

**AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT**

1. Contract ID Code  
Firm Fixed Price

Page 1 Of 9

|                                         |                                |                                                 |                                |
|-----------------------------------------|--------------------------------|-------------------------------------------------|--------------------------------|
| 2. Amendment/Modification No.<br>P00005 | 3. Effective Date<br>2013SEP26 | 4. Requisition/Purchase Req No.<br>SEE SCHEDULE | 5. Project No. (If applicable) |
|-----------------------------------------|--------------------------------|-------------------------------------------------|--------------------------------|

|                                                                                                                                                                                |                |                                                                                                                                                 |                |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|-------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| 6. Issued By<br>U.S. ARMY CONTRACTING COMMAND<br>DANIEL POEHLING<br>WARREN, MICHIGAN 48397-5000<br>HTTP://CONTRACTING.TACOM.ARMY.MIL<br><br>EMAIL: DANIEL.POEHLING@US.ARMY.MIL | Code<br>W56HZV | 7. Administered By (If other than Item 6)<br>DCMA DAYTON<br>AREA C, BUILDING 30<br>1725 VAN PATTON DRIVE<br>WRIGHT-PATTERSON AFB, OH 45433-5302 | Code<br>S3605A |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|-------------------------------------------------------------------------------------------------------------------------------------------------|----------------|

|                                                                                                                                                    |                                     |                                                             |
|----------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|-------------------------------------------------------------|
| 8. Name And Address Of Contractor (No., Street, City, County, State and Zip Code)<br><br>CUMMINS INC.<br>500 JACKSON ST<br>COLUMBUS, IN 47201-6258 | <input type="checkbox"/>            | 9A. Amendment Of Solicitation No.                           |
|                                                                                                                                                    | <input type="checkbox"/>            | 9B. Dated (See Item 11)                                     |
|                                                                                                                                                    | <input checked="" type="checkbox"/> | 10A. Modification Of Contract/Order No.<br>W56HZV-12-C-0374 |
|                                                                                                                                                    | <input type="checkbox"/>            | 10B. Dated (See Item 13)<br>2012SEP14                       |
| Code 15434                                                                                                                                         | Facility Code                       |                                                             |

**11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS**

The above numbered solicitation is amended as set forth in item 14. The hour and date specified for receipt of Offers

is extended,  is not extended.

Offers 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 amendments; (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)**

ACRN: AB NET INCREASE: \$479,625.00

**13. THIS ITEM ONLY APPLIES TO MODIFICATIONS OF CONTRACTS/ORDERS  
It Modifies The Contract/Order No. As Described In Item 14.**

|                                     |                                                                                                                                                                                                                       |                                              |
|-------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|
| <input type="checkbox"/>            | A. This Change Order is Issued Pursuant To:<br>The Contract/Order No. In Item 10A.                                                                                                                                    | The Changes Set Forth In Item 14 Are Made In |
| <input type="checkbox"/>            | B. The Above Numbered Contract/Order Is Modified To Reflect The Administrative Changes (such as changes in paying office, appropriation data, etc.) Set Forth In Item 14, Pursuant To The Authority of FAR 43.103(b). |                                              |
| <input checked="" type="checkbox"/> | C. This Supplemental Agreement Is Entered Into Pursuant To Authority Of:                                                                                                                                              | FAR 43.103(a)(3)                             |
| <input type="checkbox"/>            | D. Other (Specify type of modification and authority)                                                                                                                                                                 |                                              |

**E. IMPORTANT:** Contractor  is not,  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.)**

SEE SECOND PAGE FOR DESCRIPTION

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)<br>SHANARI N. GOOLSBY<br>NARI.GOOLSBY@US.ARMY.MIL (586)282-8056 |                                                                                          |                               |
| 15B. Contractor/Offeror<br><br>(Signature of person authorized to sign) | 15C. Date Signed                                                                                                           | 16B. United States Of America<br>By _____ /SIGNED/<br>(Signature of Contracting Officer) | 16C. Date Signed<br>2013SEP26 |

**CONTINUATION SHEET****Reference No. of Document Being Continued****Page 2 of 9**

PIIN/SIIN W56HZV-12-C-0374

MOD/AMD P00005

**Name of Offeror or Contractor:** CUMMINS INC.

## SECTION A - SUPPLEMENTAL INFORMATION

Buyer Name: DANIEL POEHLING  
Buyer Office Symbol/Telephone Number: CCTA-AHL-B/(586)282-7312  
Type of Contract: Firm Fixed Price  
Kind of Contract: Service Contracts  
Type of Business: Large Business Performing in U.S.  
Surveillance Criticality Designator: C  
Weapon System: BFVS(M2, M2A1, M2A2),BFVS(M3, M3A1,M3A2)

\*\*\* End of Narrative A0000 \*\*\*

Modification P00005 to Contract W56HZV-12-C-0374

CONTRACT AMOUNT: \$2,581,125.00

AMOUNT OF MODIFICATION 01: \$479,625.00

CURRENT CONTRACT AMOUNT: \$3,060,750.00

1. The purpose of Modification P00005 to Contract W56HZV-12-C-0374 is to revise the contract to include added Nuclear Event Detector (NED) development as required by the customer, PM-ABCT. Of the \$790,735 that is required to satisfy the NED development requirement, \$311,110 presently exists on the contract (CLINS 0001AA, 0002AA, and 0003AA) and \$479,625 is being added to account for the funding shortfall. Funds will be diverted from one engine on CLIN 0002AA by decreasing the alpha engine quantity from two each to one each, thus increasing the unit cost to account for a portion of the added NED development. As a result of decreasing the alpha engine quantity under CLIN 0002AA and described in SOW C.3.1, engine performance calibration testing is changed to engine performance testing, the 200 hr Peak Power Overload (PPO) test is removed, and following design validation is removed regarding the delivery of the engine to TARDEC for Government testing under CLIN 0003AA. CLIN 0001AM is created and funded in the amount of \$479,625 accounting for the NED development funding shortfall. Finally, in order to accommodate the added time required for the additional NED development, the period of performance is extended from 28 Feb 2014 to 12 Sep 2014 for CLINS 0001AB and 0001AF, and the delivery date is extended from 28 Sep 2013 to 12 Sep 2014 for CLIN 0002AA.

2. As a result of this modification, the following sections of the contract are updated as follows:

## a. Section B - Supplies and Services

1. CLIN 0001AB: delivery due date changed from 28 Feb 2014 to 12 Sep 2014.

2. CLIN 0001AF: delivery due date changed from 28 Feb 2014 to 12 Sep 2014.

3. CLIN 0001AM is created and funded in the amount of \$479,625 specifically to fund a portion of the NED development requirement with a performance completion date of 12 Sep 2014.

4. CLIN 0002AA is reduced from a quantity of two each to one each increasing the unit cost of the remaining one engine to account for a portion of the NED testing requirement with an adjusted delivery due date changed from 28 Sep 2013 to 12 Sep 2014

## b. Section C - Description/Specifications/Work Statement

1. SOW C.2.2 is revised as follows:

From: Contractor shall support this testing.

To: The contractor shall perform design changes and qualification testing changes to allow for proper functionality and increased reliability. The contractor

**Name of Offeror or Contractor:** CUMMINS INC.

shall perform thermal shock, critical temperate, high temperature operating life, mechanical testing (thermal shock and vibration), and electromagnetic testing.

2. SOW C.3.1 Engine Deliverables is revised as follows:

From: The contractor shall manufacture three (3) alpha engines to include the engine wiring harness, NED, ECM, and Bradley unique components. Two (2) prototype engines produced under this contract shall be used by the contractor for testing to verify the design. The testing shall consist of final engine performance calibration testing as well as a 400 hr NATO test and a 200 hr Peak Power Overload (PPO) test. Following design validation, the third engine shall be delivered to TARDEC for government testing.

To: The contractor shall manufacture two (2) alpha engines to include the engine wiring harness, NED, ECM, and Bradley unique components. One (1) prototype engine produced under this contract shall be used by the contractor for 400 hour NATO testing to verify the design and final engine performance testing. The second engine shall be delivered to TARDEC for government testing.

3. As a result of this modification, total contract funding is increased in the amount of \$479,625 from \$2,581,125 to \$3,060,750.

4. This modification constitutes the complete equitable adjustment for the matters covered by this modification. The contractor releases the Government from any and all liability under this contract for any equitable adjustment attributable to or related to the facts or circumstances giving rise to the changes in this Modification P00005.

5. All other terms and conditions of the contract, except those addressed by this modification, remain unchanged and in full force and effect.

\*\*\* END OF NARRATIVE A0006 \*\*\*



CONTINUATION SHEET

Reference No. of Document Being Continued  
 PIIN/SIIN W56HZV-12-C-0374 MOD/AMD P00005

Name of Offeror or Contractor: CUMMINS INC.

| ITEM NO | SUPPLIES/SERVICES                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | QUANTITY | UNIT | UNIT PRICE       | AMOUNT        |
|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|------|------------------|---------------|
|         | <p>CLIN CONTRACT TYPE:<br/>                     Firm Fixed Price<br/>                     PRON: 723225RD72 PRON AMD: 01 ACRN: AB<br/>                     PSC: 2815</p> <p>CLIN 0001AM supplements additional required NED testing IAW C.2.2.</p> <p>(End of narrative B001)</p> <p><u>Inspection and Acceptance</u><br/>                     INSPECTION: Destination ACCEPTANCE: Destination</p> <p><u>Deliveries or Performance</u><br/>                     DLVR SCH PERFORM COMPL<br/> <u>REL CD QUANTITY DATE</u><br/>                     001 1 12-SEP-2014</p> <p>\$ 479,625.00</p>                                                                                                                                                                                                                                                                                                                                                                                                                                        |          |      |                  |               |
| 0002    | <p>PROTOTYPE ENGINES<br/>                     NSN: 9999-99-999-9999</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |          |      |                  |               |
| 0002AA  | <p><u>HARDWARE DELIVERABLES</u></p> <p>GENERIC NAME DESCRIPTION: PROTOTYPE ENGINES<br/>                     CLIN CONTRACT TYPE:<br/>                     Firm Fixed Price<br/>                     PRON: 721065RD72 PRON AMD: 01 ACRN: AA<br/>                     AMS CD: 27373537100<br/>                     PSC: 2815</p> <p><u>Description/Specs./Work Statement</u><br/>                     TOP DRAWING NR: NO TDP</p> <p><u>Packaging and Marking</u><br/>                     PACKAGING/PACKING/SPECIFICATIONS:<br/>                     SEE PACKAGING RQMTS CLAUSE<br/>                     UNIT PACK: 1<br/>                     LEVEL PRESERVATION: Commercial<br/>                     LEVEL PACKING: Commercial</p> <p><u>Inspection and Acceptance</u><br/>                     INSPECTION: Origin ACCEPTANCE: Origin</p> <p><u>Deliveries or Performance</u><br/>                     DOC SUPPL<br/> <u>REL CD MILSTRIP ADDR SIG CD MARK FOR TP CD</u><br/>                     001 W80KTY0223D001 CK0U4L J 1</p> | 1        | EA   | \$ 366,066.66000 | \$ 366,066.66 |

CONTINUATION SHEET

Reference No. of Document Being Continued  
PIIN/SIIN W56HZV-12-C-0374 MOD/AMD P00005

Name of Offeror or Contractor: CUMMINS INC.

| ITEM NO           | SUPPLIES/SERVICES                                                                                                                                                                                                                                                                | QUANTITY          | UNIT            | UNIT PRICE      | AMOUNT |   |             |  |  |  |  |
|-------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|-----------------|-----------------|--------|---|-------------|--|--|--|--|
|                   | <table><tr><td><u>DEL REL CD</u></td><td><u>QUANTITY</u></td><td><u>DEL DATE</u></td></tr><tr><td>001</td><td>1</td><td>12-SEP-2014</td></tr></table> <p>FOB POINT: Origin</p> <p>SHIP TO:<br/>(CK0U4L) XR CUMMINS INC.<br/>500 JACKSON ST<br/><br/>COLUMBUS, IN, 47201-6258</p> | <u>DEL REL CD</u> | <u>QUANTITY</u> | <u>DEL DATE</u> | 001    | 1 | 12-SEP-2014 |  |  |  |  |
| <u>DEL REL CD</u> | <u>QUANTITY</u>                                                                                                                                                                                                                                                                  | <u>DEL DATE</u>   |                 |                 |        |   |             |  |  |  |  |
| 001               | 1                                                                                                                                                                                                                                                                                | 12-SEP-2014       |                 |                 |        |   |             |  |  |  |  |

|                                                    |                                                  |                    |
|----------------------------------------------------|--------------------------------------------------|--------------------|
| <b>CONTINUATION SHEET</b>                          | <b>Reference No. of Document Being Continued</b> | <b>Page 7 of 9</b> |
|                                                    | PIIN/SIIN W56HZV-12-C-0374                       | MOD/AMD P00005     |
| <b>Name of Offeror or Contractor:</b> CUMMINS INC. |                                                  |                    |

SECTION C - DESCRIPTION/SPECIFICATIONS/WORK STATEMENT

Statement of Work (SOW) - Bradley ECP Program - Cummins 675 hp engine

C.1: The purpose of this contract is to continue the design and test efforts related to the improvements and updates to the 675hp engine up to Delta Critical Design Review (DCDR) initiated under contract number W56HZV-08-C-0285 and PIM contract number W56HZV-09-C-0550 section C, paragraphs C.102.1.7.3.1.2 and C.102.1.7.3.2.1.3.

C.2 Technical Development Scope

C.2.1 Start of Work Meeting: No later than thirty (30) days after contract award, the contractor shall participate in a Start of Work meeting at the Governments facility located at TACOM in Warren, Michigan. The contractor shall provide a copy of their development schedule as part of the Start of Work presentation package in accordance with CDRL A002. The contractors development schedule shall contain the following, and will be agreed upon by the parties:

- Date for Delta Critical Design Review (DCDR)
- Date for engine design freeze
- Engine build dates
- Date for performance testing
- Date for 400 hr NATO test

The contractor is allowed to separately invoice for travel for the Start of Work Meeting to SOW Section C.2.7 (ECP II Meeting Support), CLIN 0001AG. Labor for the Start of Work Meeting will be separately invoiced against SOW Section C.2.1, CLIN 0001AA.

C.2.2: The contractor shall perform the engineering design activities necessary to allow the Electronic Control Module (ECM) to control the engine cranking and cold start system to -25 degrees F. The contractor shall modify the engine calibration to accept a primary and secondary throttle position signal via CAN bus (SAE J1939) and a 0-5V throttle signal. The engine shall incorporate an electrical harness mounted Nuclear Event Detector (NED) equal to or better in performance than the NED previously demonstrated at Government testing and described in White Sands Test Center (WSTC) Report dated Feb 2011. Production intent NED will be validated by government testing at WSTC that duplicates previous testing. The contractor shall perform design changes and qualification testing changes to allow for proper functionality and increased reliability. The contractor shall perform thermal shock, critical temperature, high temperature operating life, mechanical testing (thermal shock and vibration), and electromagnetic testing.

C.2.3: The contractor shall perform the engineering design activities necessary to incorporate an engine mounted belt driven 400 amp generator mounted on the front left bank side of the engine. The generator shall be driven off the 8 groove poly-V belt system.

C.2.4: The contractor shall perform the engineering design of the Bradley Fighting Vehicle (BFV) unique parts for the 675 hp engine to provide a common hardware platform that can be adapted to either a BFV or Paladin Integration Management (PIM) vehicle by the use of vehicle specific integration kits. The following components shall be designed for this effort: engine wiring harness, engine-out coolant manifold, BFV radiator supports, and oil pan.

Contingency: In order to validate oil pan commonality, the contractor requires that the Government provide the engine compartment envelope dimensions of the BFV and the PIM Vehicle and dimensions of groundhop kits no later than 1 November 2012.

C.2.5: The contractor shall perform the analysis and fit test to ensure that the current long term steel storage container is compatible with the common engine. The contractor shall provide recommendations to the government to correct issues identified by the analysis and fit test.

C.2.6: The contractor shall perform the engineering design activities necessary to incorporate the vehicle based calibration utility tool.

C.2.7 ECP II Meetings Support: The contractor shall participate in CANbus, Transmission and Engine, and Integrated Product Teams (IPTs). The contractor shall participate in three weekly IPT conference calls throughout the period of performance of the contract. The contractor shall attend semi-annual face-to-face Program Management Review (PMR) meetings at BAE Sterling Heights, MI, facility and semi-annual Technical Interchange Meetings.

C.2.8 Delta Critical Design Review (DCDR): The contractor shall conduct the DCDR resolve any discrepancies identified therein. Entrance and Exit criteria will be provided by the Government at the Start of Work meeting. The Government will have the sole authority to certify the successful completion of the DCDR. The contractor shall deliver DCDR material in accordance with CDRL A001. The contractor shall prepare a meeting agenda, and document, track, and manage all action items within meeting minutes in contractor format (CDRL A002).

C.2.9 Reliability, Availability, and Maintainability System (RAM) Assessments

C.2.9.1: The Contractor shall implement and execute the Reliability Activity as described below to ensure achievement of the

|                           |                                                  |                    |
|---------------------------|--------------------------------------------------|--------------------|
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**Name of Offeror or Contractor:** CUMMINS INC.

reliability requirements established in the appropriate vehicle System Specification allocated down to the 675hp Engine with ECM.  
C.2.9.2 Reliability Predictions: The Contractor shall develop and maintain a reliability prediction report. The report shall provide detailed reliability predictions based on a defined configuration and associated models. The predictions shall be allocated from the 675hp Engine with ECM level down to the lowest indenture level and updated each time significant design or mission profile changes significantly impact the 675hp Engine with ECM. The initial prediction shall be submitted to the Government within sixty (60) calendar days of contract award. An updated prediction shall be submitted to the Government seven (7) calendar days prior to DCDR.

C.3 Hardware Deliverables

C.3.1 Engine Deliveries: The contractor shall manufacture two (2) alpha engines to include the engine wiring harness, NED, ECM, and Bradley unique components. One (1) prototype engine produced under this contract shall be used by the contractor for 400 hour NATO testing to verify the design and final engine performance testing. The second engine shall be delivered to TARDEC for government testing.

C.4 Documentation Deliverables

C.4.1 Technical Data: The contractor shall provide a written engine specification including performance curves and data sheets, engine and diagnostic interface control documents, including a Cummins specification drawing, and computer generated 3-D engine shrink wrap models for vehicle interface, NED ICD, ECM ICD, and Specifications to include software (CDRLA004). The contractor shall integrate BFV-unique components into the service manual, trouble shooting manual, and repair parts manual for the final design of the 675 hp engine in contractor format (CDRL A004).

C.4.2 Qualification

C.4.2.1 Qualification Test Plans: The contractor shall develop and implement qualification test plans for the 675 hp Engine with ECM, and shall provide final versions of the aforementioned test plans to the Government in accordance with CDRL A003. The Qualification Test Plans shall consist of Test Methodology; Test Scope; Test Judgment Criteria; and Test Sequence/ Duration.

\*\*\* END OF NARRATIVE C0001 \*\*\*

**CONTINUATION SHEET**

**Reference No. of Document Being Continued**

**PIIN/SIIN** W56HZV-12-C-0374

**MOD/AMD** P00005

**Name of Offeror or Contractor:** CUMMINS INC.

SECTION G - CONTRACT ADMINISTRATION DATA

| LINE   | PRON/<br>AMS CD/<br>MIPR/<br><u>ITEM</u> | OBLG<br><u>STAT</u> | JO NO/<br><u>ACCT ASSIGN</u> | <u>ACRN</u> | <u>PRIOR AMOUNT</u> | <u>INCREASE/<br/>DECREASE</u> | <u>CUMULATIVE<br/>AMOUNT</u> |
|--------|------------------------------------------|---------------------|------------------------------|-------------|---------------------|-------------------------------|------------------------------|
| 0001AM | 723225RD72                               | 2                   | A.0009261.2.2.2.4            | AB \$       | 0.00 \$             | 479,625.00 \$                 | 479,625.00                   |
|        |                                          |                     |                              |             |                     | NET CHANGE \$                 | 479,625.00                   |

| <u>ACRN</u> | <u>ACCOUNTING CLASSIFICATION</u>                                       | <u>INCREASE/<br/>DECREASE</u> |
|-------------|------------------------------------------------------------------------|-------------------------------|
| AB          | 021 201320142040 A5XGJ 273735371RU08 2550 L034625241 A.0009261.2.2.2.4 | 021001 \$ 479,625.00          |
|             |                                                                        | NET CHANGE \$ 479,625.00      |

|                       | <u>PRIOR AMOUNT<br/>OF AWARD</u> | <u>INCREASE/DECREASE<br/>AMOUNT</u> | <u>CUMULATIVE<br/>OBLIG AMT</u> |
|-----------------------|----------------------------------|-------------------------------------|---------------------------------|
| NET CHANGE FOR AWARD: | \$ 2,581,125.00                  | \$ 479,625.00                       | \$ 3,060,750.00                 |

| LINE   | <u>ACRN</u> | <u>EDI/SFIS ACCOUNTING CLASSIFICATION</u> |                                          |
|--------|-------------|-------------------------------------------|------------------------------------------|
| 0001AM | AB          | 021 201320142040 A5XGJ 273735371RU08      | 2550 L034625241 A.0009261.2.2.2.4 021001 |