical Army Trucks (all current fleet). This shall include the construction of spreadsheets that can be used by GVPM personnel in the future to assess vehicle thermal loads, cooling needs, turbocharger requirements, transmission data, and manifold conditions IAW CDRL 006 . These spreadsheets will be set up for vehicles such as the Stryker, HMMWV, CAT C7, JLTV, and Paladin PIM vehicles. The contractor shall provide guidance for vehicle requirements for these vehicles including power, torque, cooling and size restrictions. The contractor shall perform thermal management study to decide the cooling needs for different engines including the Cummins 903, the HMMWV engine, the Hercules 1790, and the MTU family of engines IAW CDRL 003. The contractor shall train GVPM and TARDEC associate on all aspects of ground vehicle propulsion including vehicle propulsion at least 4 hours per week by sharing experiences and showing government employees the spreadsheets created as well as how to use them. The contractor shall include the following deliverable: Monthly Contract Progress Status and Management Report (IAW DI-MGMT-80227, CDRL 001)

One trip to Toronto, Canada for 4 days for a supplier visit to Kertrain to conduct progress review. Estimated cost is \$1,470.00 total.

One trip to Nevada Automotive Test Center in Reno, NV to observe testing. Estimated cost is \$1,481.84 total.

Gas turbine test lab/research support Hours: 1480 - Scientist Researcher III

The contractor shall act in accordance with C.1.3.d. The contractor shall provide engineering services for gas turbines including the Abrams AGT 1500. The contractor shall support test mission profile testing of the AGT 1500 at TARDEC GVPM facilities. The contractor shall provide guidance on test set up standards such as air flow and cooling requirements. The contractor shall provide expertise on the data collected during testing and ensure the test is meeting the standards set forth in the government testing plan. Contractor shall provide guidance to TARDEC on technical reports to be written upon completion of the testing. The contractor shall support ongoing AGT testing which occurs at Yuma proving grounds. The contractor shall recommend and implement analysis methods and tools for turbomachinery (primary power gas turbines, auxiliary power units, turbochargers, fluidic torque converters). The contractor shall support effort to upgrade and modernize the Abrams fleet by providing technical guidance, and providing simulation results for components affected by the upgrade. The contractor shall include the following deliverables: Monthly Contract Progress Status and Management Report (IAW DI-MGMT-80227, CDRL 001)

One trip to Phoenix, AZ to support PM MBTS at the Honeywell Quarterly Technical Review (QTR) March 9-12, 2015. Estimated cost is \$1,800.00 total.

Test Engineer support 848 hrs - Engineer IV

The contractor shall act in accordance with C.1.3.b. The contractor shall provide technical expertise in the area of on-board vehicle power architectures, power management, thermal management and data analysis on the following projects within GVPM: Electrical Systems Research Laboratory (ESRL), Stryker, Modular Power Engine Generator System (MPEG), GVPM robotics test track and Li-ion and PbA Battery technology. The contractor shall develop an autonomy software. The software is to be a vehicle propulsion software package to be used in thermal management in military vehicles. The contractor shall aid in the development of Advanced On-board Power and Energy and Thermal (AOPET) lab. This project will include the researching and recommending hardware, electronic components and cooling components for the Bradley vehicle. The contractor shall perform analysis of vehicle power architecture modeling, stochastic data analysis, mobile data acquisition systems, government process, electrical component modeling, power generation systems and provide a report on any results found. The contractor shall run the lab software programs Matlab, Microsoft Office Applications, and Labview to generate necessary data and create reports for the projects stated above. The contractor shall perform electrical power optimization, stochastic power utilization, electrical power management and, power distribution and electrical component modeling (generators, fuel cells, power converters, batteries and, loads) as it pertains to the AOPET lab. The

contractor shall include the following deliverables: Monthly Contract Progress Status and Management Report (IAW DI-MGMT-80227, CDRL 001), Technical Report-Study/Services (IAW DI-MGMT-80508, CDRL 003).

Test Engineer support 248 hrs - Engineer IV

The contractor shall act in accordance with C.1.3.b. The contractor shall provide technical expertise in the area of on-board vehicle power architectures, power management, thermal management and data analysis on the following projects within GVPM: Electrical Systems Research Laboratory (ESRL), Stryker, Modular Power Engine Generator System (MPEG), GVPM robotics test track and Li-ion and PbA Battery technology. The contractor shall develop autonomy software. The software is to be a vehicle propulsion software package to be used in thermal management in military vehicles. The contractor shall aid in the development of Advanced On-board Power and Energy and Thermal (AOPET) lab. This project will include the researching and recommending hardware, electronic components and cooling components for the Bradley vehicle. The contractor shall perform analysis of vehicle power architecture modeling, stochastic data analysis, mobile data acquisition systems, government process, electrical component modeling, power generation systems and provide a report on any results found. The contractor shall run the lab software programs Matlab, Microsoft Office Applications, and Labview to generate necessary data and create reports for the projects stated above. The contractor shall perform electrical power optimization, stochastic power utilization, electrical power management and, power distribution and electrical component modeling (generators, fuel cells, power converters, batteries and, loads) as it pertains to the AOPET lab. The contractor shall review existing lead acid performance and cycle life data. The contractor shall develop a test plan to determine the compatibility of lead acid batteries with varied impedances (i.e. batteries at varied SOH and/or from varied manufactures) when connected in series to determine the overall impact on performance and cycle life. The contractor shall oversee the execution of the test plan then interpret test results and report back to team. The contractor shall include the following deliverables: Monthly Contract Progress Status and Management Report (IAW DI-MGMT-80227, CDRL 001), Technical Report-Study/Services (IAW DI-MGMT-80508, CDRL 003).

SECTION SF 1449 - CONTINUATION SHEET

SUPPLIES OR SERVICES AND PRICES

SUBCLIN 1007AB

The unit price amount has decreased by \$1,353.14 from \$2,952.00 to \$1,598.86.

The total cost of this line item has decreased by \$1,353.14 from \$2,952.00 to \$1,598.86.

SUBCLIN 2007AB is added as follows:

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
2007AB	Travel - Option Year 2 FFP Travel in accordance with the Statement of Work. FOB: Destination PURCHASE REQUEST NUMBER: 0010395413-0002	1	Job	\$1,353.14	\$1,353.14
NET AMT					\$1,353.14
ACRN AR CIN: GFEB001039541300002					\$1,353.14

ACCOUNTING AND APPROPRIATION

Summary for the Payment Office

SUBCLIN 1007AB:

AR: 021201220132040000066262221T R.0003879.1.2 6100.9000021001 A60FL (CIN GFEB001039541300001) was decreased by \$1,353.14 from \$2,952.00 to \$1,598.86

SUBCLIN 2007AB:

Funding on SUBCLIN 2007AB is initiated as follows:

ACRN: AR

CIN: GFEB001039541300002

Acctng Data: 021201220132040000066262221T R.0003879.1.2 6100.9000021001

Increase: \$1,353.14

Total: \$1,353.14

Cost Code: A60FL

DELIVERIES AND PERFORMANCE

The following Delivery Schedule item has been added to SUBCLIN 2007AB:

DELIVERY DATE	QUANTITY	SHIP TO ADDRESS	UIC
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POP 30-JUN-2014 TO
29-JUN-2015

N/A

TARDEC
JARROD HOOSE
CENTRAL RECEIVING DOCK
JARROD HOOSE
6501 E 11 MILE ROAD
WARREN MI 48397-5000
586-282-8533
FOB: Destination

W91ATL

INSPECTION AND ACCEPTANCE

The following Acceptance/Inspection Schedule was added for SUBCLIN 2007AB:

INSPECT AT
N/A

INSPECT BY
N/A

ACCEPT AT
N/A

ACCEPT BY
Government

(End of Summary of Changes)