ROUTINE

MWO effective date is 31 July 2006 and completion date is 31 July 2010.

MWO 9-2350-372-30-1

MODIFICATION WORK ORDER

MODIFICATION OF
CARRIER, AMMUNITION, TRACKED
M992A2, FIELD ARTILLERY AMMUNITION SUPPORT VEHICLE (FAASV)
(NSN 2350-01-368-9500) (EIC: AKA)

HEADQUARTERS, DEPARTMENT OF THE ARMY, WASHINGTON, D.C.

31 JULY 2006

REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

You can help improve this manual. If you find any mistakes or if you know of a way to improve the procedures, please let us know. Mail your letter or DA Form 2028 (Recommended Changes to Publications and Blank Forms), located in the back of this manual, directly to: AMSTA-LC-CI Tech Pubs, TACOM-RI, 1 Rock Island Arsenal, Rock Island, IL 61299-7630. You may also send in your recommended changes via electronic mail or by fax. Our fax number is DSN 793-0726, Commercial (309) 782-0726. Our e-mail address is TACOM-TECH-PUBS@ria.army.mil. A reply will be furnished to you.

1. **PURPOSE**. The purpose of this Modification Work Order (MWO) is to provide instructions for installing the Kidde Dual Spectrum Automatic Fire Extinguishing System (AFES) on the FAASV.

2. **PRIORITY**. This modification is classified as ROUTINE.

3. END ITEM TO BE MODIFIED.

a. Field Artillery Ammunition Support Vehicle (FAASV), M992A2.

b. The vehicle National Stock Number (NSN) will not change as a result of this MWO.

Table 3-1. End Item To Be Modified

Nomenclature	National Stock Number	End Item Code	Part Number	CAGEC	Model Number
Carrier, Ammunition, Tracked	2350-01-368-9500	AKA	8750264	19207	M992A2

4. MODULE(S) (COMPONENTS, ASSEMBLIES, SUBASSEMBLIES, BOARDS, AND CARDS) TO BE MODIFIED. Not applicable to this MWO.

5. PARTS TO BE MODIFIED. The following item, whether installed or in PLL/ASL or depot stock, shall be modified.

Table 5-1. Modified Parts

Nomenclature	National Stock Number	End Item Code	Part Number	CAGEC
Cover, Terminal	5940-01-524-7948	19207	12496878	19207

6. APPLICATION.

a. Time compliance schedule: MWO effective date is 31 July 2006 and completion date is 31 July 2010.

b. The lowest level of maintenance authorized to apply this MWO is Direct Support Maintenance.

c. Work force and man-hour requirements for application of the MWO to a single unit, end item, or system are as follows:

Table 6-1. Man-Hour Requirements (S/N 1-344)

Work Force/Skills	Man-Hours	Man-Hours w/o Disassembly
Mechanic (Certified) (2)	21	15

Table 6-2. Man-Hour Requirements (S/N 345 and Above)

Work Force/Skills	Man-Hours	Man-Hours w/o Disassembly
Mechanic (Certified) (2)	18	13

d. There are no MWOs applied prior to or concurrently with the application of this MWO.

e. There is no Government Furnished Equipment (GFE) needed to assist in the application of this MWO.

7. TECHNICAL PUBLICATIONS AFFECTED/CHANGED.

Table 7-1. Technical Publications Affected/Changed

Technical Publication	Date
TM 9-2350-372-10	1 October 2005
TM 9-2350-372-20	1 October 2005
TM 9-2350-372-34	1 October 2005
TM 9-2350-372-24P	1 October 2005

8. MWO KITS, PARTS, AND THEIR DISPOSITION.

a. The following table lists the kits needed to accomplish this MWO. The security classification of the kits is unclassified. Shipping data is as follows:

Table 8-1. MWO Kits

Nomenclature	National Stock Number	CAGEC	Part Number	QTY	Item No.
Conversion Kit, FAASV AFES	TBD	19207	57K3274	1	1
Conversion Kit, FAASV AFES Bottle Rear Box (S/N 1-344)	TBD	19207	57K3275	1	2
Kit, Hardware, Follow-on	TBD	19207	57K3276	1	3

b. The following tables are lists of component parts of this MWO. These lists can be used to inventory the kit for completeness.

Table 8-2. FAASV AFES Conversion Kit Parts List – 57K3274

Nomenclature	National Stock Number	CAGEC	Part Number	QTY	Item No.
Gasket	5330-00-810-6140	77820	10-150949-12	1	1
Strap, Tiedown, Electrical	5975-00-345-8055	19207	10905840	14	2
Washer, Flat	5310-00-877-5972	19200	10910174-3	8	3
Mount, Resilient	5342-00-914-1000	19207	10922334	10	4
Lead, Electrical	5995-00-808-7657	19207	10922372	1	5
Plate, Instruction	9905-00-858-5682	19207	10930014	1	6
Lead, Electrical		19207	12268174-3	3	7
Lead, Electrical		19207	12268174-4	1	8
Cover		19207	12351508	1	9
Relay		19207	12498409	2	10
Wiring Harness		19207	12498410	1	11
Wiring Harness		19207	12498411	1	12
Bracket Assembly, Control Electronics Panel		19207	12498412	1	13
Bracket Assembly, Engine Sensor, Right Front		19207	12498413	1	14
Bracket, Engine Sensor, Left Front		19207	12498414	1	15
Bracket, Driver's Control Panel Interface		19207	12498415	1	16
Bracket, Engine Harness		19207	12498416	1	17
Bracket, Rear Engine Sensor		19207	12498417	1	18
Adapter Plate		19207	12498420	1	19
Lead, Jumper		19207	12498459	1	20
Harness, Engine Sensor		05BU0	421599	1	21
Harness, Crew Sensor		05BU0	421600	1	22
Harness, Valve		05BU0	421601	1	23
Control Electronics Panel (CEP)		05BU0	421603	1	24
Driver’s Control Panel (DEP)		05BU0	421605	1	25
Harness, S7 Sensor		05BU0	421633	1	26
Fire Sensor, Pm-34 CBEH	6350-01-430-7176	11323	59764	7	27
Seal, Antipilferage	5340-00-835-9815	19207	8720150	2	28

8. MWO KITS, PARTS, AND THEIR DISPOSITION (continued).

Table 8-2. FAASV AFES Conversion Kit Parts List – 57K3274

Nomenclature	National Stock Number	CAGEC	Part Number	QTY	Item No.
Gasket	5330-00-641-4336	58536	A52481-8	1	29
Screw, Cap, Hexagon Head	5305-00-071-2506	80204	B1821BH025C050N	1	30
Screw, Cap, Hexagon Head	5305-00-068-7837	80204	B1821BH025C063N	15	31
Screw, Cap, Hexagon Head	5305-00-068-0508	80204	B1821BH025C075N	8	32
Screw, Cap, Hexagon Head	5305-00-225-3843	80204	B1821BH025C100N	14	33
Screw, Cap, Hexagon Head	5305-00-543-4372	80204	B1821BH038C075N	2	34
Screw, Cap, Hexagon Head	5305-00-068-0510	80204	B1821BH038C100N	4	35
Screw, Cap, Hexagon Head	5305-00-068-0511	80204	B1821BH038C125N	2	36
Screw, Cap, Hexagon Head	5305-00-071-2066	80204	B1821BH050C100N	2	37
Screw, Cap, Hexagon Head		I9008	ISO4017-M5X12-A2-50	1	38
Washer, Flat		I9008	ISO7089-5-200HV-A2	1	39
Spring, Compression	5360-01-276-7640	84830	LC-063-L-11-S	1	40
Washer, Flat	5310-00-722-5998	80205	MS15795-805	32	41
Washer, Flat	5310-00-582-5677	80205	MS15795-810	58	42
Washer, Flat	5310-00-767-9425	80205	MS15795-818	4	43
Screw, Tapping	5305-00-855-0958	80205	MS24629-45	1	44
Washer, Lock	5310-00-543-5933	80205	MS35333-73	1	45
Washer, Lock	5310-00-821-6269	96906	MS35334-19	4	46
Washer, Lock	5310-00-527-3634	96906	MS35335-61	28	47
Washer, Lock	5310-00-209-0790	96906	MS35335-63	5	48
Washer, Lock	5310-00-929-6395	80205	MS35338-136	20	49
Washer, Lock	5310-00-933-8120	80205	MS35338-138	3	50
Washer, Lock	5310-00-933-8121	80205	MS35338-139	31	51
Washer, Lock	5310-00-984-7042	96906	MS35338-141	3	52
Washer, Lock	5310-00-933-8778	80205	MS35338-143	2	53
Nut, Plain, Hexagon	5310-00-250-9477	80205	MS35649-2254	24	54
Nut, Plain, Hexagon	5310-00-934-9761	80205	MS35649-264	16	55
Nut, Plain, Hexagon	5310-00-934-9765	80205	MS35650-304	4	56
Nut, Plain, Hexagon	5310-00-989-5945	80205	MS35691-35	2	57
Nut, Plain, Hexagon	5310-01-159-8559	96906	MS35691-406	4	58
Insert, Screw Thread	5325-00-451-8982	96906	MS51831-102	8	59
Insert, Screw Thread	5325-01-066-2840	96906	MS51831-104	4	60
Screw, Machine	5305-00-054-6653	96906	MS51957-29	4	61
Screw, Machine	5305-00-054-6656	96906	MS51957-32	12	62
Screw, Machine	5305-00-727-8832	80205	MS51959-29	4	63
Seal, Antipilferage		7N423	SS10	3	64
Washer, Lock		05047	W212NAA0050NN421NN QA1	1	65

8. MWO KITS, PARTS, AND THEIR DISPOSITION (continued).

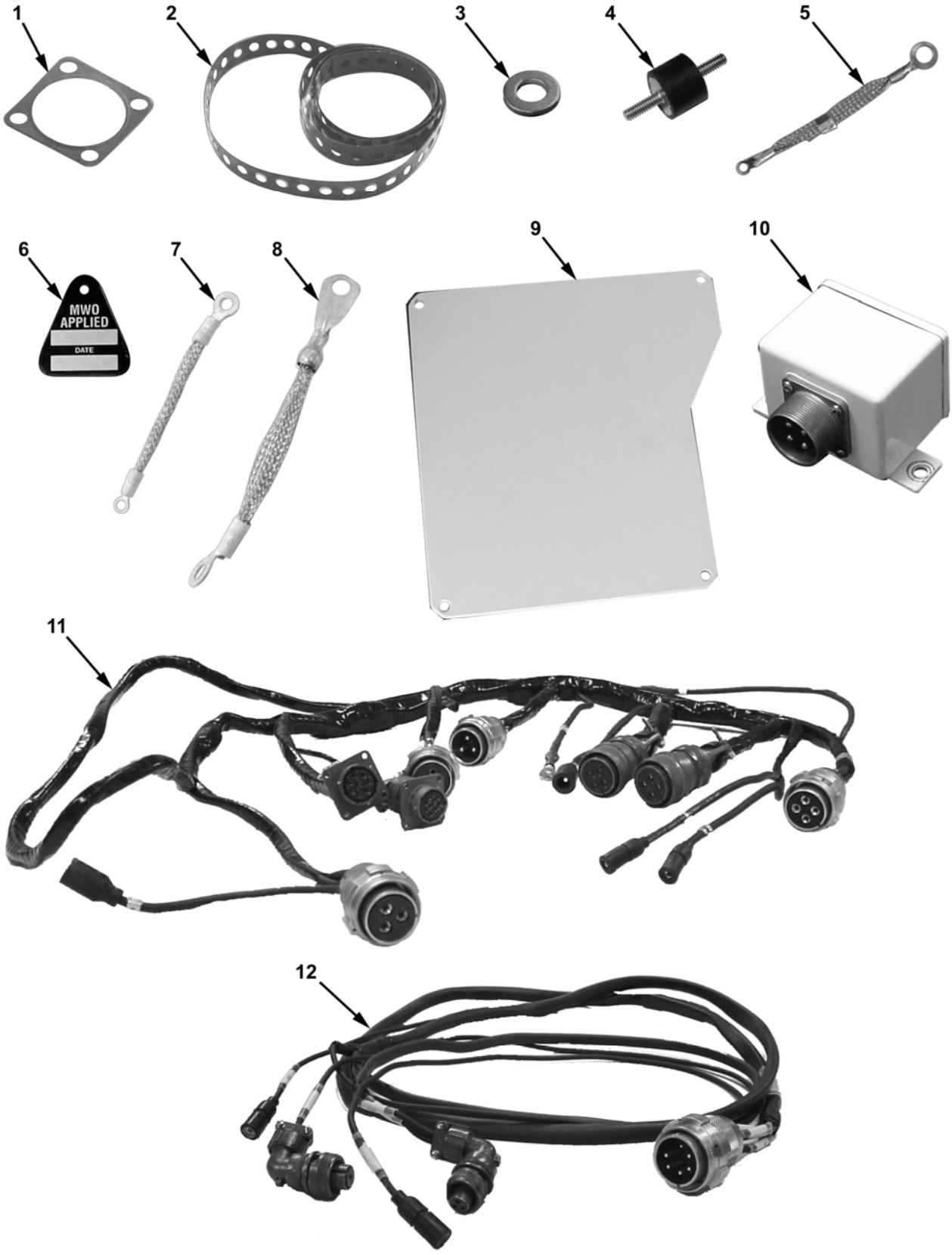


Figure 8-2-1

8. MWO KITS, PARTS, AND THEIR DISPOSITION (continued).

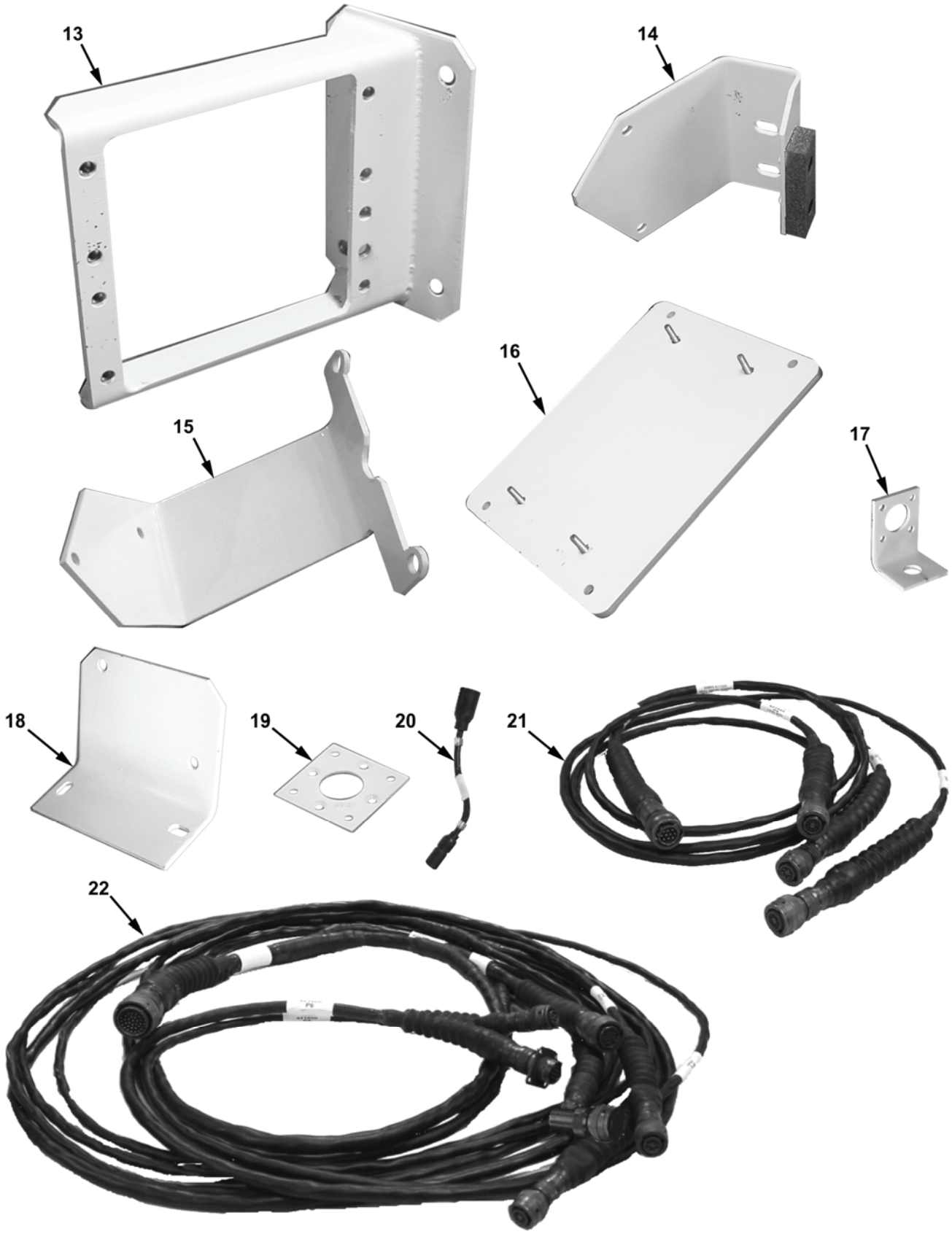


Figure 8-2-2

8. MWO KITS, PARTS, AND THEIR DISPOSITION (continued).

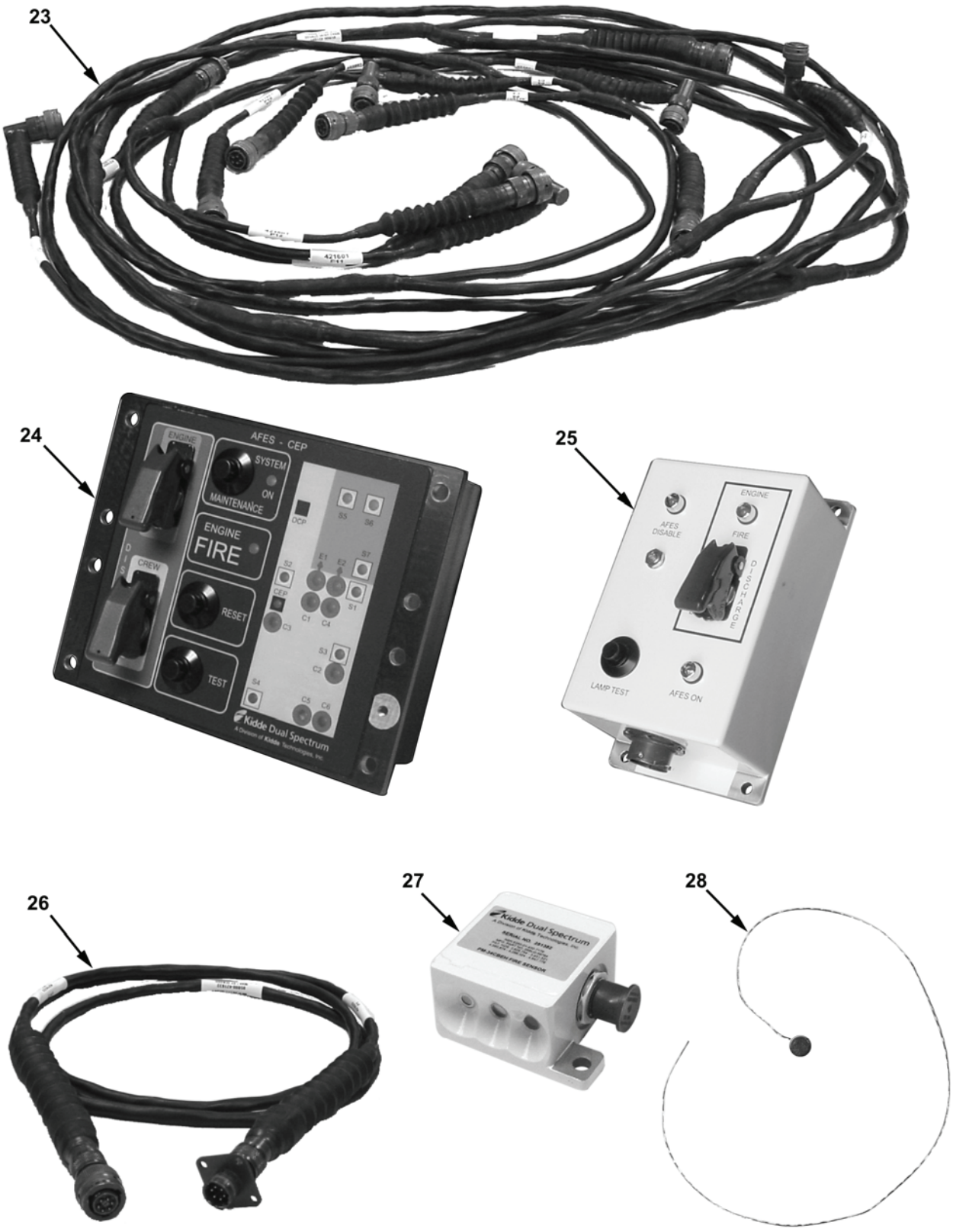


Figure 8-2-3

8. MWO KITS, PARTS, AND THEIR DISPOSITION (continued).

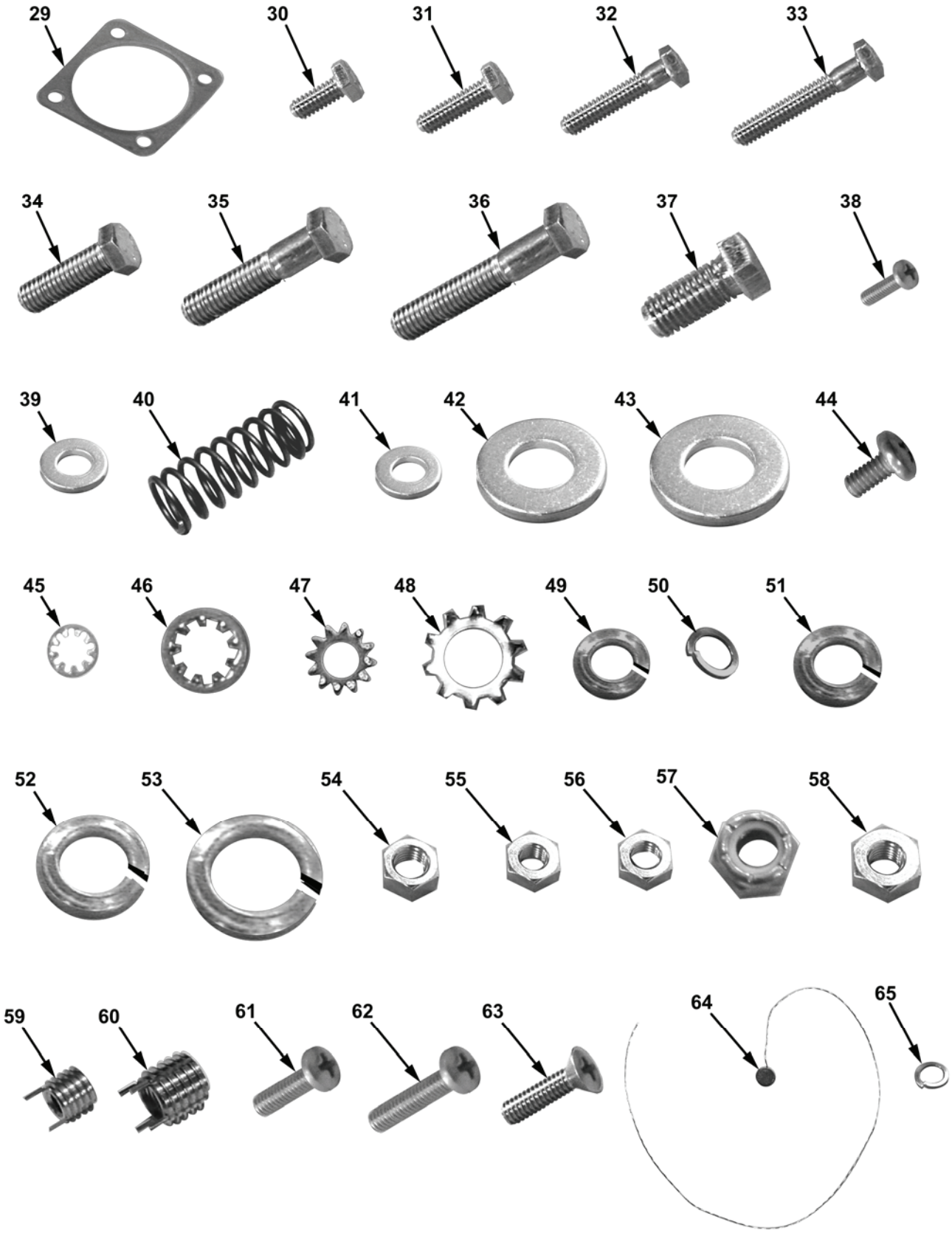


Figure 8-2-4

8. MWO KITS, PARTS, AND THEIR DISPOSITION (continued).

NOTE

Kit 57K3275, FAASV AFES Bottle Rear Box Conversion Kit, Table 8-3, is used for vehicles S/N 1-344 only.

Table 8-3. FAASV AFES Bottle Rear Box Conversion Kit – 57K3275

Nomenclature	National Stock Number	CAGEC	Part Number	QTY	Item No.
Washer, Flat	5310-00-877-5972	19200	10910174-3	8	1
Strap, Retaining	5340-01-083-5344	19207	12284038	4	2
Bracket, Engine Accessory	5342-01-083-5345	19207	12284040	2	3
Fire Extinguisher		19207	12324494-5	6	4
Wire Rope Assembly	4010-01-239-1683	19207	12351801	2	5
Sign	9905-01-269-8387	19207	12351807	4	6
Bracket, Mounting	5340-01-270-3694	19207	12352314	1	7
Spacer, Sleeve	5365-01-296-5393	19207	12352334	8	8
Door, Access, Weapon	5342-01-270-3687	19207	12352336	1	9
Marker, Identification	7690-01-329-4630	19207	12376327-4	1	10
Marker, Identification	7690-01-329-4629	19207	12376327-5	1	11
Coupling, Screw In		19207	12498424	2	12
Extender, Nozzle	4210-01-270-5381	26995	200291-1	2	13
Nozzle, Fire Extinguisher	4210-01-238-9842	02101	310031	2	14
Nut, Plain, Hexagon	5310-00-282-7828	88044	AN924-24	2	15
Screw, Cap, Hexagon Head	5305-00-068-0508	80205	B1821BH025C075N	4	16
Screw, Cap, Hexagon Head	5305-01-524-3294	80204	B1821BH044C350N	6	17
Screw, Cap, Hexagon Head	5305-01-288-8875	80204	B1821BH044C375N	2	18
Screw, Cap, Hexagon Head	5305-01-071-2067	80204	B1821BH050C125N	13	19
Washer, Flat	5310-00-582-5677	80205	MS15795-810	4	20
Pin, Straight	5315-00-913-2782	96906	MS20392-5C91	8	21
Pin, Cotter	5315-00-842-3044	80205	MS24665-283	8	22
Washer, Lock	5310-00-933-8121	80205	MS35338-139	4	23
Washer, Lock	5310-00-389-8038	80205	MS35338-142	8	24
Washer, Lock	5310-00-933-8778	80205	MS35338-143	13	25
Set Screw	5305-00-543-2671	80205	MS51029-51	15	26
Insert, Screw Thread	5325-00-451-8982	96906	MS51831-102	9	27
Insert, Screw Thread	5325-01-176-4151	96906	MS51831-105	8	28
Insert, Screw Thread	5325-01-075-7759	96906	MS51831-106	13	29

8. MWO KITS, PARTS, AND THEIR DISPOSITION (continued).

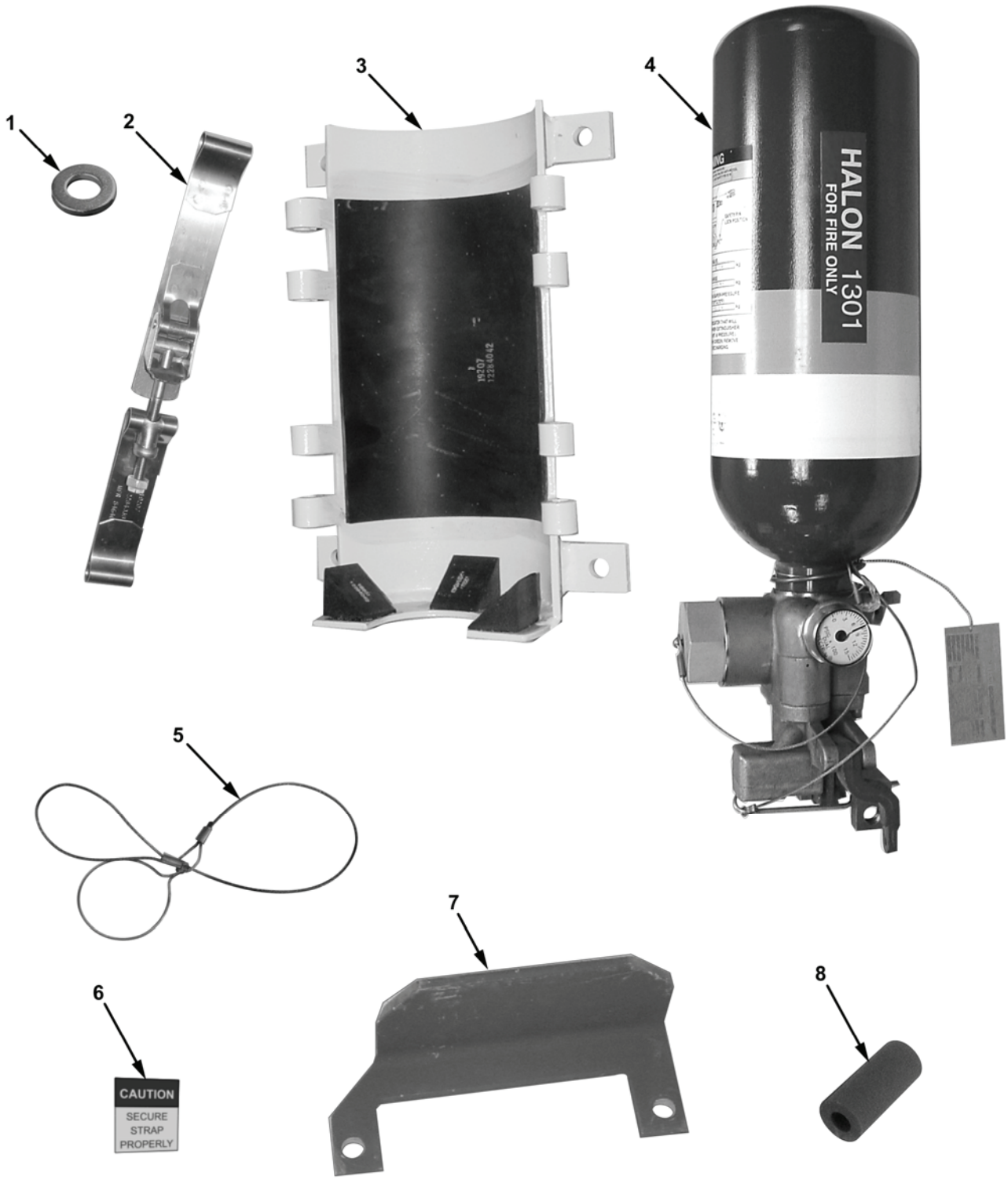


Figure 8-3-1

8. MWO KITS, PARTS, AND THEIR DISPOSITION (continued).

Figure 8-3-2

8. MWO KITS, PARTS, AND THEIR DISPOSITION (continued).

Table 8-4. Follow-On Hardware Kit Parts List – 57K3276

Nomenclature	National Stock Number	CAGEC	Part Number	QTY	Item No.
Strap, Tiedown, Electrical	5975-00-345-8055	19207	10905840	51	1
Screw, Cap, Hexagon Head	5305-00-071-2506	80204	B1821BH025C050N	8	2
Screw, Cap, Hexagon Head	5305-00-225-3844	80204	B1821BH025C056N	7	3
Screw, Cap, Hexagon Head	5305-00-068-7837	80204	B1821BH025C063N	56	4
Screw, Cap, Hexagon Head	5305-00-068-0508	80204	B1821BH025C075N	10	5
Screw, Cap, Hexagon Head	5306-00-226-4827	80204	B1821BH031C100N	2	6
Screw, Cap, Hexagon Head	5305-00-068-0511	80204	B1821BH038C125N	2	7
Screw, Cap, Hexagon Head	5305-00-269-3236	80204	B1821BH038F100N	4	8
Washer, Flat		D8286	DIN125A-M8-A2A	2	9
Washer, Lock		D8286	DIN127B-M8-A2A	2	10
Nut, Plain, Hexagon		D8286	DIN934-M8-8.8-A2A	2	11
Screw	5305-01-461-2713	I9008	ISO4017-M8X30-8.8-A2A	2	12
Washer, Flat	5310-00-582-5677	80205	MS15795-810	77	13
Washer, Flat	5310-00-625-5756	80205	MS15795-812	2	14
Screw	5305-00-983-6651	96906	MS16998-27	8	15
Pin, Cotter	5315-00-815-1405	80205	MS24665-151	3	16
Washer, Flat	5310-00-080-6004	96906	MS27183-14	2	17
Washer, Lock	5310-01-389-6972	80205	MS35333-167	2	18
Washer, Lock	5310-00-209-0786	96906	MS35335-33	2	19
Washer, Lock	5310-00-933-8120	80205	MS35338-138	8	20
Washer, Lock	5310-00-933-8121	80205	MS35338-139	85	21
Washer, Lock	5310-00-004-5033	80205	MS35338-46	6	22
Washer, Lock	5310-00-407-9566	96906	MS35338-64	2	23
Nut, Plain, Hexagon	5310-00-250-9477	80205	MS35649-2254	4	24
Screw, Machine	5305-00-071-1315	96906	MS51957-79	4	25
Washer, Flat	5310-00-993-8728	81343	MS9549-09	8	26
Washer, Flat	5310-00-680-7296	80205	NAS620-10L	3	27
Washer, Flat	5310-00-764-9564	80205	NAS620C416L	4	28
Pin, Straight	5315-00-108-9886	81755	P053-2-13	3	29

8. MWO KITS, PARTS, AND THEIR DISPOSITION (continued).

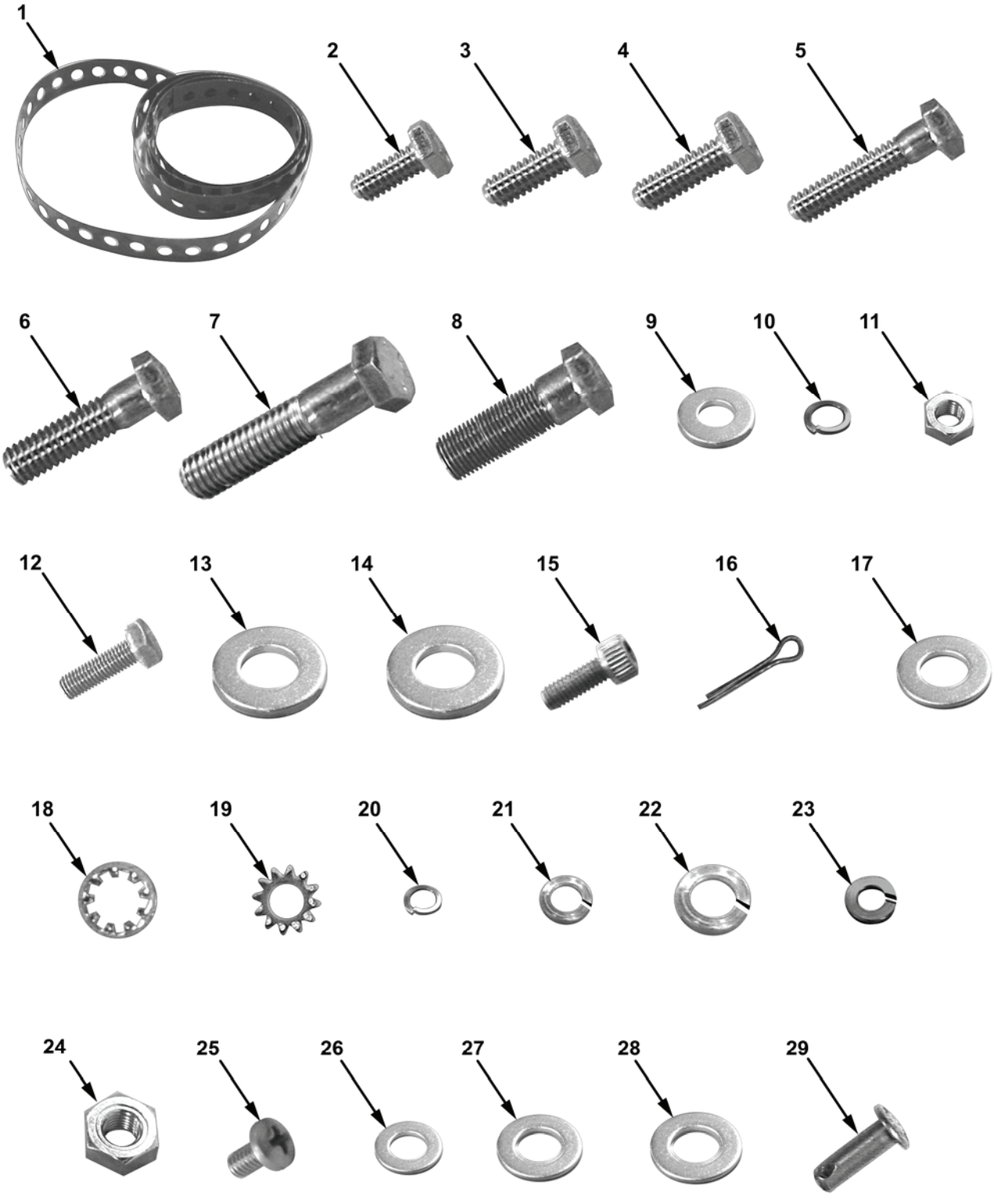


Figure 8-4-1

8. MWO KITS, PARTS, AND THEIR DISPOSITION (continued).

Table 8-5. Bulk and Expendable Materials List

Nomenclature	National Stock Number	Part Number	CAGEC	Unit of Issue QTY	QTY per MWO Application
Adhesive (RTV)	8040-00-148-7207	MIL-A-46106	81349	KT	1 KT
Carbide Cutter Lubricant	Commercial Equivalent	TP00234-0		GL	1 GL
Corrosive Preventive Compound	8030-00-244-1297 or Commercial Equivalent	MIL-C-16173	81349	CN	1 GL
Cutting Fluid	9150-01-373-5788 or Commercial Equivalent	TAPMAGIC EP-XTRA	17781	PT	1 CN
Dresser, Abrasive Wheel	5120-00-871-4554 or Commercial Equivalent	37C24-5VK	44197	EA	1 EA
Epoxy Coating Kit (White Paint)	8010-01-313-8701 or Commercial Equivalent	MIL-PRF-72750	81348	KT	1 GL
Polyurethane, Coating (Black)	8010-01-131-6254 or Commercial Equivalent	M46168-2-37030-1G1Q	81349	KT	1 KT
Polyurethane, Coating (Brown)	8010-01-160-6744 or Commercial Equivalent	M46168-2-30051-1Q1/2P	81349	KT	1 KT
Polyurethane, Coating (Green)	8010-01-160-6741 or Commercial Equivalent	M46168-2-34094-1Q1/2P	81349	KT	1 KT
Primer, Coating (Rust Inhibitor)	8010-00-687-8191 or Commercial Equivalent	TT-P-662	81348	QT	1 QT
Primer, Coating (Zinc Chromate)	8010-00-582-5318 or Commercial Equivalent	TT-P-1757	81348	GL	1 GL
Rag, Wiping White	7920-00-205-3571 or Commercial Equivalent	DDD-R-0030	81348	LB	50 LB
Sealing Compound	8030-00-081-2336 or Commercial Equivalent	087-31	05972	EA	50cc BT
Silicone Compound	6850-00-850-761602 or Commercial Equivalent	SAE-A58660	81343	TU	1 TU
Strap, Tiedown, Electrical (package of 100)	5975-00-172-3722 or Commercial Equivalent	TY5X	56501	EA	1 EA
Wheel Abrasive (46 Grit)	3460-00-060-7385 or Commercial Equivalent	32A46A8VBE	44197	EA	8 EA
Wheel, Abrasive (24 Gage)	5130-00-289-9586 or Commercial Equivalent	B74.2	80204	EA	8 EA

8. MWO KITS, PARTS, AND THEIR DISPOSITION (continued).

d. All parts not used during the application of this MWO shall be returned to stock for disposition in accordance with AR 735-5 (Policies and Procedures for Property Accountability) and AR 710-2 (Supply Policy Below the Wholesale Level).

Table 8-6. AFES MWO Disposition Parts List

Nomenclature	National Stock Number	Part Number	CAGEC	QTY
Screw, Machine*	5305-00-984-6208	10-24X3-8LGBH	85993	87
Strap, Tiedown, Electrical	5975-00-345-8055	10905840	19207	51
Washer, Flat (S/N 1-344)	5310-00-865-9513	10910174-1	19200	16
Washer, Flat	5310-00-877-5972	10910174-3	19200	2
Mount, Resilient	5342-00-914-1000	10922334	19207	4
Retainer, Assembly	2930-00-725-5272	11635669	19207	1
Lead, Electrical Ground	6150-01-295-7321	12268174-1	19207	1
Sensor, Temperature	5905-01-210-0301	12314282-1	19207	4
Amplifier, Electronic (S/N 1-344)	5996-01-323-0166	12314288-1	19207	1
Extinguisher, Fire (10 Lb PAC SCI S/N 1-344)	4210-01-208-6970	12314494-3	19207	4
Extinguisher, Fire (10 Lb KIDDE S/N 1-344)	4210-01-451-4047	12314494-6	19207	4
Basket, Stowage (S/N 1-344)	25920-01-145-3093	12329788	19207	1
Semiconductor Device	5961-01-270-7604	12350834-2	19207	1
Wiring Harness, Branched	5995-01-228-8669	12351461	19207	1
Cable Assembly, Special (S/N 1-344)	6150-01-210-2169	12351498	19207	1
Cable Assembly, Power (S/N 1-344)	6150-01-210-2170	12351499	19207	1
Cable Assembly, Power (S/N 1-344)	6150-01-210-2172	12351501	19207	1
Indicator Assembly	6220-01-209-5996	12351502	19207	1
Cover, Access	5340-01-332-7449	12351626	19207	1
Resistor Assembly*	5905-01-209-0472	12351690-1	19207	2
Resistor, Thermal*	5905-01-208-3393	12351690-2	19207	3
Elbow, Tube*	4730-01-221-2061	12351692	19207	2
Elbow, Electric Connector*	5975-01-210-7817	12351693	19207	2
Connector Body, Recessed*	5935-01-209-6013	12351694	19207	1
Wiring Harness, Branched	5995-01-222-8005	12351754	19207	1

* The fire wire and attaching hardware will be removed and discarded during next scheduled semi-annual maintenance of the powerplant.

8. MWO KITS, PARTS, AND THEIR DISPOSITION (continued).

Table 8-6. AFES MWO Disposition Parts List (continued)

Nomenclature	National Stock Number	Part Number	CAGEC	QTY
Bracket, Mounting (Crew T/A)		12351773	19207	1
Bracket, Mounting (SCEA)		12351774	19207	1
Panel, Test, Electric	6625-01-270-3663	12352252-2	19207	1
Wiring Harness (S/N 345 and Above)	6150-01-270-3650	12352315	19207	1
Cable Assembly, Special (S/N 345 and Above)	6150-01-270-3695	12352316	19207	1
Cable Assembly, Special (S/N 345 and Above)	6150-01-269-6073	12352353	19207	1
Wiring Harness	6150-01-273-8030	12352354	19207	1
Cover, Access	5340-01-330-2426	12370573	19207	1
Marker, Identification	7690-01-329-4634	12376397	19207	1
Wiring Harness, Branched	6150-01-417-3404	12376592	19207	1
Sensing Element, Fire	6350-01-414-9122	12438874	19207	1
Plate, Mounting	5340-01-399-3179	12438875	19207	1
Cover, Access	5340-01-393-9136	12438883	19207	1
Test-Alarm Panel, Cr (S/N 1-344)	4210-01-210-0205	200262-2	26995	1
Amplifier, Electronic (S/N 345 and Above)	5996-01-270-3679	200299-1	26995	1
Control, Alarm (S/N 345 and Above)	6350-01-273-8381	200300-2	12101	1
Bushing, Nonmetallic*	5365-99-881-6505	51473-101	K1536	87
Gasket	5330-00-641-4336	A52481-8	58536	1
Screw, Cap, Hexagon Head	5305-00-071-2508	B1821BH025C038N	80204	2
Screw, Cap, Hexagon Head	5305-00-071-2506	B1821BH025C050N	80204	8
Screw, Cap, Hexagon Head	5305-00-225-3844	B1821BH025C056N	80204	11
Screw, Cap, Hexagon Head	5305-00-068-7837	B1821BH025C063N	80204	61
Screw, Cap, Hexagon Head	5305-00-068-0508	B1821BH025C075N	80204	12
Screw, Cap, Hexagon Head (S/N 1-344)	5305-00-068-0508	B1821BH025C075N	80204	16
Screw, Cap, Hexagon Head	5305-00-225-3843	B1821BH025C100N	80204	10
Screw, Cap, Hexagon Head	5306-00-226-4827	B1821BH031C100N	80204	2
Screw, Cap, Hexagon Head	5305-00-543-4372	B1821BH038C075N	80204	2
Screw, Cap, Hexagon Head	5305-00-068-0510	B1821BH038C100N	80204	2
Screw, Cap, Hexagon Head (S/N 1-344)	5305-00-269-3236	B1821BH038F100N	80204	4
Washer, Flat		DIN125A-M8-A2A		2
Washer, Lock		DIN127B-M8-A2A		2
Nut, Plain, Hexagon		DIN934-M8-8.8-A2A		2

* The fire wire and attaching hardware will be removed and discarded during next scheduled semi-annual maintenance of the powerplant.

8. MWO KITS, PARTS, AND THEIR DISPOSITION (continued).

Table 8-6. AFES MWO Disposition Parts List (continued)

Nomenclature	National Stock Number	Part Number	CAGEC	QTY
Screw, Cap, Hexagon		ISO4017-M8X30-8.8-A2A		2
Spring, Helical, Compression	5360-01-282-8309	LC-080L-11-S	84830	1
Washer, Flat	5310-00-880-5978	MS15795-807	80205	4
Washer, Flat	5310-00-582-5677	MS15795-810	80205	13
Washer, Flat	5310-00-625-5756	MS15795-812	80205	2
Washer, Flat	5310-01-304-8733	MS15795-852	80205	4
Screw, Cap, Socket Head	5305-00-978-9354	MS16997-44	96906	8
Screw, Cap, Socket Head	5305-00-983-6651	MS16998-27	96906	8
Clamp, Loop*	5340-00-057-2890	MS21333-3	96906	87
Relay, Electromagnet	5905-00-543-8127	MS24143-D2	96906	2
Pin, Cotter	5315-00-815-1405	MS24665-151	80205	3
Washer, Flat	5310-00-809-4058	MS27183-10	96906	77
Washer, Flat	5310-01-230-7127	MS27183-5	96906	16
Washer, Flat	5310-01-274-3255	MS27183-52	96906	13
Washer, Flat	5310-01-280-5796	MS27183-57	96906	2
Terminal Cover, Relay	5945-00-435-3677	MS27243-1	96909	2
Screw, Machine	5305-00-889-3000	MS35206-230	80205	8
Washer, Lock	5310-00-939-1060	MS35333-81	96906	2
Washer, Lock	5310-00-821-6269	MS35334-19	96906	11
Washer, Lock	5310-00-209-0786	MS35335-33	96906	6
Washer, Lock	5310-00-933-8119	MS35338-137	80205	4
Washer, Lock	5310-00-933-8120	MS35338-138	80205	8
Washer, Lock	5310-00-933-8121	MS35338-139	80205	21
Washer, Lock (S/N 1-344)	5310-00-933-8121	MS35338-139	80205	16
Washer, Lock	5310-00-045-4007	MS35338-41	80205	8
Washer, Lock	5310-00-045-3299	MS35338-42	80205	4
Washer, Lock	5310-00-045-3296	MS35338-43	80205	14
Washer, Lock	5310-00-582-5965	MS35338-44	80205	25
Washer, Lock	5310-00-004-5033	MS35338-46	80205	2
Washer, Lock (S/N 1-344)	5310-00-004-5033	MS35338-46	80205	4
Washer, Lock	5310-00-274-8715	MS35338-63	96906	61
Washer, Lock	5310-00-011-6120	MS35338-64	96906	2
Washer, Lock	5310-00-011-5093	MS35338-65	96906	2
Nut, Plain, Hexagon	5310-00-934-9758	MS35649-202	80205	1
Nut, Plain, Hexagon	5310-00-250-9477	MS35649-2254	80205	4
Nut, Plain, Hexagon	5310-00-934-9747	MS35649-262	80205	8

* The fire wire and attaching hardware will be removed and discarded during next scheduled semi-annual maintenance of the powerplant.

8. MWO KITS, PARTS, AND THEIR DISPOSITION (continued).

Table 8-6. AFES MWO Disposition Parts List (continued)

Nomenclature	National Stock Number	Part Number	CAGEC	QTY
Nut, Plain, Hexagon	5310-00-934-9759	MS35649-284	80205	4
Nut, Plain, Hexagon	5310-01-159-8559	MS35691-406	96906	8
Set Screw	5305-00-543-2671	MS51029-51	80205	5
Screw, Machine	5305-00-054-6667	MS51957-42	96906	4
Screw, Machine	5305-00-054-6671	MS51957-46	96906	4
Screw, Machine	5305-00-050-9232	MS51957-66	96906	1
Screw, Machine	5305-00-071-1315	MS51957-79	96906	8
Nut, Plain, Hexagon	5310-00-761-6882	MS51967-2	96906	10
Washer, Flat	5310-00-993-8728	MS9549-09	81343	8
Washer, Flat	5310-00-680-7296	NAS620-10L	80205	3
Washer, Flat	5310-00-764-9564	NAS620C416L	80205	4
Pin, Straight, Headed	5315-00-108-9556	P053-2-13	81755	3
Kupplungstueck*	4210-12-146-1872	TK4210-008	D9476	2

* The fire wire and attaching hardware will be removed and discarded during next scheduled semi-annual maintenance of the powerplant.

e. There are no mandatory replacement parts applicable to this MWO.

9. SPECIAL TOOLS; TOOL KITS; JIGS; TEMPLATES; TEST, MEASUREMENT, AND DIAGNOSTIC EQUIPMENT (TMDE); AND FIXTURES REQUIRED. At the completion of MWO application, turn in special tools in accordance with AR 710-2 (Supply Policy Below the Wholesale Level), AR 735-5 (Policies and Procedures for Property Accountability), and local policy.

a. Tools needed to accomplish this MWO are contained in the following tables:

Table 9-1. Hand Tools

Nomenclature	National Stock Number	CAGEC	Part Number	QTY
Brush, Paint	8020-00-245-4515 or Commercial Equivalent	80244	PD8020-00-245-4517	4
Brush, Paint	8020-00-597-5301 or Commercial Equivalent	80244	PD8020-00-559-0389	1
Cable Assembly, Power, Electrical, (50-feet)	6150-00-682-3460 or Commercial Equivalent	19207	11647741	4
Crimping Tool	5120-00-224-7592 or Commercial Equivalent	81348	GGG-S-735/8	1
Cutter, Cable, Hand Operated	5110-00-541-6730 or Commercial Equivalent	65196	C-12	1
Cutter, Carbide Tip, 20 mm (0.787 inches)	Jet Broach or Commercial Equivalent		TK00384-0	1
Cutter, Pilot Pin 2.0 inches	Jet Broach or Commercial Equivalent		UEA0850-2	1
Drill, Twist 0.332-Q size (pkg-6)	5133-00-262-2165 or Commercial Equivalent	13130	01247	1
Drill, Twist 0.397-X size	5133-00-202-2172 or Commercial Equivalent	05237	01277	1
Drill, Twist 0.413-Z size (pkg-12)	5133-00-292-2174 or Commercial Equivalent	13130	01282	1
Drill Set, Twist (0.063 through 0-50-inches)	5133-00-293-0983 or Commercial Equivalent	19203	800434	1
Drill Set, Twist (0.56 through 1.0-inches)	5133-01-196-4553 or Commercial Equivalent	52203	7710	1
Drill, Electric, Portable Angle (1/2-inch drive)	5130-01-180-7933 or Commercial Equivalent	60933	7556	1
Drill, Electric, Portable Straight (1/2-inch drive)	5130-00-293-1849 or Commercial Equivalent	55719	PD 5130-00-293-1849	1
Drill, Electric Portable (3/4-inch drive)	5130-01-087-6829 or Commercial Equivalent	80244	PD5130-01-087-6829	1
Faceshield, Industrial	4240-00-202-9473 or Commercial Equivalent	81348	L-F-36	2
Gloves, Men's and Women's	8415-00-634-4658 or Commercial Equivalent	90142	37G2940	2
Gloves, Rubber Industrial	8415-00-266-8675or Commercial Equivalent	81349	MIL-DTL-32066	2
Goggles, Industrial	4240-00-816-3819 or Commercial Equivalent	74936	WA60-5H0746-0315	2
Grinder, Portable (4 1/2-inch diameter)	Dewalt or Commercial Equivalent	72617	DW818	1

9. SPECIAL TOOLS; TOOL KITS; JIGS; TEMPLATES; TEST, MEASUREMENT, AND DIAGNOSTIC EQUIPMENT (TMDE); AND FIXTURES REQUIRED (continued).

Table 9-1. Hand Tools (continued)

Nomenclature	National Stock Number	CAGEC	Part Number	QTY
Helmet, Safety	8415-00-935-1907 or Commercial Equivalent	88001	S2010A	1
Lamp, Incandescent	6240-00-824-4676 or Commercial Equivalent	08805	100A/RS/TF-115-125V	8
Light, Extension	6230-00-729-9259 or Commercial Equivalent	58536	A-A-60006-1-1-025	2
Puller, Battery Terminal	5120-00-944-4268 or Commercial Equivalent	36540	54150	1
Punch, Aligning (3/8-inch diameter, 8-inches long)	5120-00-293-0448 or Commercial Equivalent	05047	B107.48	2
Respirator, Air	4240-00-022-2524 or Commercial Equivalent	81348	GGG-M-125/6	2
Sander, Disc Electric	5130-00-596-9728 or Commercial Equivalent	07429	6112-90	2
Straight Edge	6675-00-224-8807 or Commercial Equivalent	74067	564000-36	1
Tool Kit, General Mechanics	5180-00-177-7033 or Commercial Equivalent	50980	SC5180-90-CL-N26	1
Variable Speed Magnetic Base, Drill	Milwaukee or Commercial Equivalent	40898	CAT 4202 40817, Model 8373877778 42101	1

Table 9-2. Special Fixtures/Manufacturing

Nomenclature	National Stock Number	CAGEC	Part Number	QTY
Drilling Template, Right-Rear Fire Box (S/N 1-344)		19207	12498419	1
Drilling Template, CEP Bracket Assembly		19207	12498422	1
Drilling Template, Rear Engine Sensor Bracket		19207	12498421	1
Drilling Template, Shock Mount, Relay		19207	12498418	1
Nut, Plain, Hexagon	5310-00-989-5945	80205	MS35691-35	1
Screw, Hexagon, Head	5305-00-068-0508	80205	B1821BH025C075N	2
Screw, Cap, Hexagon	5305-00-071-2075	80204	B1821BH050C300N	1
Washer, Flat	5310-01-343-3590	80205	MS15795-855	6

Table 9-3. TMDE

Nomenclature	National Stock Number	CAGEC	Part Number	QTY
Multimeter, Digital	6625-01-139-2512 or Commercial Equivalent	T0037	Multimeter, Digital	1
Test Set, Fire Control System		05BU0	421869	1

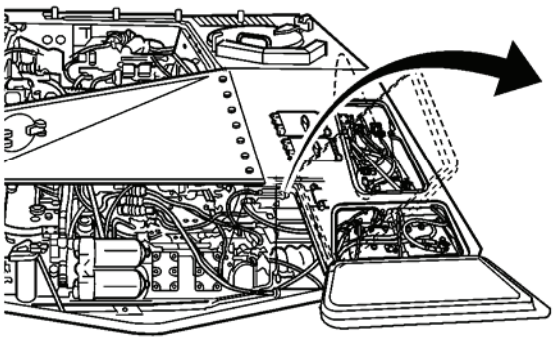
10. MODIFICATION PROCEDURES.

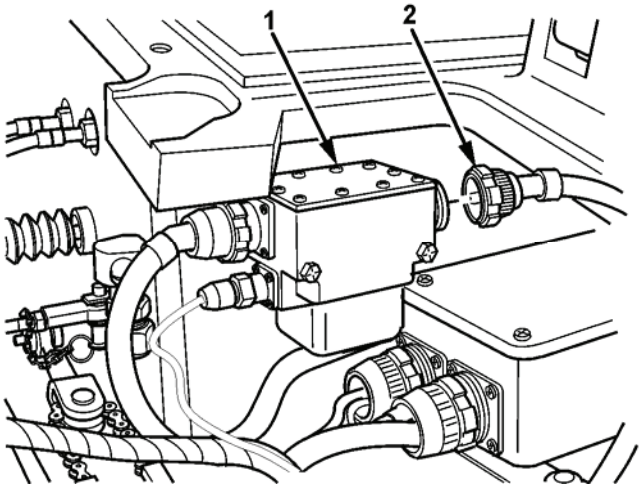
a. Equipment Conditions.

1. Park vehicle on a level surface (TM 9-2350-372-10).
2. Set parking brake (TM 9-2350-372-10).
3. Deactivate AFES System (TM 9-2350-372-20).
4. Disconnect battery ground leads (TM 9-2350-372-10).
5. Open and secure transmission and engine grilles (TM 9-2350-372-10).
6. Open and secure rear doors (TM 9-2350-372-10).
7. Deploy rear platform and step (TM 9-2350-372-10).
8. Remove ammunition racks (TM 9-2350-372-20).

b. Disassembly.

1. Close top middle door. Open and secure air intake grille (TM 9-2350-372-10).
2. Disconnect wiring harness (2) from master relay (1) to allow access to engine compartment bulkhead.


MWOLOC-120

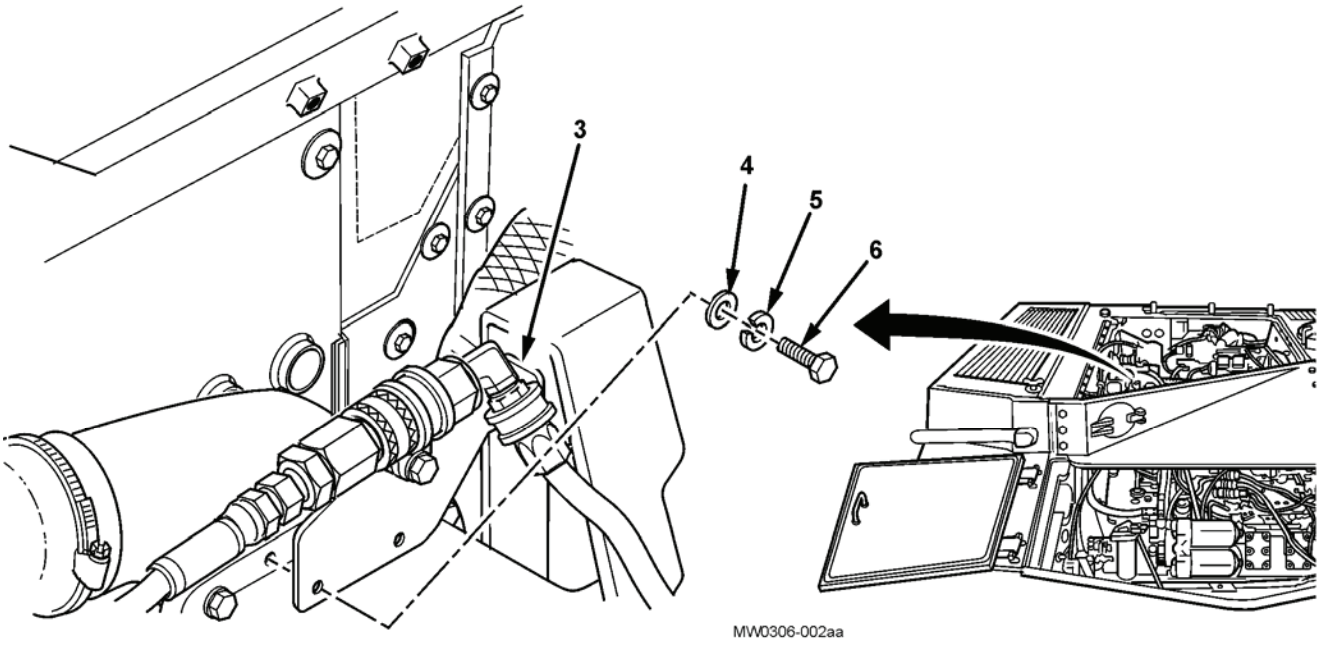


MW0608-021aa

10. MODIFICATION PROCEDURES (continued).

b. Disassembly (continued).

3. Remove two screws (6), two lockwashers (5), two flat washers (4), and engine fuel line bracket (3) from engine to allow access to rear of engine compartment. Set hardware aside for disposition.



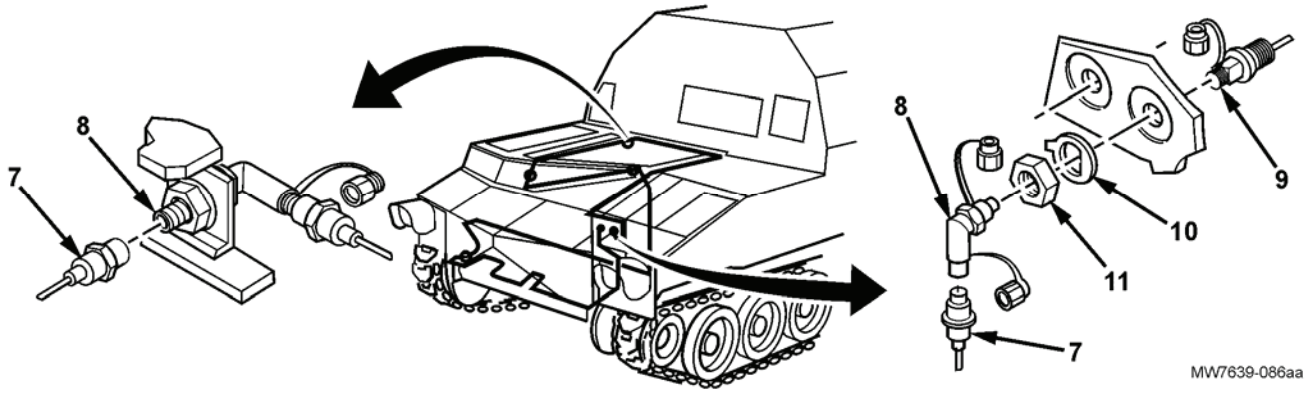
NOTE

The engine AFES thermal fire wire is only disconnected from the engine compartment bulkhead at this time. Complete the removal of the fire wire during the next scheduled semi-annual maintenance of the powerplant.

4. Disconnect thermal resistor (7) from coupling (8) on front exhaust grill.

5. Disconnect two thermal resistors (7) and couplings (8) from receptacles (9) on engine compartment bulkhead.

6. Remove two nuts (11), key washers (10), and receptacles (9) from engine compartment bulkhead. Set nuts and key washers aside for disposition.

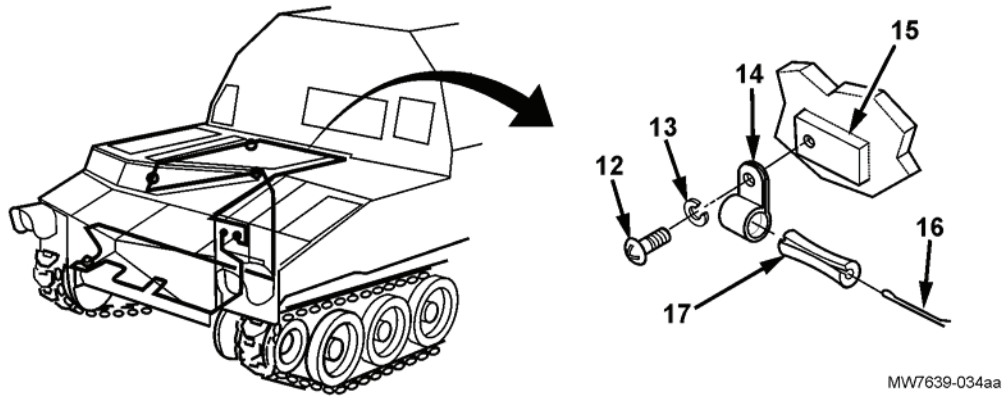


10. MODIFICATION PROCEDURES (continued).

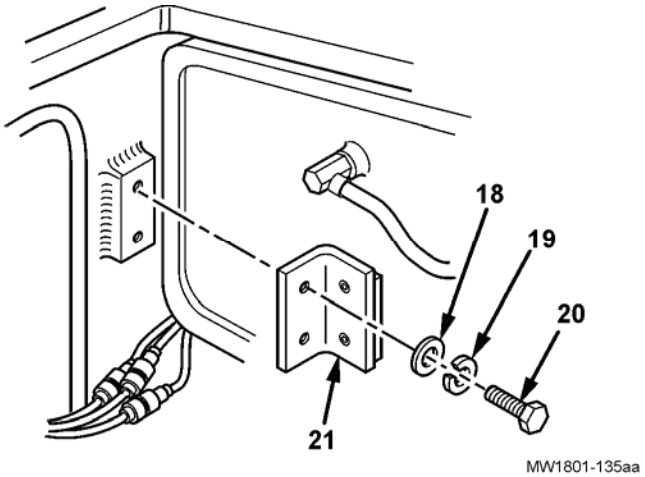
b. Disassembly (continued).

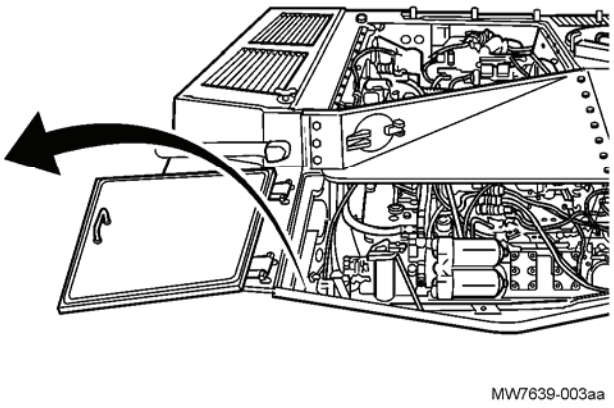
7. Remove five machine screws (12), five lockwashers, (13), five clamps (14), fire wire (16), and five rubber bushings (17) from blocks (15) located at right-rear of engine compartment bulkhead. Set all parts aside for disposition.

8. Take all loose fire wire (16), coil together, and stow out of way of moving parts.



9. Remove two screws (20), two lockwashers (19), two washers (18) and retainer assembly (21) from bulkhead. Set aside all parts for disposition.





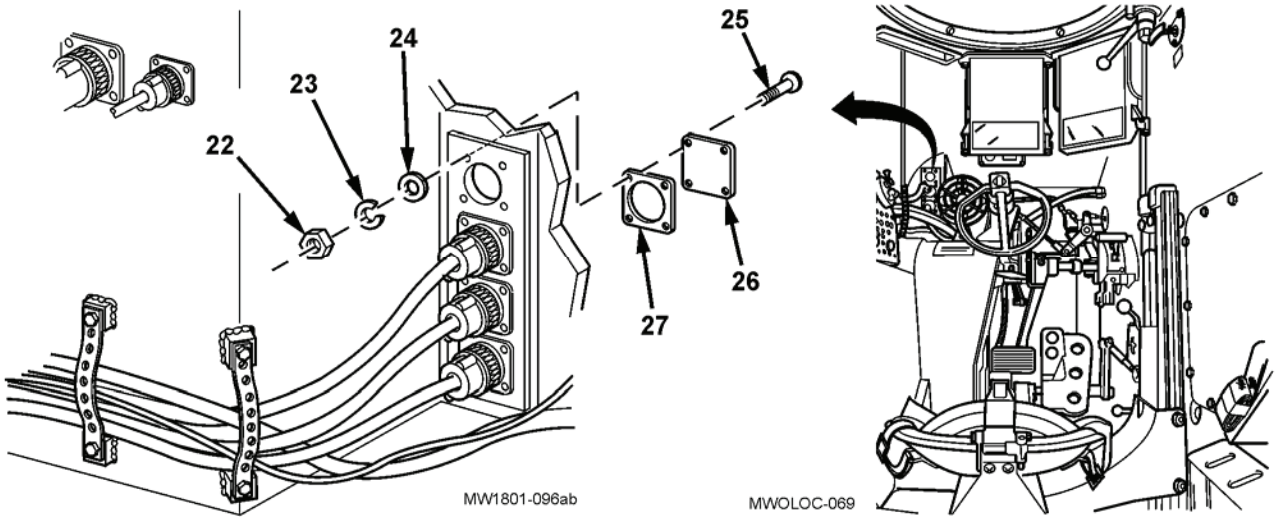
10. MODIFICATION PROCEDURES (continued).

b. Disassembly (continued).

NOTE

Assistance is needed for Step 10.

10. Remove four nuts (22), four lockwashers (23), four flat washers (24), four screws (25), bulkhead cover (26), and gasket (27) from battery compartment bulkhead. Set all parts aside for disposition.



11. Remove engine AFES T/A panel 12352252-2 and mounting bracket 12351598 from vehicle (TM 9-2350-372-20). Set mounting hardware aside for disposition.

12. Remove engine AFES T/A panel 12352252-2 and mounts from mounting bracket 12351598 (TM 9-2350-372-20). Retain mounting bracket for reinstallation. Set T/A panel, ground strap, mounts, and hardware aside for disposition.

13. Remove engine AFES electrical relays (TM 9-2350-372-20). Retain relay 8762321 for reinstallation. Set engine AFES electrical relays, relay terminal cover, and mounting hardware aside for disposition.

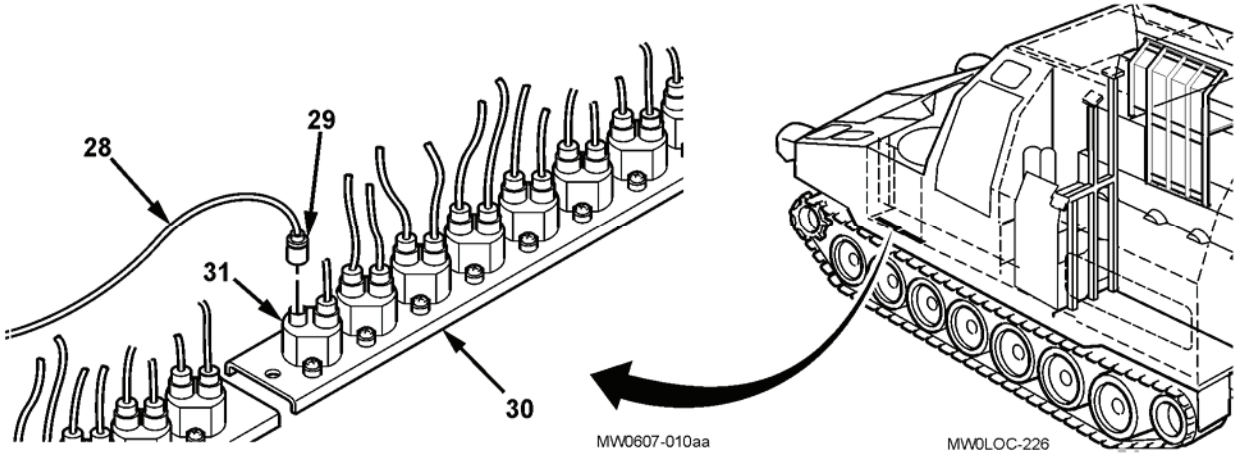
14. Remove M45 periscope stowage box 10913358 (TM 9-2350-372-20). Retain stowage box for reinstallation. Set mounting hardware aside for disposition.

15. Remove APU control box 302-9003 (TM 9-2350-372-20). Set control box aside for reinstallation. Set mounting hardware aside for disposition.

10. MODIFICATION PROCEDURES (continued).

b. Disassembly (continued).

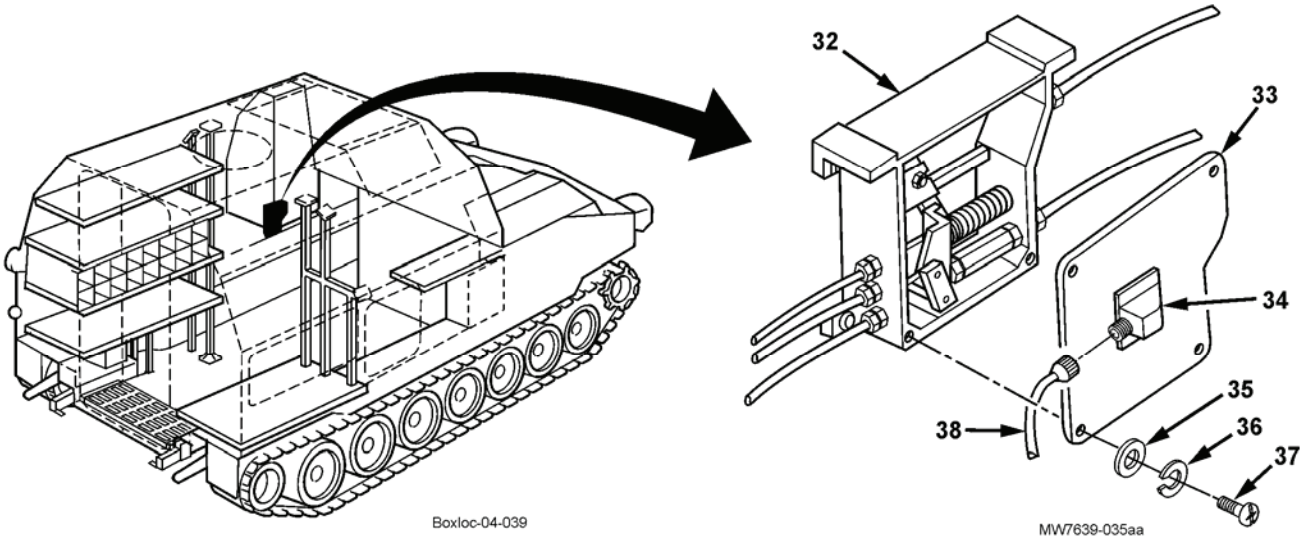
16. Disconnect lead P3 (29) of APU control box wiring harness 12496331 (28) from circuit breaker No. 8 (31) on circuit breaker board (30), as shown.



17. Remove wiring harness 12351754 from vehicle (TM 9-2350-372-20).

18. Disconnect electrical connector (38) from sensor (34) on actuator assembly housing (32).

19. Remove four screws (37), four lockwashers (36), four washers (35) and actuator cover (33) from actuator assembly housing (32). Set actuator cover and hardware aside for disposition.



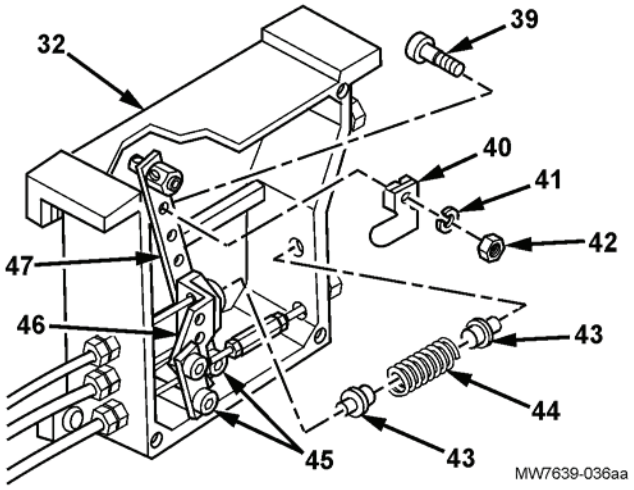
10. MODIFICATION PROCEDURES (continued).

b. Disassembly (continued).

20. Compress and remove spring (44) and two shoulder pins (43) from actuator assembly housing (32) and cable bracket (46). Retain shoulder pins for installation. Set spring aside for disposition.

21. Remove nut (42), lockwasher (41), and sensor plate (40) from connecting link (47). Set sensor plate and hardware aside for disposition.

22. Loosen two hex head screws (45) to loosen cable bracket (46) and allow for the removal of screw (39) from connecting link (47). Tighten hex head screws (45). Set screw aside for disposition.



23. Disconnect AFES actuator pull cables from crew fire extinguisher bottles No. 3 and 4, and engine fire extinguisher bottle No. 2. Set hardware aside for disposition.

24. Remove crew fire extinguisher bottles (S/N 1-344). Set fire extinguisher bottles aside for disposition.

25. Remove hand-held fire extinguisher bottles from brackets (TM 9-2350-372-20). Retain fire extinguishers for reinstallation. Set hardware aside for disposition.

26. Remove crew fire extinguisher bottles No. 2 and 3 (S/N 345 and above). Set fire extinguisher bottles aside for reinstallation.

27. Remove wiring harness guard 12333557 (TM 9-2350-372-20). Set wiring harness guide aside for reinstallation. Set hardware aside for disposition.

28. Remove APU junction box 302-9004 and terminal cover 903181-1 (TM 9-2350-372-20). Set junction box aside for reinstallation. Set junction box cover aside for rework. Set hardware aside for disposition.

29. Remove left-front dome light MS51073-1 (TM 9-2350-372-20). Set dome light aside for reinstallation. Set hardware aside for disposition.

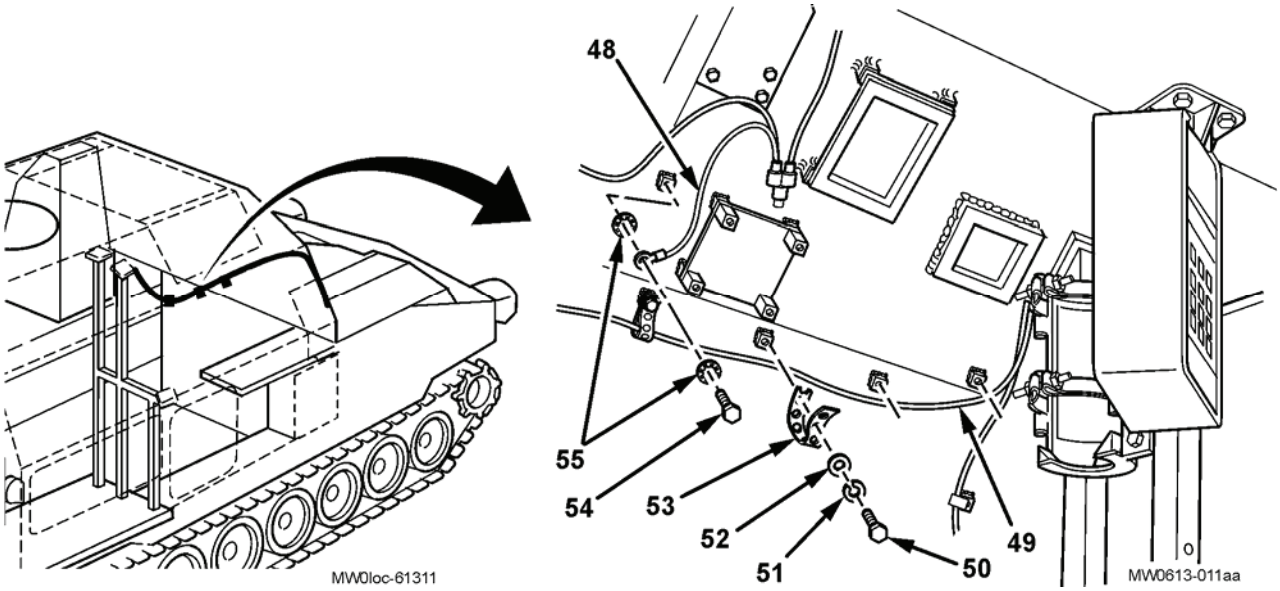
30. Remove right-front dome light MS51073-1 (TM 9-2350-372-20). Set dome light aside for reinstallation. Set hardware aside for disposition.

10. MODIFICATION PROCEDURES (continued).

b. Disassembly (continued).

31. Remove screw (54), ground lead (48), and two lockwashers (55) from bulkhead. Set the hardware aside for disposition.

32. Remove three screws (50), three lockwashers (51), three flat washers (52), three tie straps (53), and wiring harness 12330252-2 (49) from bulkhead. Tie wiring harness away in a secured position. Set tie straps and hardware aside for disposition.



33. Remove wiring harness 12351461 (TM 9-2350-372-20). Set wiring harness and mounting hardware aside for disposition.

34. Remove linear actuator harness 12376592 (TM 9-2350-372-20). Set harness and mounting hardware aside for disposition.

35. Remove personnel heater vent ducts (TM 9-2350-372-20). Retain personnel heater vent ducts for installation. Set mounting hardware aside for disposition.

36. Remove Optical Fire Sensing Assemblies (OFSA) 12314282-1 (TM 9-2350-372-20). Set OFSAs and mounting hardware aside for disposition.

37. Remove crew T/A panels 200300-2 and 220262-2 (TM 9-2350-372-20). Set crew T/A panels and mounting hardware aside for disposition.

38. Remove AFES Standard Control Electronic Amplifier (SCEA) 12314288-1 (S/N 1-344) or 200299-1 (S/N 345 and above) (TM 9-2350-372-20). Set AFES SCEA and mounting hardware aside for disposition.

39. Remove AFES Remote Status Indicator (RSI) 12351502 (TM 9-2350-372-20). Set AFES RSI and mounting hardware aside for disposition.

40. Remove SCEA cable assembly 12351498 (S/N 1-344) (TM 9-2350-372-20). Set SCEA cable assembly and mounting hardware aside for disposition.

10. MODIFICATION PROCEDURES (continued).

b. Disassembly (continued).

41. Remove SCEA cable assembly 12352316 (S/N 345 and above) (TM 9-2350-372-20). Set SCEA cable assembly and mounting hardware aside for disposition.

42. Remove OFSA cable assembly 12351499 (S/N 1-344) (TM 9-2350-372-20). Set OFSA cable assembly and mounting hardware aside for disposition.

43. Remove OFSA cable assembly 12352353 (S/N 345 and above) (TM 9-2350-372-20). Set OFSA cable assembly and mounting hardware aside for disposition.

44. Remove engine AFES wiring harness 12352354 (TM 9-2350-372-20). Set wiring harness and mounting hardware aside for disposition.

45. Remove crew AFES cable assembly 12351501 (S/N 1-344) (TM 9-2350-372-20). Set crew AFES cable assembly and mounting hardware aside for disposition.

46. Remove crew AFES cable assembly 12352315 (S/N 345 and above) (TM 9-2350-372-20). Set crew AFES cable assembly and mounting hardware aside for disposition.

NOTE

Perform Steps 47 and 48 on vehicles S/N 1-344 only.

NOTE

Assistant will help with Step 47.

47. Remove right-rear stowage basket 12329788 (S/N 1-344) (TM 9-2350-372-20). Retain four hexagon head capscrews B1821BH025C075N, lockwashers MS35338-139, and flat washers 10910174-1 to use when installing the rear AFES box template 12498419. Set stowage basket and remaining mounting hardware aside for disposition.

48. Remove right-rear track splash guard BML60102 and strap BML60101 (S/N 1-344) (TM 9-2350-372-20). Retain splash guard and strap for reinstallation. Set hardware aside for disposition.

10. MODIFICATION PROCEDURES (continued).

c. Inspection.

1. Inspect all components, removed and retained for reinstallation, for evidence of bends, breaks, cracks, fractures, warpage, and deformation. Notify unit Point of Contact (POC) for damaged items.

2. Inspect all threaded inserts, hose connections, and fittings for damage and security. Notify unit POC for damaged items.

3. Check for any evidence of corrosion and deterioration on surfaces. Notify unit POC for damaged items.

10. MODIFICATION PROCEDURES (continued).

d. Rework.

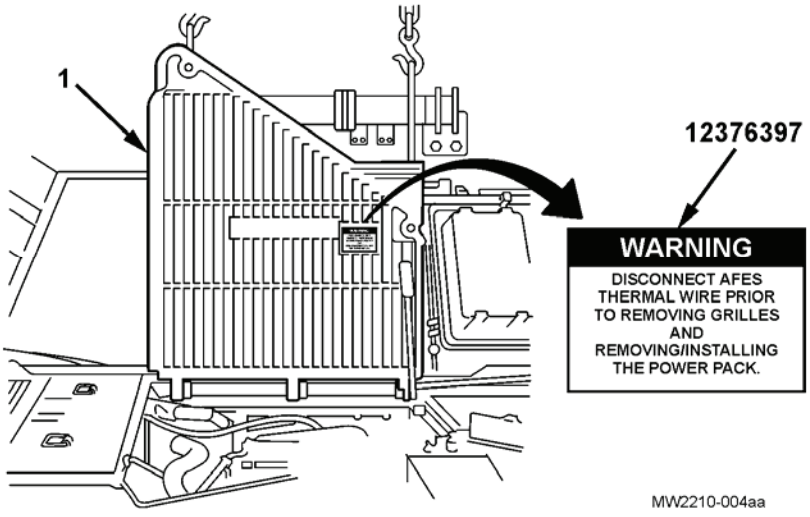
WARNING

Eye and hearing protection must be worn at all times when using power tools for grinding, cutting, sawing, and drilling. Failure to do so may result in injury to personnel.

Chemical Agent-Resistant Coating (CARC) paint contains isocyanyte (HDI), which is highly irritating to skin and respiratory system. High concentrations of HDI can produce symptoms of itching and reddening of skin, a burning sensation in throat and nose, and watering of the eyes. In extreme concentrations, HDI can cause cough, shortness of breath, pain during respiration, increased sputum production, and chest tightness. The following precautions must be taken whenever using CARC paint:

- **NEVER cut CARC-coated materials without high-efficiency, air-purifying respirators in use.**
- **DO NOT grind or sand painted equipment without high-efficiency, air-purifying respirators in use.**
- **BE AWARE of CARC paint exposure symptoms; symptoms can occur a few days after initial exposure. Seek medical help immediately if symptoms are detected.**

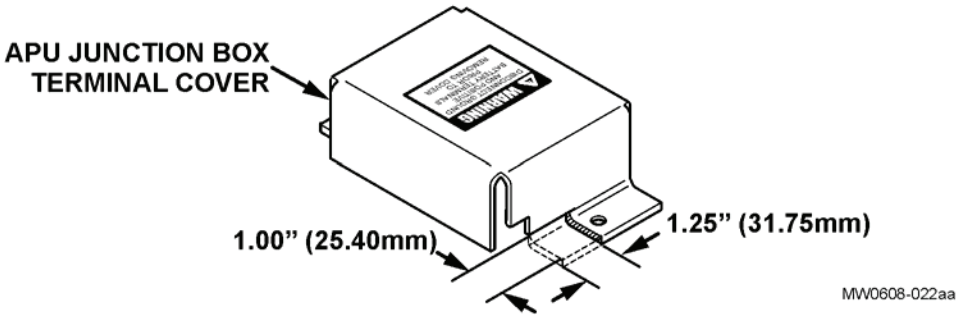
1. Remove identification marker 12376397 from air intake grille (1).



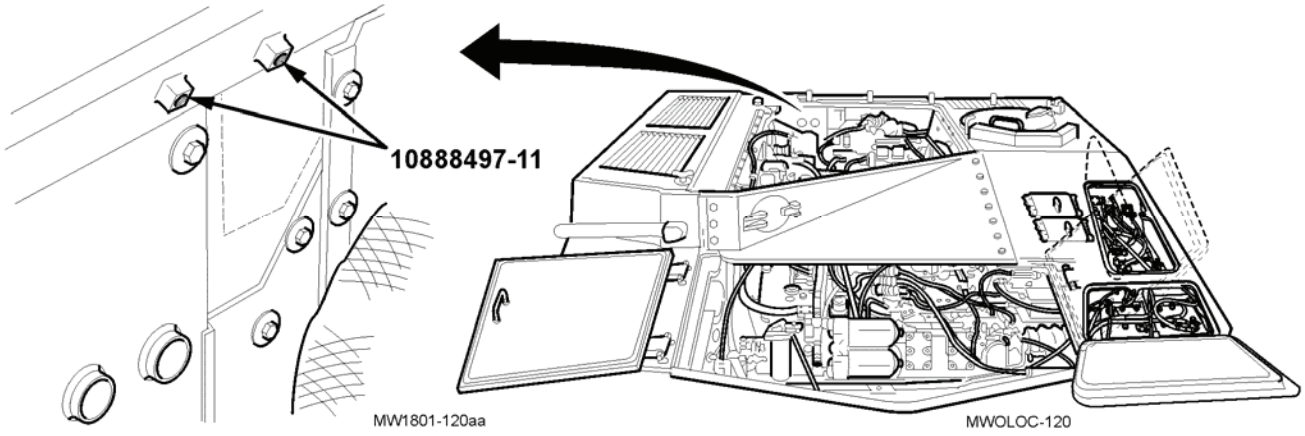
10. MODIFICATION PROCEDURES (continued).

d. Rework (continued).

2. Modify APU junction box terminal cover, as shown. Remove all sharp edges and burrs. Finish all exposed metal areas with the appropriate primer and paint.



3. Remove two blocks 10888497-11 from rear engine compartment bulkhead, as shown. Grind smooth to surface of bulkhead.

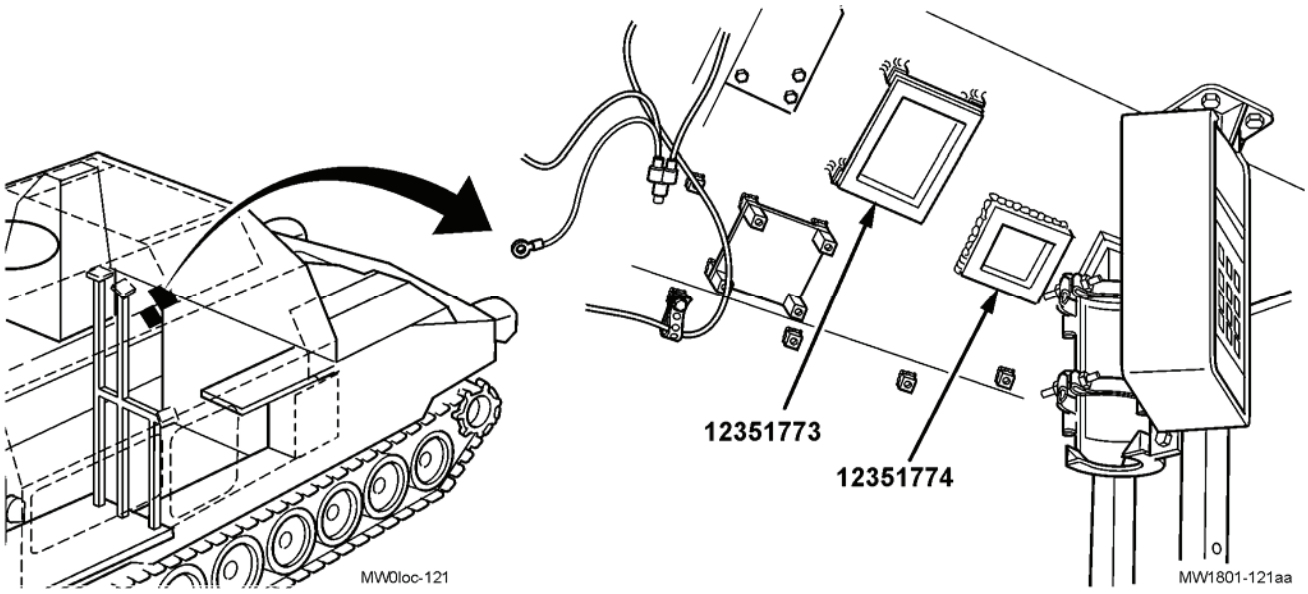


10. MODIFICATION PROCEDURES (continued).

d. Rework (continued).

4. Remove crew T/A panel mounting plate 12351773 from right side of crew compartment bulkhead, as shown. Grind smooth to surface of bulkhead.

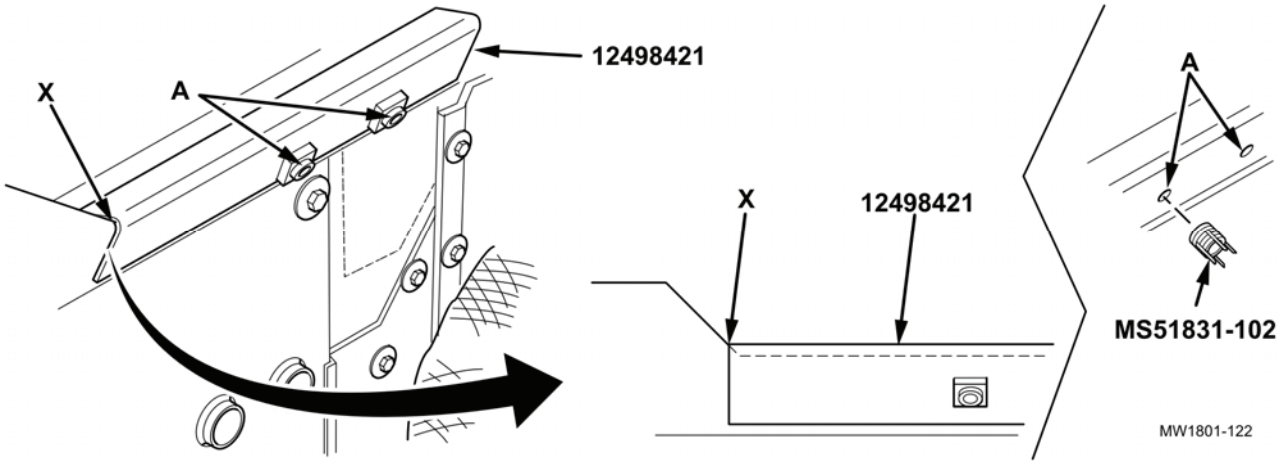
5. Remove SCEA mounting plate 12351774 from right side of crew compartment bulkhead, as shown. Grind smooth to surface of bulkhead.



6. Install rear engine sensor bracket drilling template 12498421 (Table 9-2) on rear engine compartment bulkhead. Position edge of template against surface X of vehicle (where bulkhead angles upward) and secure with two clamps.

7. Using an X-size drill bit, drill two hole positions, marked A, on rear engine compartment bulkhead, as shown.

8. Install two threaded-screw inserts MS51831-102 (Kit 57K3274) on rear engine compartment bulkhead in positions marked A, in accordance with MS51835 (refer to TM 9-2350-372-34).



10. MODIFICATION PROCEDURES (continued).

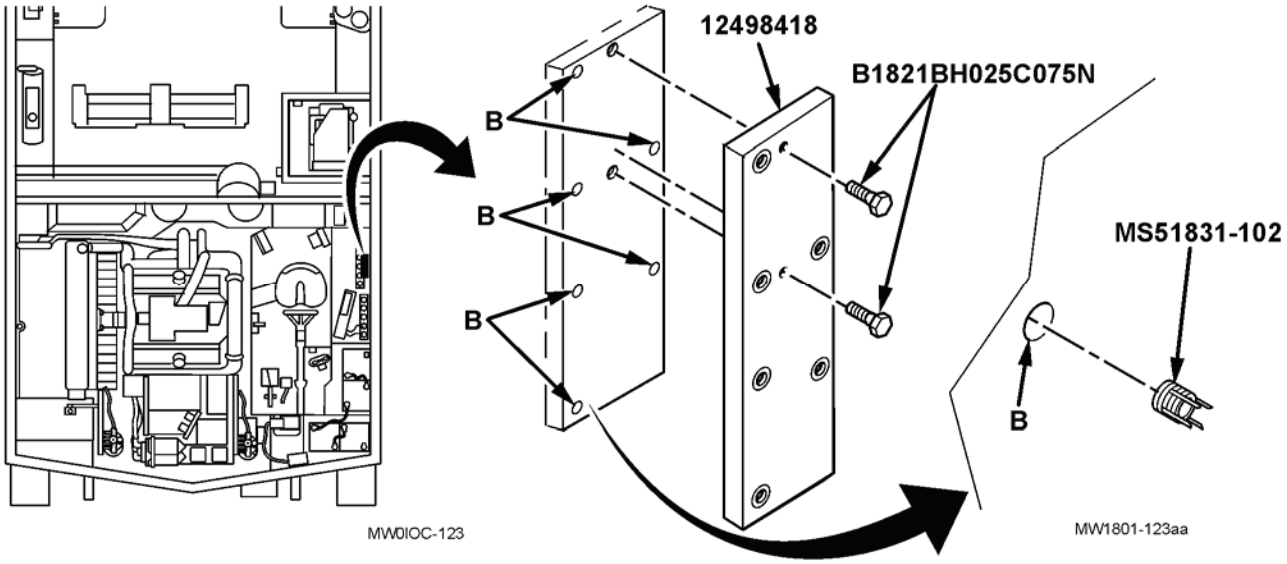
d. Rework (continued).

9. Install relay plate 12498418 (Table 9-2) on driver's compartment bulkhead with two screws B1821BH025C075N (Table 9-2).

10. Using an X-size drill bit, drill six hole positions, marked B, on driver's compartment bulkhead, as shown.

11. Remove two screws B1821BH025C075N and relay plate 12498418 from driver's compartment bulkhead.

12. Install six threaded-screw inserts MS51831-102 (Kit 57K3274) on driver's compartment bulkhead in positions marked B, in accordance with MS51835 (refer to TM 9-2350-372-34).

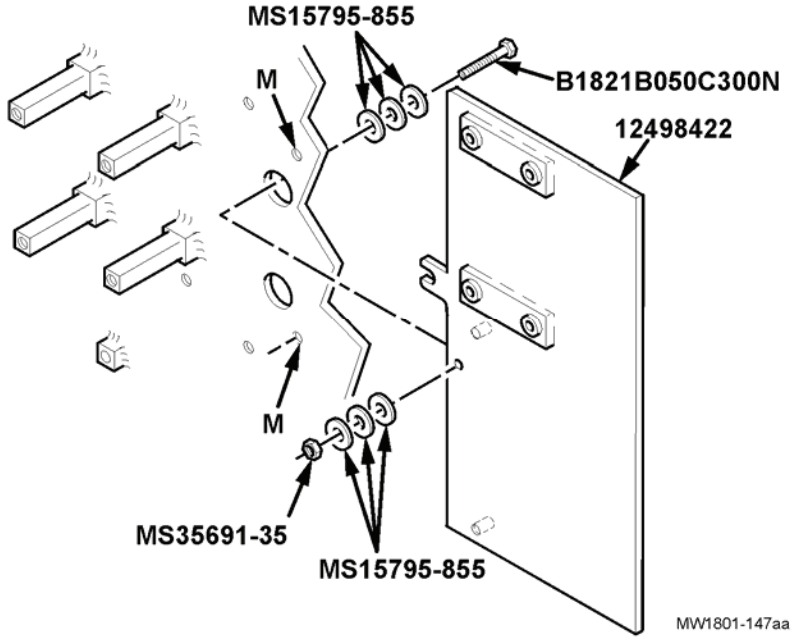


10. MODIFICATION PROCEDURES (continued).

d. Rework (continued).

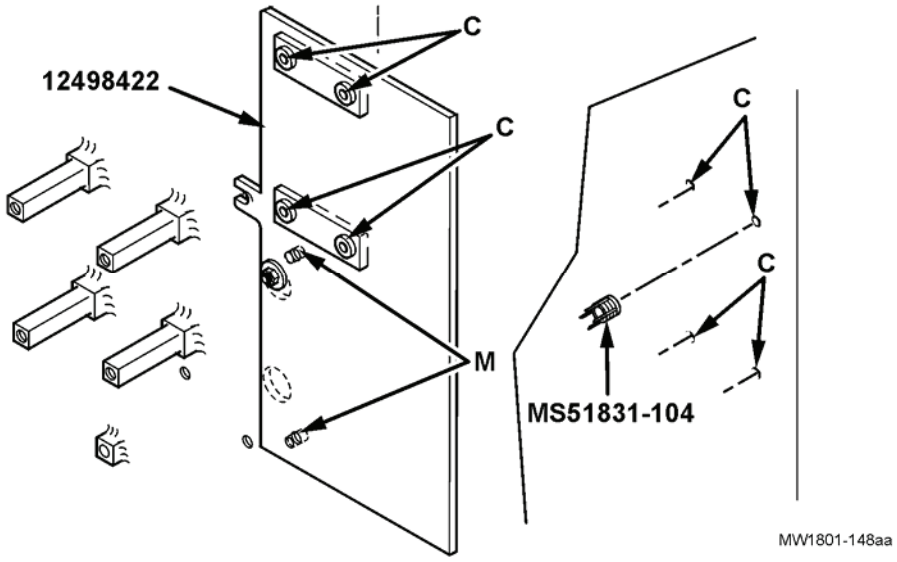
13. Locate two junction boxes through holes M on APU compartment, as shown.

14. Insert pins of CEP bracket assembly drill template 12498422 (Table 9-2) through holes M and position template on crew side of APU compartment. Install template using six flat washers MS15795-855 (Table 9-2), one screw B1821BH050C300N (Table 9-2), and one nut MS35691-35 (Table 9-2) provided with template.



15. Using a 33/64-inch drill bit, drill four hole positions, marked C, in APU compartment, as shown.

16. Install four threaded-screw inserts MS51831-104 (Kit 57K3274) on APU compartment in hole positions marked C, in accordance with MS51835 (refer to TM 9-2350-372-34).



10. MODIFICATION PROCEDURES (continued).

d Rework (continued).

NOTE

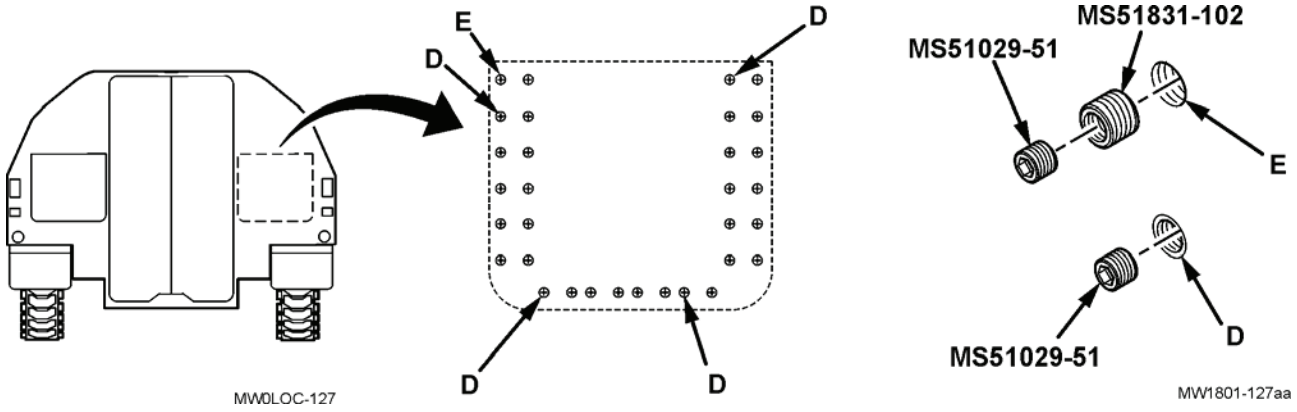
Perform Steps 17 through 34 for installing the fire box on vehicles S/N 1-344.

NOTE

Assistant will be necessary for installing the rear AFES box template 12498419.

17. Remove four setscrews MS51029-51 from the stowage rack positions, marked D on right-rear hull, as shown. Discard setscrews.

18. Remove setscrew MS51029-51 and threaded-screw insert MS51831-102 from the stowage rack position, marked E on right-rear hull, as shown (refer to TM 9-2350-372-34). Discard setscrew and insert.



10. MODIFICATION PROCEDURES (continued).

d. Rework (continued).

NOTE

Assistant will help with Step 19.

19. Position right-rear fire box template 12498419 on right-rear hull and install using four hexagon head capscrews B1821BH025C075N, lockwashers MS35338-139, and flat washers 10910174-1, previously removed. Do not fully tighten capscrews.

20. Close and latch the right rear door. Adjust the template until parallel with the gap between the rear door and hull. Tighten template mounting hardware.

WARNING

Wear safety goggles and hearing protection when drilling insert positions. Failure to do so may result in injury to personnel.

21. Using a 41/64-inch drill bit, drill thirteen holes for threaded inserts in positions marked F, as shown.

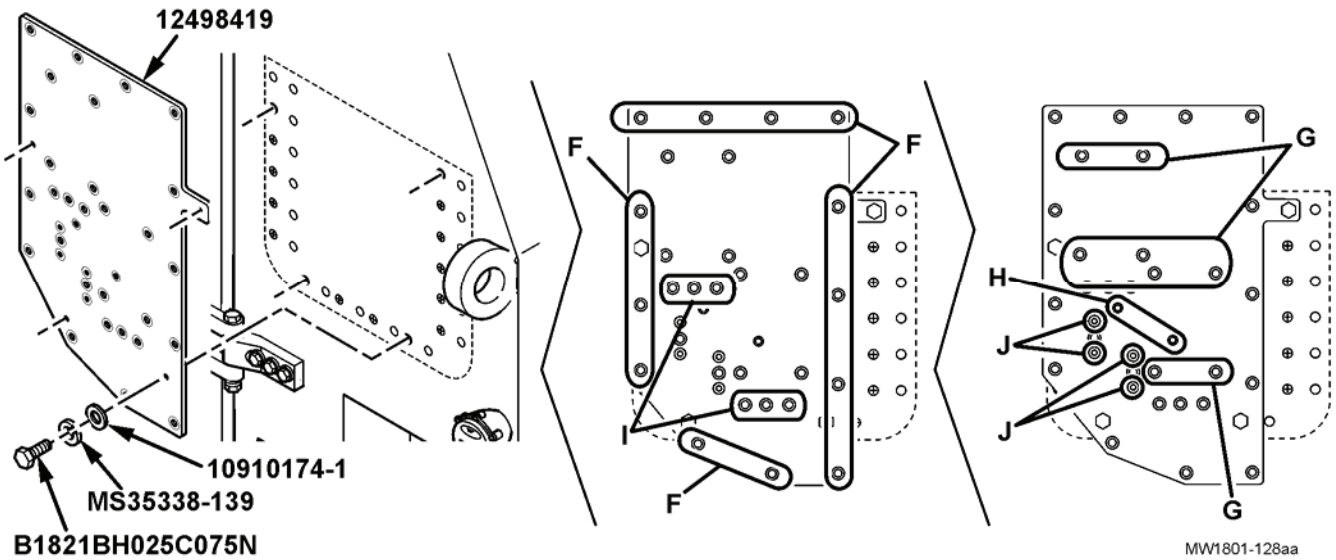
22. Using a 37/64-inch drill bit, drill eight holes for threaded inserts in positions marked G, as shown.

23. Using an X-size drill bit, drill two holes for threaded inserts in positions marked H, as shown.

24. Center punch six positions marked I, as shown.

25. Using an X-size drill bit, drill four holes for threaded inserts in positions marked J, as shown.

26. Remove four capscrews B1821BH025C075N, lockwashers MS35338-139, flat washers 10910174-1, and template 12498419 from right-rear hull.



10. MODIFICATION PROCEDURES (continued).

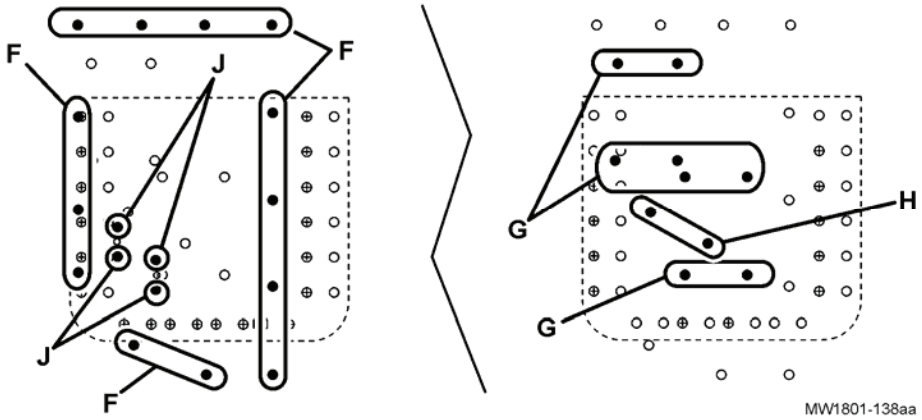
d. Rework (continued).

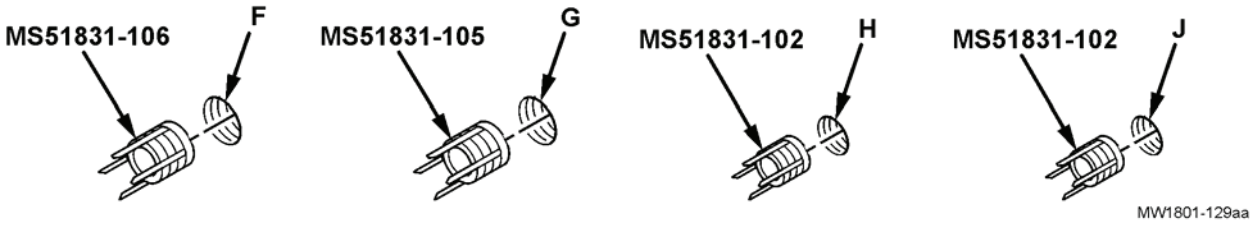
27. Install thirteen threaded-screw inserts MS51831-106 (Kit 57K3275) on right-rear hull in positions marked F, in accordance with MS51835 (refer to TM 9-2350-372-34).

28. Install eight threaded-screw inserts MS51831-105 (Kit 57K3275) on right-rear hull in positions marked G, in accordance with MS51835 (refer to TM 9-2350-372-34).

29. Install two threaded-screw inserts MS51831-102 (Kit 57K3275) on right-rear hull in positions marked H, in accordance with MS51835 (refer to TM 9-2350-372-34).

30. Install four threaded-screw inserts MS51831-102 (Kit 57K3275) on right-rear hull in positions marked J, in accordance with MS51835 (refer to TM 9-2350-372-34).



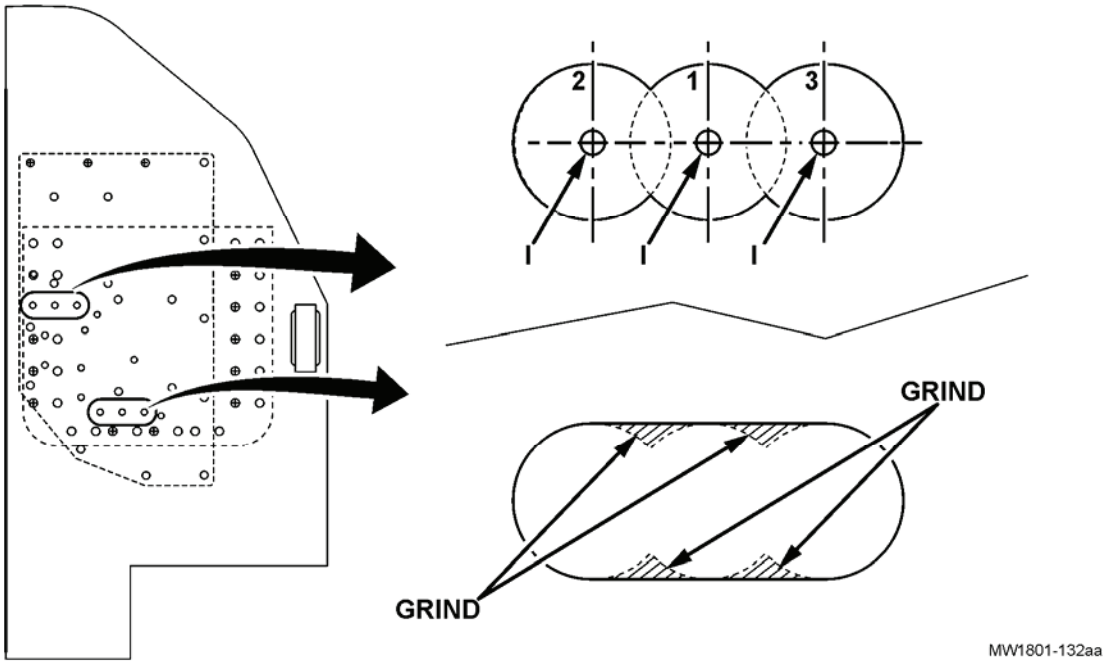


10. MODIFICATION PROCEDURES (continued).

d. Rework (continued).

31. Locate centered-punch positions, marked I, on right-rear hull, as shown.

32. Using 3.25-inch bore saw, cut two slotted-hole positions in right-rear hull. Cut three holes through hull in sequence, as shown. Grind all burrs and sharp edges smooth.



10. MODIFICATION PROCEDURES (continued).

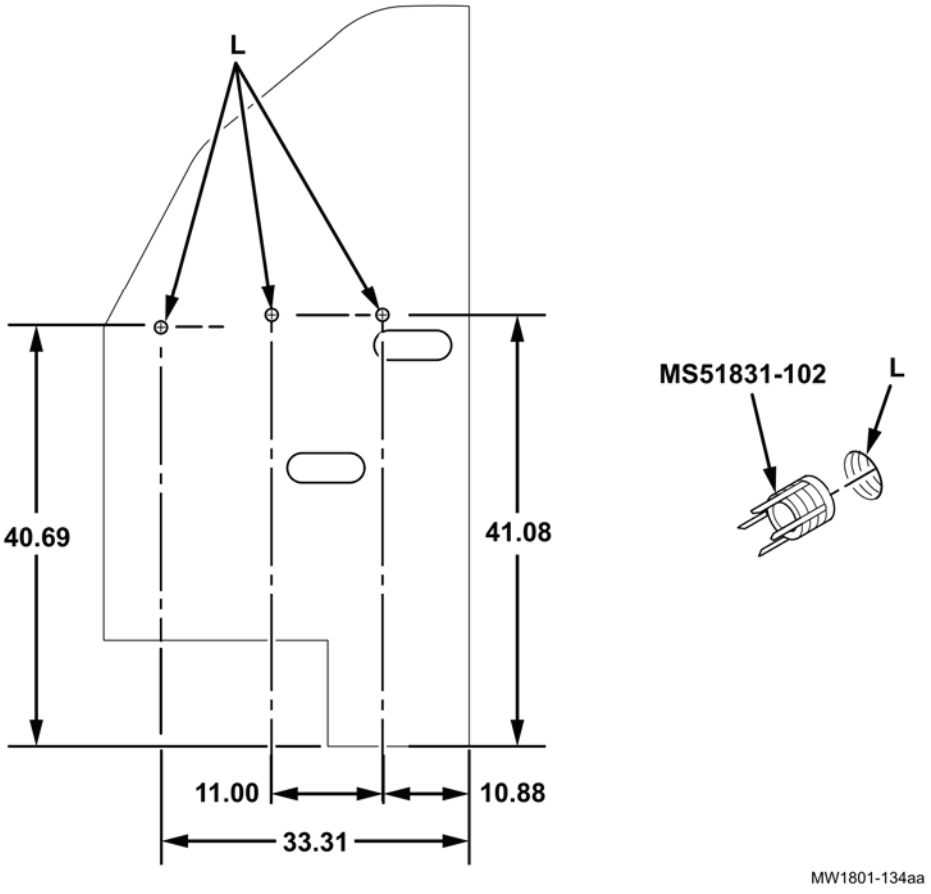
d. Rework (continued).

NOTE

Perform Step 33 only if the vehicle has not been modified, per MWO 9-2350-293-30-3, or the 4 x 6 honeycomb stowage rack has not been installed.

33. Locate three hole positions on crew side of right-rear hull in positions marked L, as shown.

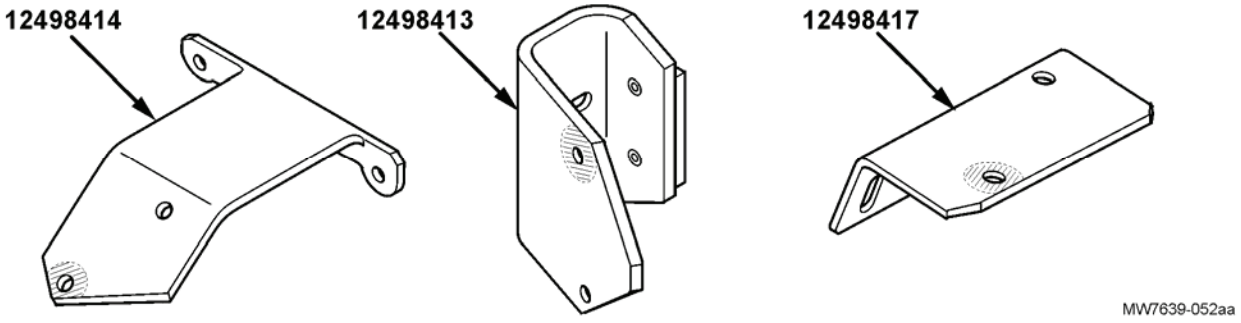
34. Install three threaded-screw inserts MS51831-102 (Kit 57K3275) on right-rear hull in positions marked L, in accordance with MS51835 (refer to TM 9-2350-372-34).



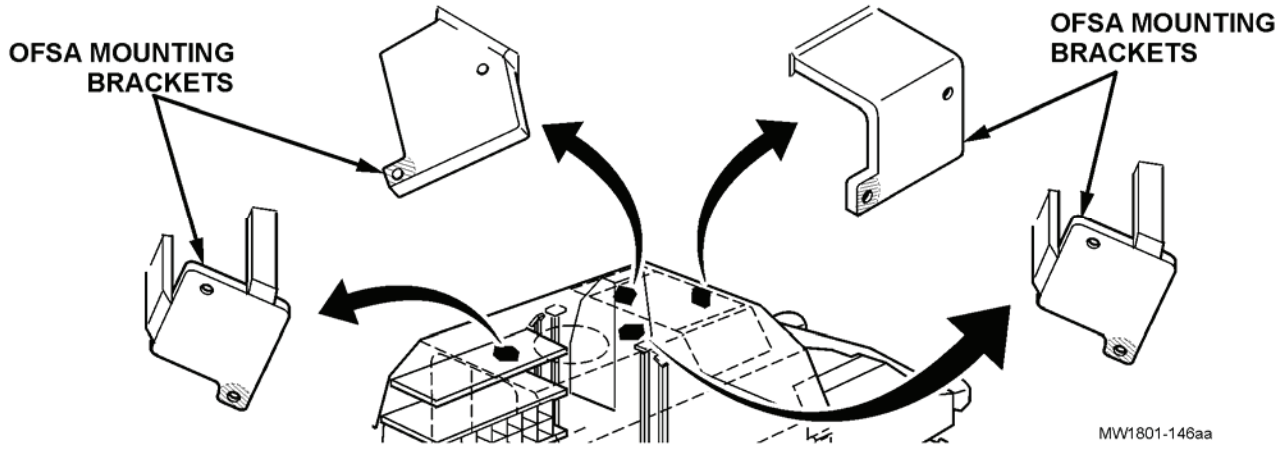
10. MODIFICATION PROCEDURES (continued).

d. Rework (continued).

35. Obtain sensor brackets 12498413 (57K3274), 12498417 (57K3274), and 12498414 (57K3274). Grind paint from a small area around mounting holes to aid in grounding sensors.



36. Grind paint from a small area around mounting holes on crew sensor brackets, as shown.



10. MODIFICATION PROCEDURES (continued).

e. Cleaning and Inspection.

WARNING

Solvent cleaning compound is an environmentally compliant product and is low in toxicity. However, it may be irritating to the eyes and skin due to its base stock. The use of protective gloves and goggles is required. Use the cleaning compound in well-ventilated areas and keep away from open flames and other sources of ignition.

WARNING

Compressed air used for cleaning or drying purposes or for cleaning out restrictions, should never exceed 30 psi (207 kPa). To avoid injury, wear protective clothing (e.g., goggles/shield, gloves) and exercise caution.

1. Vehicle interior should be clean and free from dust, dirt contaminants, and debris.

2. Ensure all burrs and sharp edges are removed using approved repair procedures.

10. MODIFICATION PROCEDURES (continued).

f. Painting.

WARNING

Unusable CARC mixtures are considered hazardous waste and will require disposal in accordance with Federal, state, Department of Defense, Department of the Army, and local installation hazardous waste regulations. Consult the installation environmental office for proper disposal guidance. Mixed CARC is extremely flammable. Use only in well-ventilated areas. Keep away from open flames, sparks, and other ignition sources.

CARC paint contains isocyanyte (HDI), which is highly irritating to skin and respiratory system. High concentrations of HDI can produce symptoms of itching and reddening of skin, a burning sensation in throat and nose, and watering of the eyes. In extreme concentrations, HDI can cause cough, shortness of breath, pain during respiration, increased sputum production, and chest tightness. The following precautions must be taken whenever using CARC paint:

- **ALWAYS use air-line respirators when using CARC paint unless air sampling shows exposure to be below standards. Use chemical cartridge respirator if air sampling is below standards.**
- **DO NOT let skin or eyes come in contact with CARC paint. Always wear protective equipment (gloves, ventilation mask, safety goggles, and so on).**
- **DO NOT use CARC paint without adequate ventilation.**
- **NEVER cut CARC-coated materials without high-efficiency, air-purifying respirators in use.**
- **DO NOT grind or sand painted equipment without high-efficiency, air-purifying respirators in use.**
- **BE AWARE of CARC paint exposure symptoms; symptoms can occur a few days after initial exposure. Seek medical help immediately if symptoms are detected.**

10. MODIFICATION PROCEDURES (continued).

f. Painting (continued).

NOTE

All exposed metal surfaces must be properly cleaned, pretreated, primed, and painted to prevent rust and corrosion.

1. Aluminum.

   (a) All exposed surfaces shall be cleaned by chemical, electrochemical, or mechanical methods in accordance with TT-C-490.

   (b) Pretreat surfaces as soon as possible after cleaning by spray, brush or immersion methods using a Class 1A chemical conversion coating in accordance with MIL-C-5541.

   (c) Primer shall be sprayed or brushed to properly pretreated surfaces in accordance with MIL-P-53022, MIL-P-53030, or MIL-P-53084. Primer coatings per MIL-P-53084 shall be applied as instructed by the coating supplier, and dry film thickness shall be 0.8–1.5 mils

   (d) The CARC topcoat system shall be applied in accordance with MIL-C-53072, except where a primer coating per MIL-P-53084 is applied. Exterior coatings shall be applied per MIL-DTL-64159 or MIL-DTL-53039, color green, chip number 34094, or desert tan, chip number 686, per FED-STD-595. Interior surfaces shall be applied per MIL-C-22750, color gloss white, chip number 17925, per FED-STD-595.

2. Steel.

   (a) All exposed surfaces shall be cleaned by chemical or mechanical methods in accordance with TT-C-490.

   (b) Pretreat surfaces as soon as possible after cleaning by spray, brush or immersion methods using a Type I or Type II coating per TT-C-490.

   (c) Primer shall be applied to properly pretreated surfaces in accordance with MIL-P-53022, MIL-P-53030, or MIL-P-53084. Primer coatings per MIL-P-53084 shall be applied as instructed by the coating supplier, and dry film thickness shall be 0.8–1.5 mils.

   (d) The CARC topcoat system shall be applied in accordance with MIL-C-53072, except where a primer coating per MIL-P-53084 is applied. Exterior coatings shall be applied per MIL-DTL-64159 or MIL-DTL-53039, color green, chip number 34094, or desert tan, chip number 686, per FED-STD-595. Interior surfaces shall be applied per MIL-C-22750, color gloss white, chip number 17925, per FED-STD-595.

3. Ensure all no-paint surfaces such as electrical connecting, threaded inserts, data plates, and warning labels, are free from paint.

10. MODIFICATION PROCEDURES (continued).

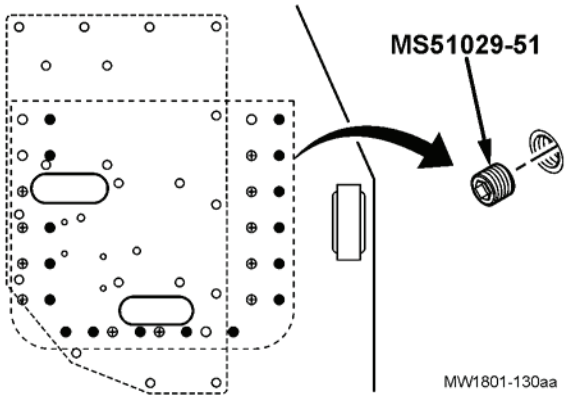
g. Installation.

NOTE

Perform Steps 1 through 14 for vehicles S/N 1-344.

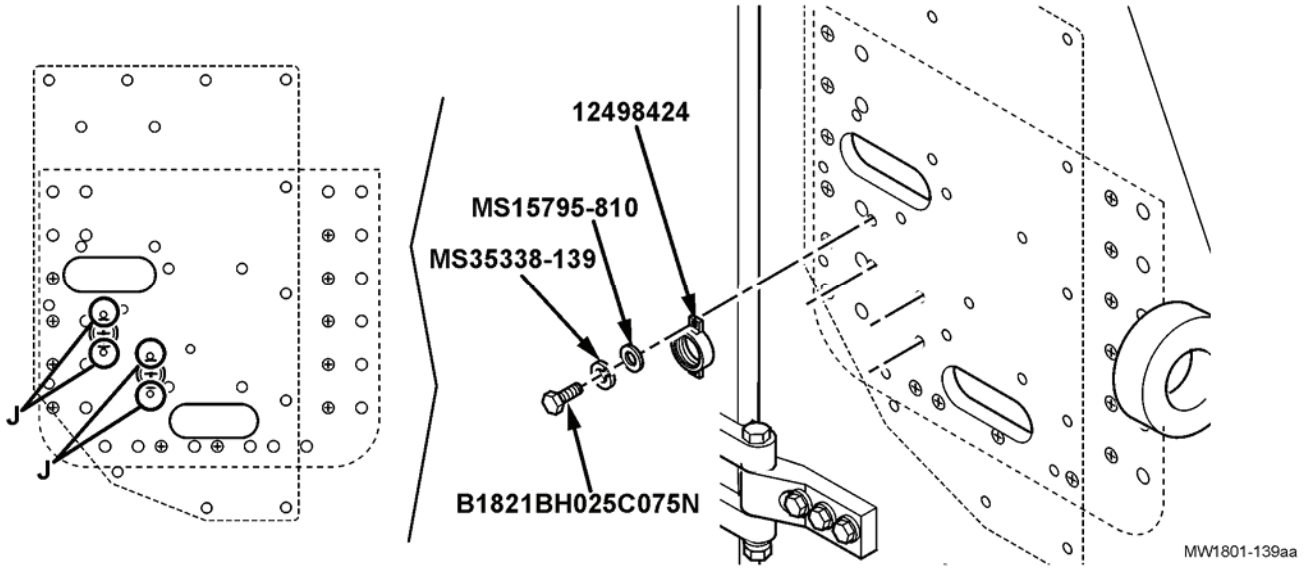
1. Apply sealing compound 087-31 (Table 8-3) to threads of all setscrews MS51029-51.

2. Install fifteen setscrews MS51029-51 (Kit 57K3275) to fill inserts from discarded stowage basket as needed. Tighten setscrews flush to hull.



3. Position coupling 12498424 (Kit 57K3275) on right-rear hull in threaded insert positions, marked J, as shown.

4. Install two couplings 12498424 on right-rear hull with four capscrews B1821BH025C075N (Kit 57K3275), four lockwashers MS35338-139 (Kit 57K3275), and four flat washers MS15795-810 (Kit 57K3275).



10. MODIFICATION PROCEDURES (continued).

g. Installation (continued).

5. Apply adhesive MIL-A-46106 (Table 8-3) to mounting surfaces of weapon access door 12352336 (Kit 57K3275) and right-rear hull.

6. Attach a sling and lifting device to two lifting eyes on weapon access door 12352336.

WARNING

Personnel must stand clear during lifting operations. A swinging or shifting load may cause injury to personnel or damage to equipment.

NOTE

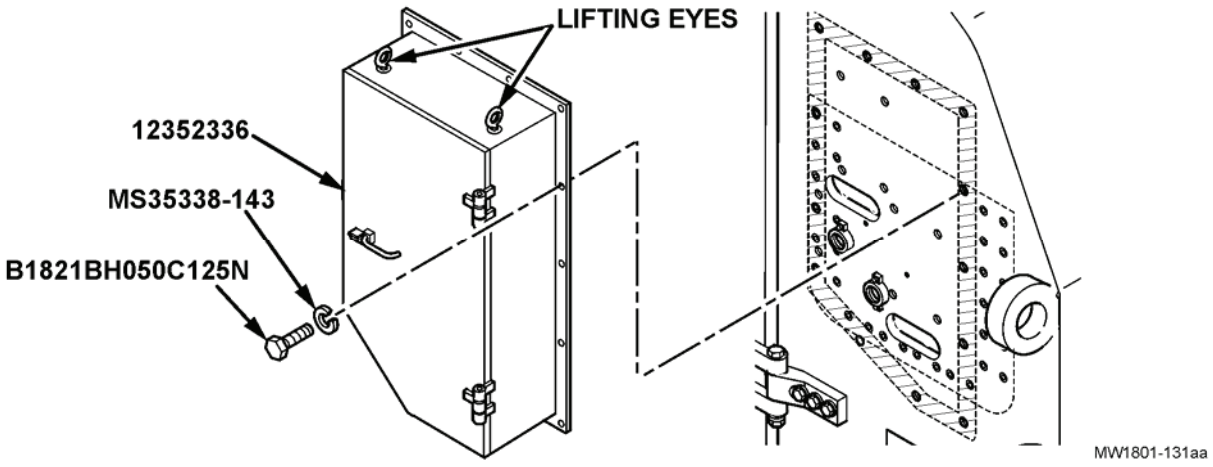
Assistant will help with the installation of the weapon access door.

7. Raise and position weapon access door 12352336 onto right-rear hull.

8. Install weapon access door 12352336 on right-rear hull with thirteen hexagon head capscrews B1821BH050C125N (Kit 57K3275) and lockwashers MS35338-143 (Kit 57K3275).

9. Remove lifting device and sling from two lifting eyes on weapon access door 12352336.

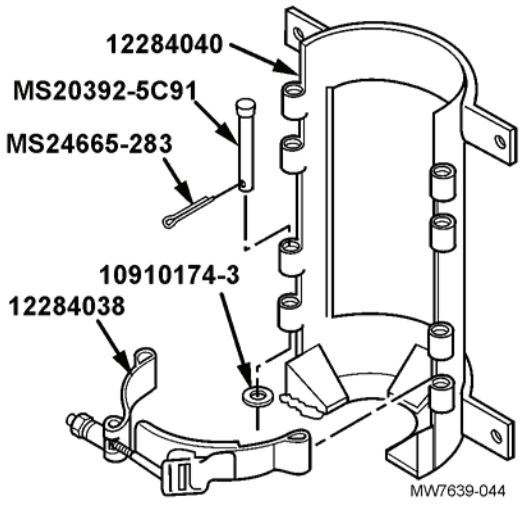
10. Clean excess adhesive from around edges of weapon access door 12352336.



10. MODIFICATION PROCEDURES (continued).

g. Installation (continued).

11. Install four retaining straps 12284038 (Kit 57K3275) on two brackets 12284040 (Kit 57K3275) with eight straight pins MS20392-5C91 (Kit 57K3275), eight flat washers 10910174-3 (Kit 57K3275), and eight cotter pins MS24665-283 (Kit 57K3275).



10. MODIFICATION PROCEDURES (continued).

g. Installation (continued).

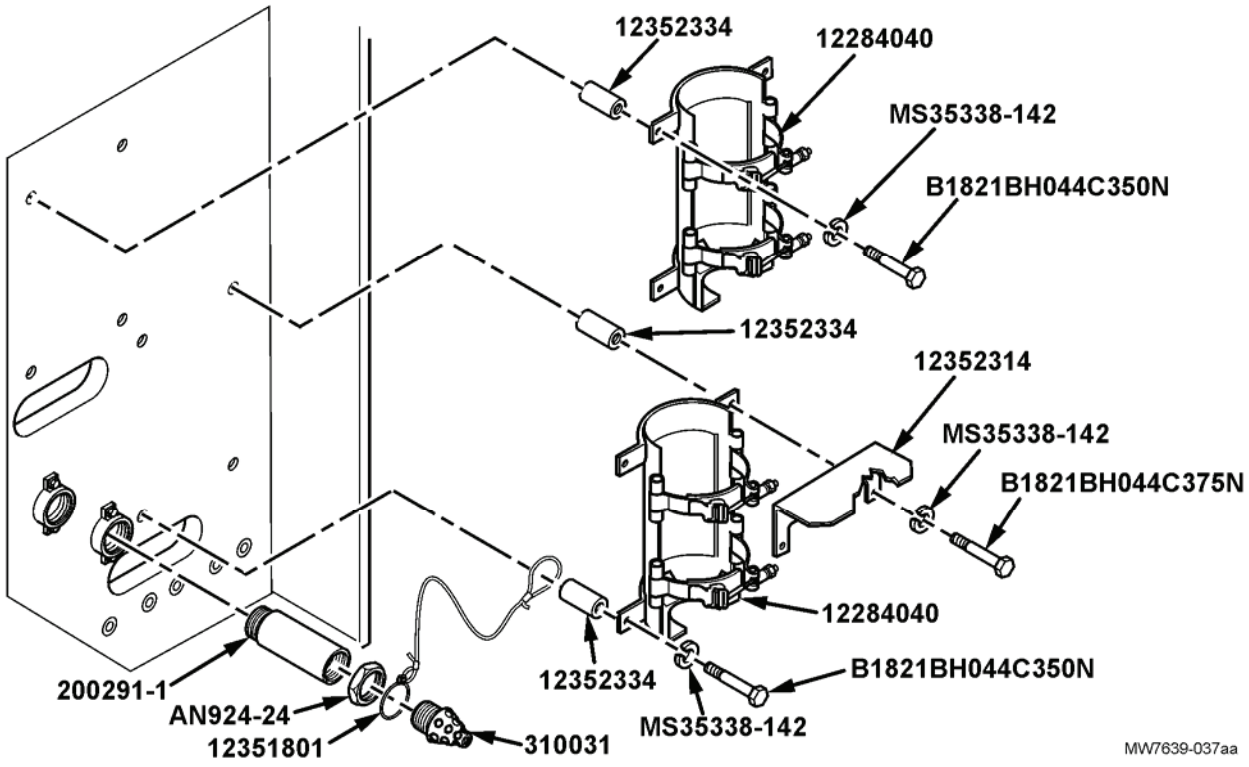
12. Install two nozzles 310031 (Kit 57K3275), nuts AN924-24 (Kit 57K3275), extensions 200291-1 (Kit 57K3275), and wire ropes 12351801 (Kit 57K3275) on couplings 12498424.

NOTE

Capture loop of wire rope 12351801 on one spacer 12352334 when installing brackets 12284040.

13. Install bracket 12284040 (Kit 57K3275), bracket 12352314 (Kit 57K3275), and four spacers 12352334 (Kit 57K3275) on hull with two hexagon head capscrews B1821BH044C350N (Kit 57K3275), two hexagon head capscrews B1821BH044C375N (Kit 57K3275), and four lockwashers MS35338-142 (Kit 57K3275).

14. Install bracket 12284040 (Kit 57K3275) and four spacers 12352334 (Kit 57K3275) on hull with four hexagon head capscrews B1821BH044C350N (Kit 57K3275) and four lockwashers MS35338-142 (Kit 57K3275).



10. MODIFICATION PROCEDURES (continued).

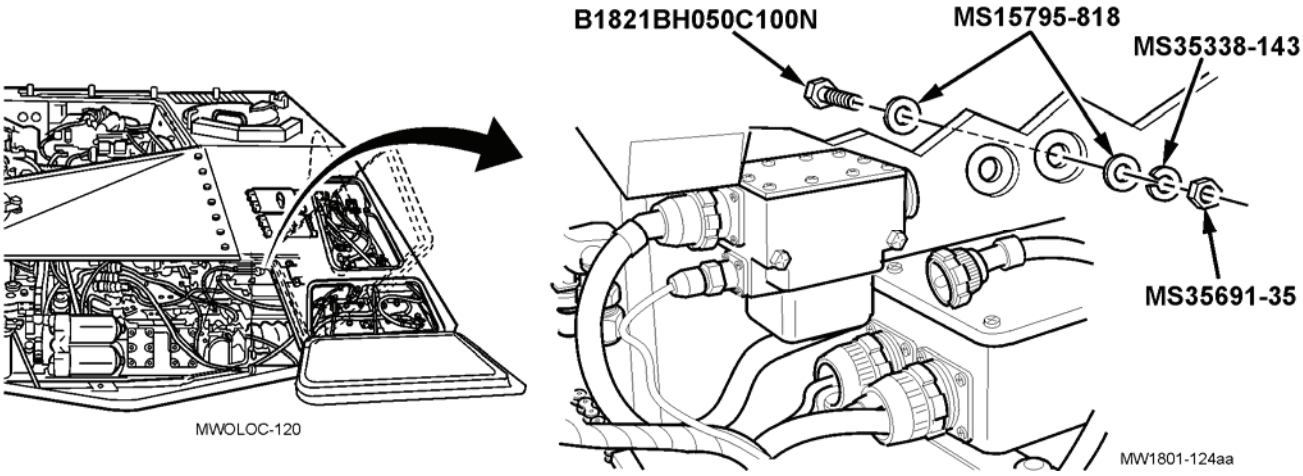
g. Installation (continued).

NOTE

Assistant will help with Steps 15 and 16.

15. Apply silicone compound (Table 8-5) to threads of capscrews and port.

16. Install four flat washers MS15795-818 (Kit 57K3274), two hexagon head capscrews B1821BH050C100N (Kit 57K3274), two nuts MS35691-35 (Kit 57K3274) and two lockwashers MS35338-143 (Kit 57K3274) on engine compartment bulkhead where fire wire couplings were removed.

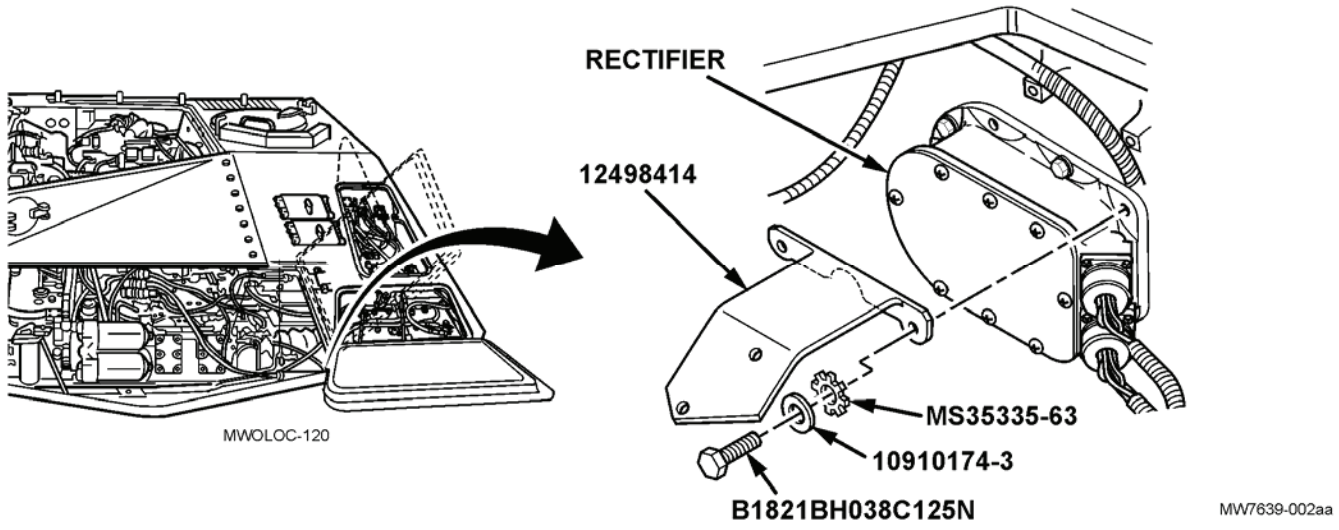


17. Remove two screws and flat washers from rectifier, as shown. Set hardware aside for disposition.

NOTE

Ensure engine compartment wiring harnesses are behind or above the engine left-front bracket.

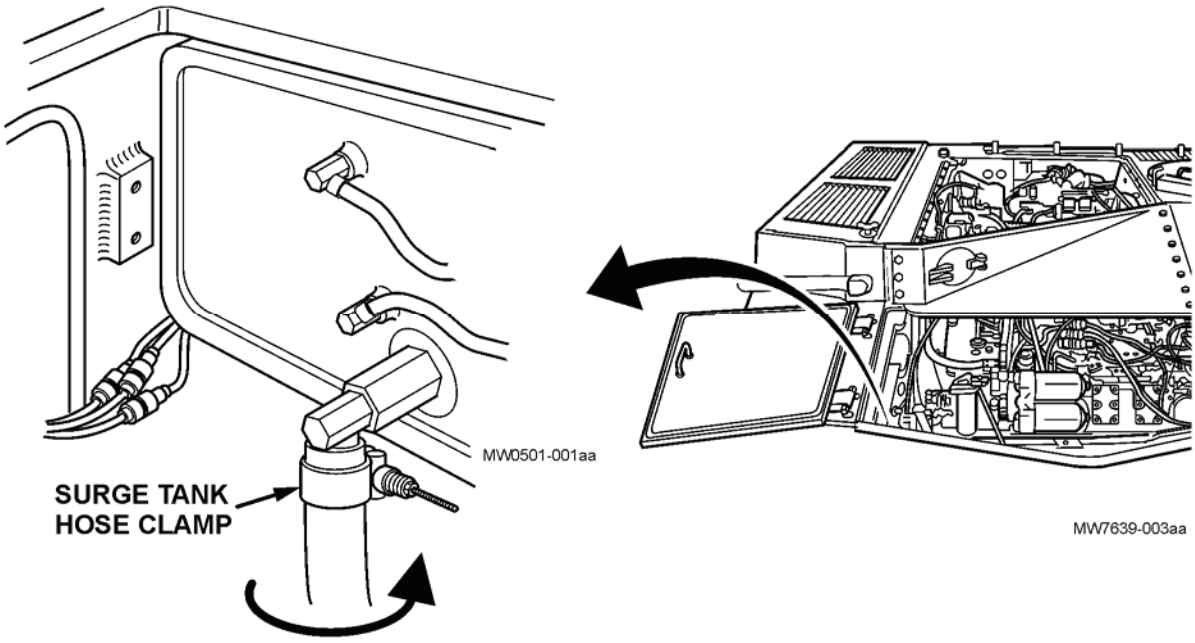
18. Install engine left front bracket 12498414 on rectifier with two hexagon head capscrews B1821BH038C125N (Kit 57K3274), two flat washers 10910174-3 (Kit 57K3274), and lockwashers MS35335-63 (Kit 57K3274).



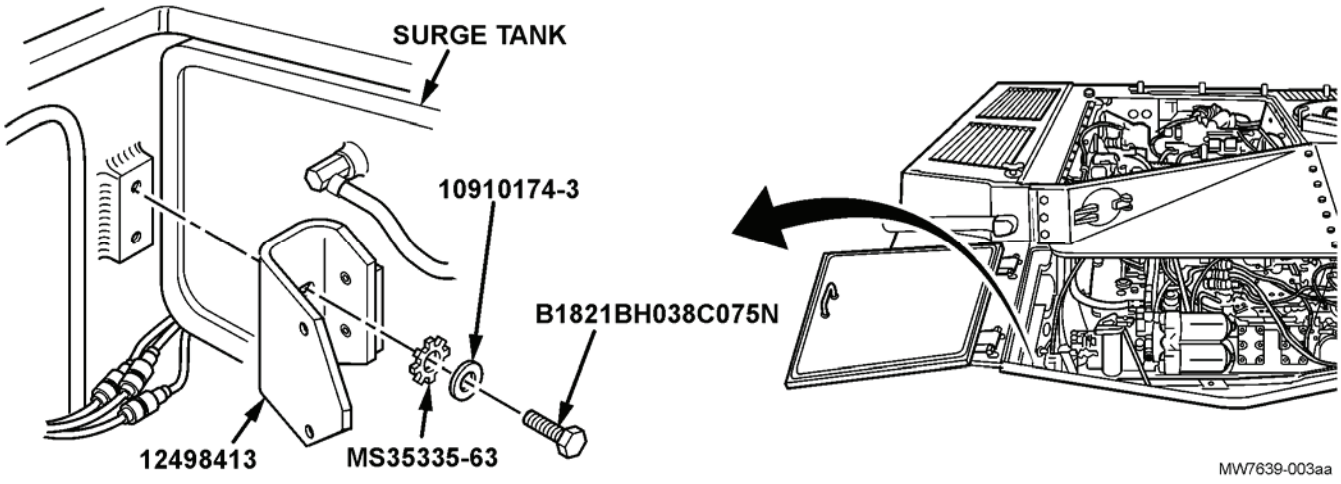
10. MODIFICATION PROCEDURES (continued).

g. Installation (continued).

19. Loosen nut on surge tank hose clamp. Rotate clamp counter-clockwise towards surge tank and away from engine right front bracket 12498413. Tighten nut.



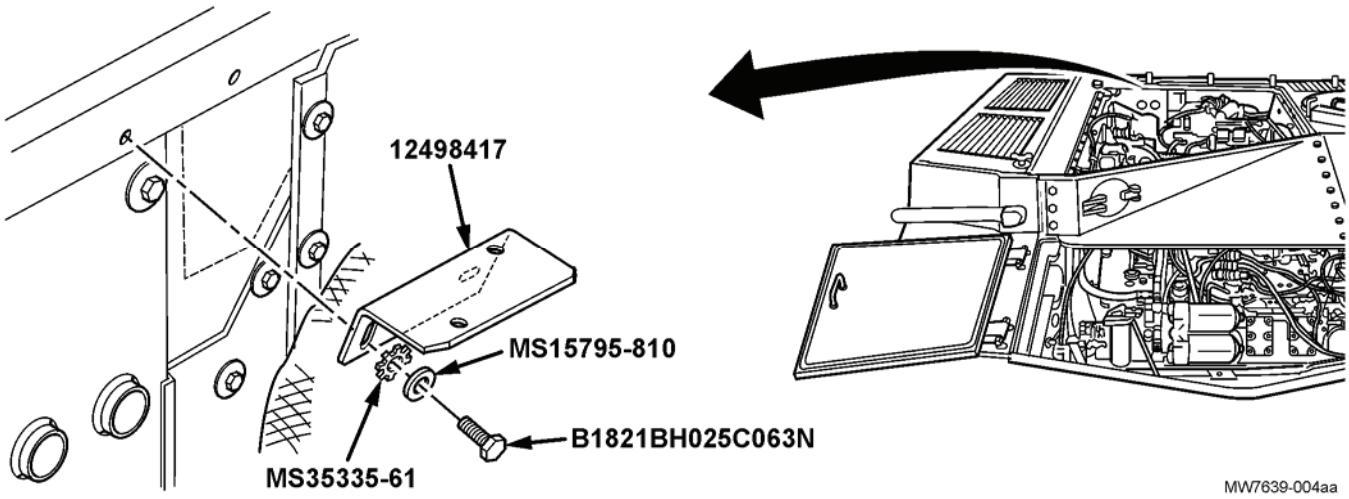
20. Locate the block on right front of engine compartment bulkhead, near surge tank, and install engine right front bracket 12498413 with two hexagon head capscrews B1821BH038C075N (57K3274), flat washers 10910174-3 (57K3274), and lockwashers MS35335-63 (57K3274), as shown.



10. MODIFICATION PROCEDURES (continued).

g. Installation (continued).

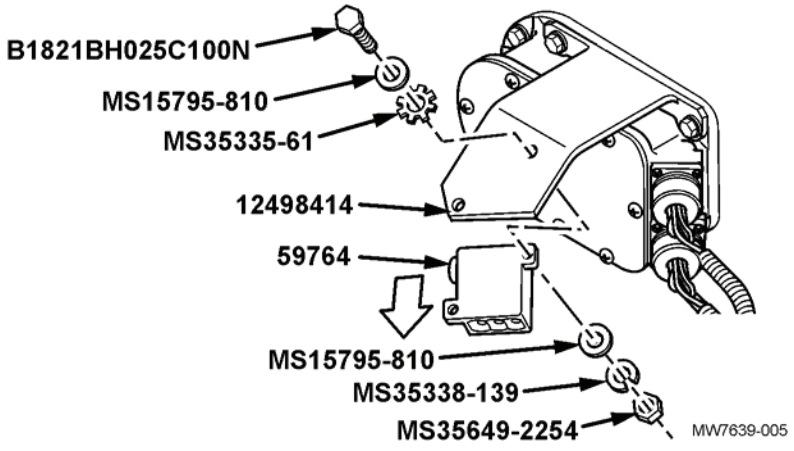
21. Install engine rear bracket 12498417 on right rear of engine compartment bulkhead with two hexagon head capscrews B1821BH025C063N (Kit 57K3274), lockwashers MS35335-61 (Kit 57K3274), and flat washers MS15795-810 (Kit 57K3274), as shown.



CAUTION

Ensure the Optical Fire Sensor Assemblies (OFSAs) are installed in the proper position as illustrated. Failure to do so can result in failure of the OFSA to detect a fire.

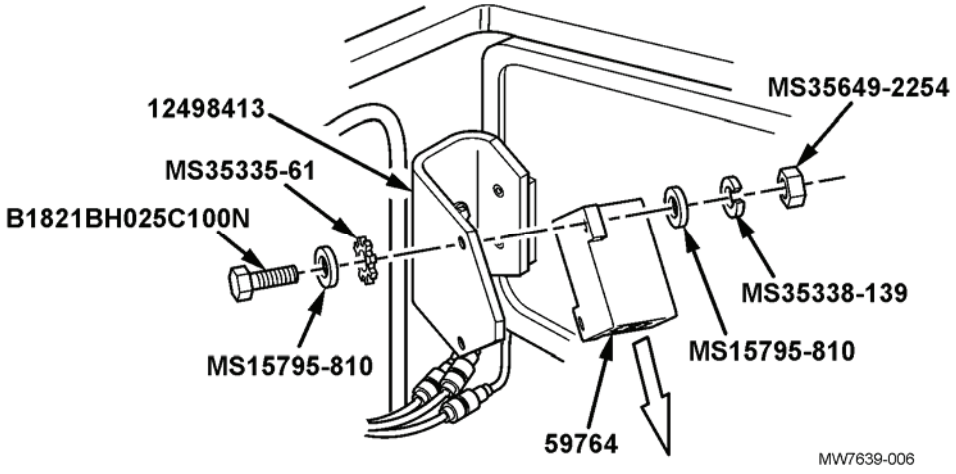
22. Position OFSA 59764 (Kit 57K3274) on engine left front bracket 12498414 with lenses facing in the direction, as shown. Install OFSA 59764 on engine left front bracket 12498414 with four flat washers MS15795-810 (Kit 57K3274), two hexagon head capscrews B1821BH025C100N (Kit 57K3274), two lockwashers MS35338-139 (Kit 57K3274), two lockwashers MS35335-61 (Kit 57K3274), and two plain nuts MS35649-2254 (Kit 57K3274).



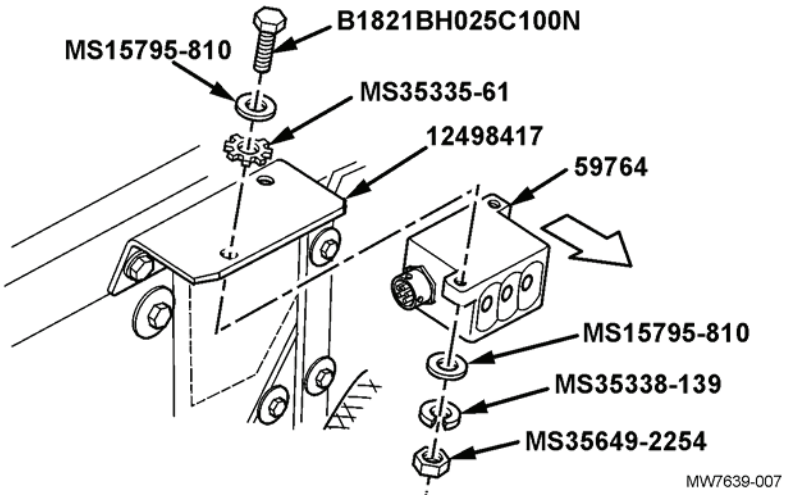
10. MODIFICATION PROCEDURES (continued).

g. Installation (continued).

23. Position OFSA 59764 (Kit 57K3274) on engine right front bracket 12498413 with lenses facing in the direction, as shown. Install OFSA 59764 on engine right front bracket 12498413 with four flat washers MS15795-810 (Kit 57K3274), two hexagon head capscrews B1821BH025C100N (Kit 57K3274), two lockwashers MS35338-139 (Kit 57K3274), two lockwashers MS35335-61 (Kit 57K3274), and two plain nuts MS35649-2254 (Kit 57K3274).



24. Position OFSA 59764 (Kit 57K3274) on engine rear bracket 12498417 with lenses facing in the direction, as shown. Install OFSA 59764 on engine rear bracket 12498417 with four flat washers MS15795-810 (Kit 57K3274), two hexagon head capscrews B1821BH025C100N (Kit 57K3274), two lockwashers MS35338-139 (Kit 57K3274), two lockwashers MS35335-61 (Kit 57K3274), and two plain nuts MS35649-2254 (Kit 57K3274).



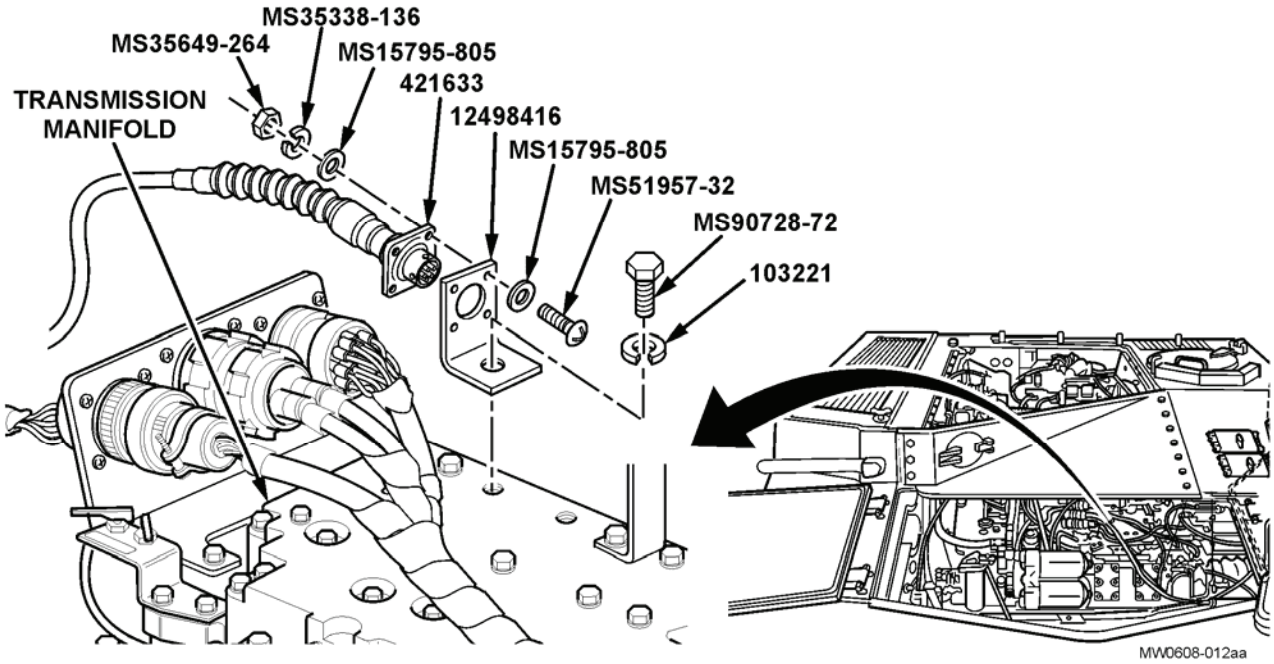
10. MODIFICATION PROCEDURES (continued).

g. Installation (continued).

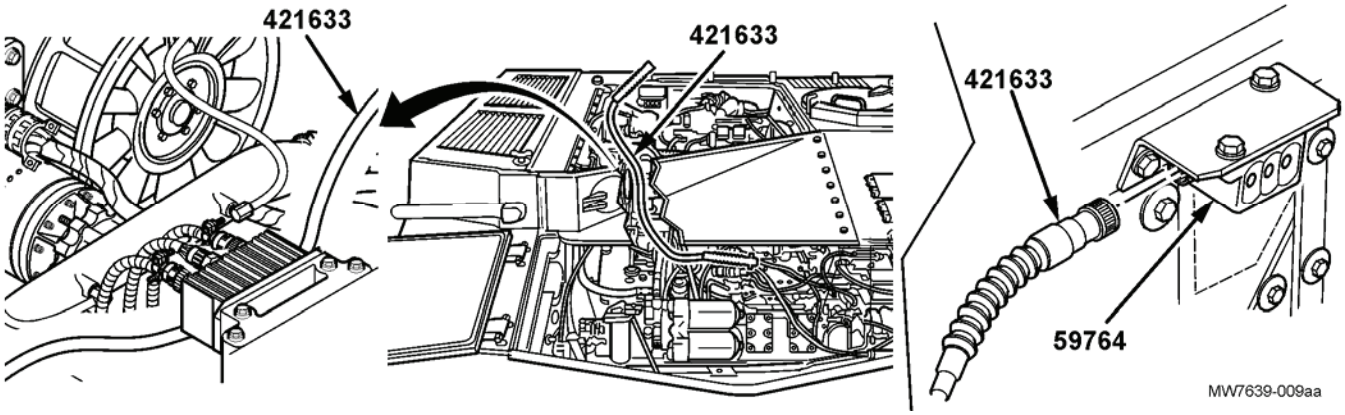
25. Install engine harness bracket 12498416 (Kit 57K3274) on bulkhead wiring harness 421633 (Kit 57K3274) with eight flat washers MS15795-805 (Kit 57K3274), four screws MS51957-32 (Kit 57K3274), four lockwashers MS35338-136 (Kit 57K3274), and four nuts MS35649-264 (Kit 57K3274).

26. Remove screw MS90728-72 and lockwasher 103221 from transmission manifold, as shown. Retain screw and lockwasher for installation.

27. Install bulkhead wiring harness 421633, with engine harness bracket 12498416 attached, on transmission manifold with screw MS90728-72 and lockwasher 103221, previously removed.



28. Route bulkhead wiring harness 421633 over engine, as shown and connect to right-rear OFSA 59764.

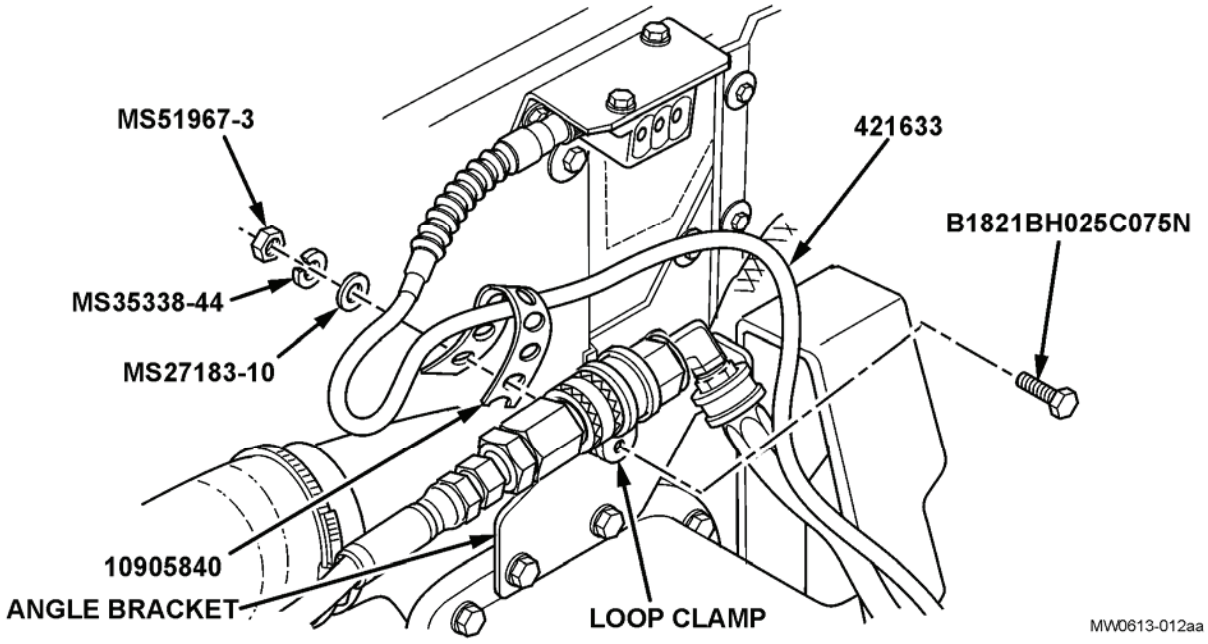


10. MODIFICATION PROCEDURES (continued).

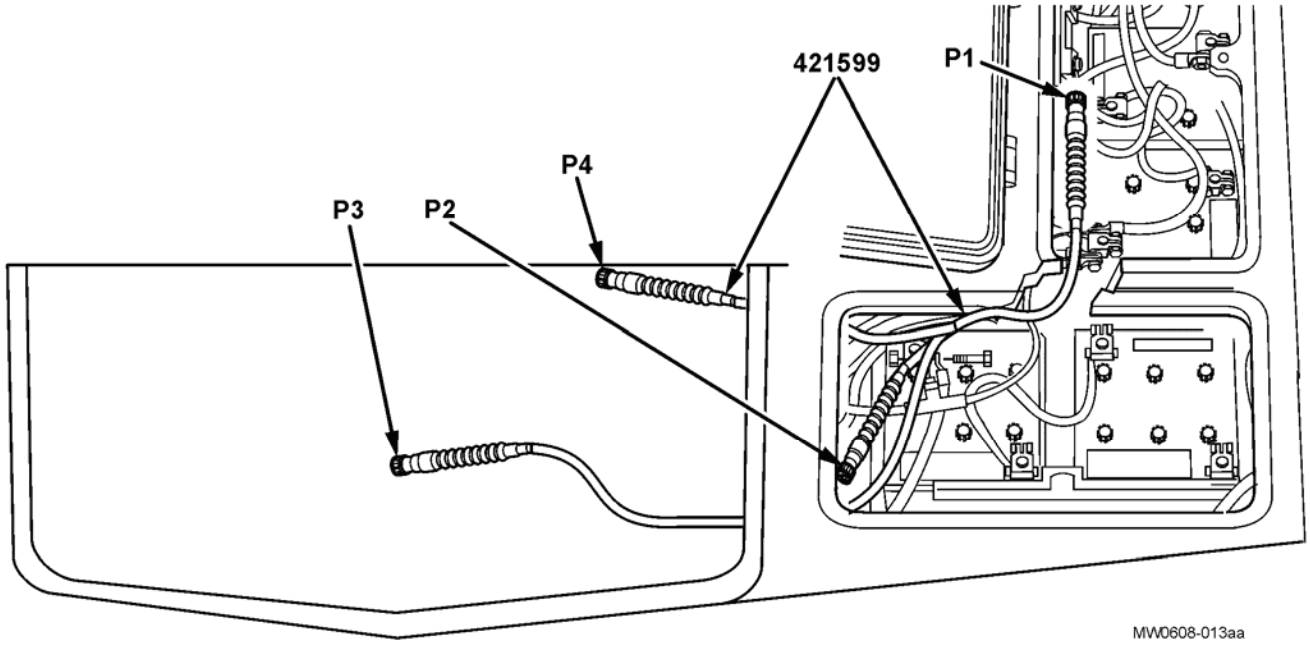
g. Installation (continued).

29. Remove plain nut MS51967-3, lockwasher MS35338-44, flat washer MS27183-10, capscrew B1821BH025C075N, and loop clamp MS21333-103 with engine fuel line attached from angle bracket. Retain hardware for reinstallation.

30. Install wiring harness 421633, tiedown strap 10905840 (Kit 57K3274), and loop clamp MS21333-103 with engine fuel line attached on angle brace with capscrew B1821BH025C075N, flat washer MS27183-10, lockwasher MS35338-44, and plain nut MS51967-3, previously removed.



31. Position engine sensor wiring harness 421599 (Kit 57K3274) on vehicle. Route engine sensor wiring harness 421599 through battery and engine compartments, as shown. Ensure wiring harness is routed behind and above the left front OFSA and mounting bracket.

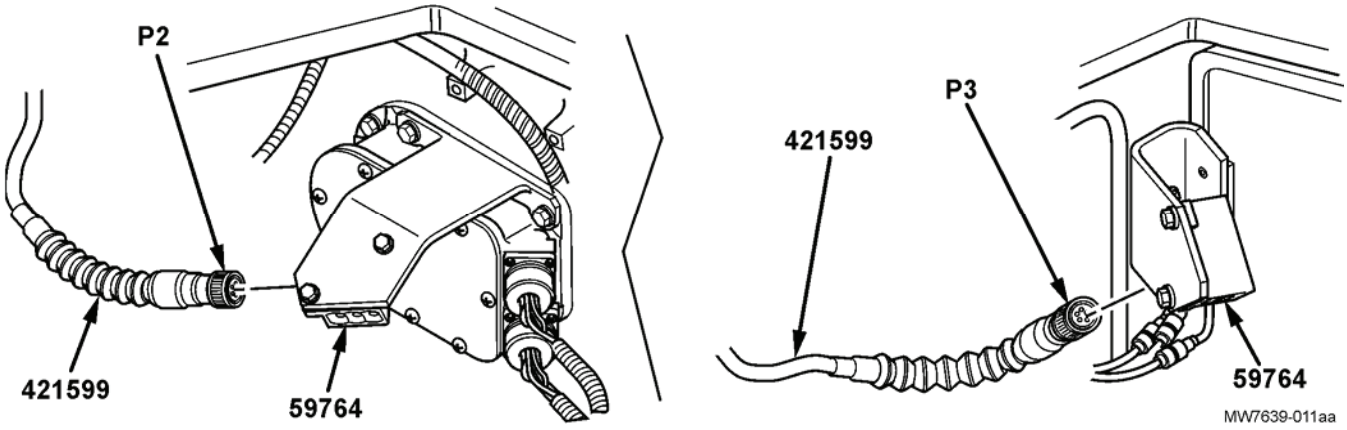


10. MODIFICATION PROCEDURES (continued).

g. Installation (continued).

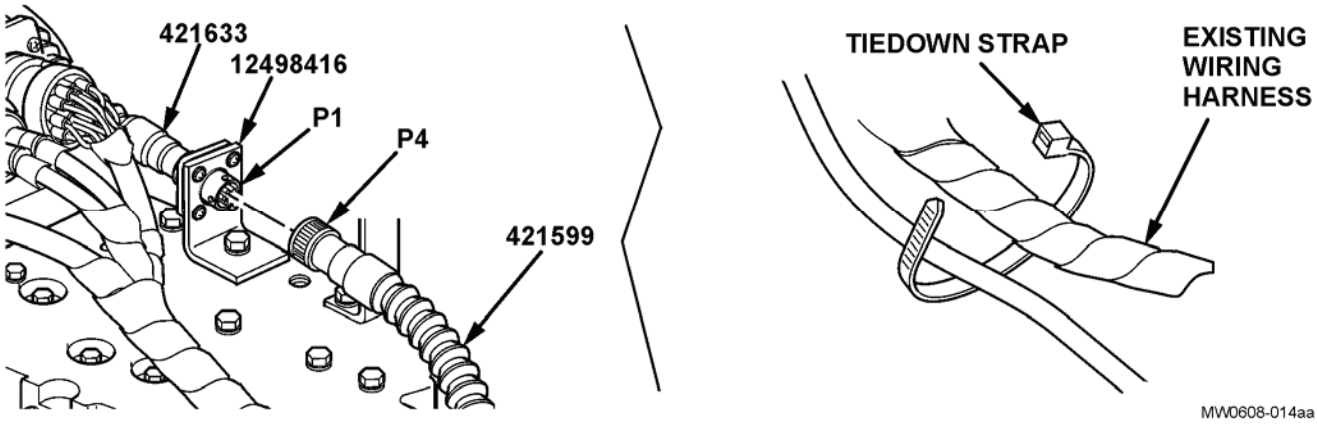
32. Connect P2 connector of bulkhead wiring harness 421599 to rectifier mounted OFSA 59764.

33. Connect P3 connector of bulkhead wiring harness 421599 to right-front OFSA 59764.



34. Connect P4 connector of bulkhead wiring harness 421599 to P1 connector of bulkhead harness 421633 on engine harness bracket 12498416.

35. Use tiedown straps to secure the bulkhead wiring harness 421599 to existing wiring harnesses as necessary.



NOTE

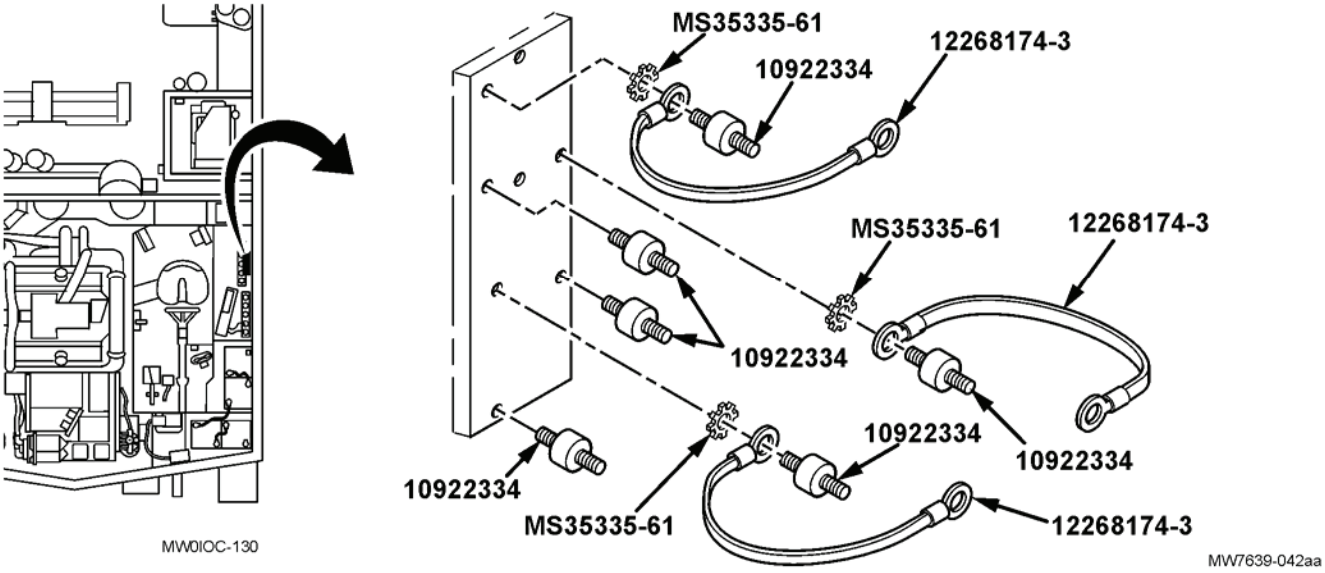
Ensure all vehicle wiring harnesses are positioned away from view of rectifier-mounted OFSA. Use tie-down straps to secure harnesses as necessary.

10. MODIFICATION PROCEDURES (continued).

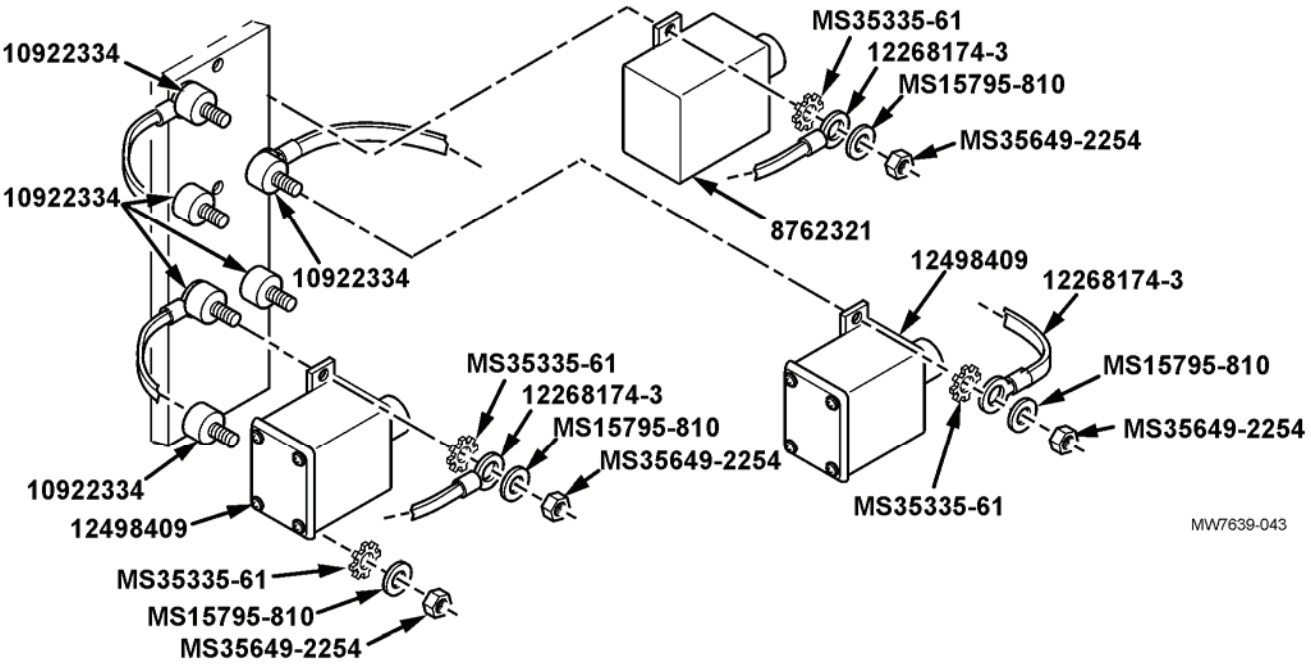
g. Installation (continued).

36. Install three shock mounts 10922334 (Kit 57K3274), lockwashers MS35335-61 (Kit 57K3274), and ground straps 12268174-3 (Kit 57K3274) on driver's compartment bulkhead, as shown.

37. Install three shock mounts 10922334 (Kit 57K3274) on driver's compartment bulkhead, as shown.



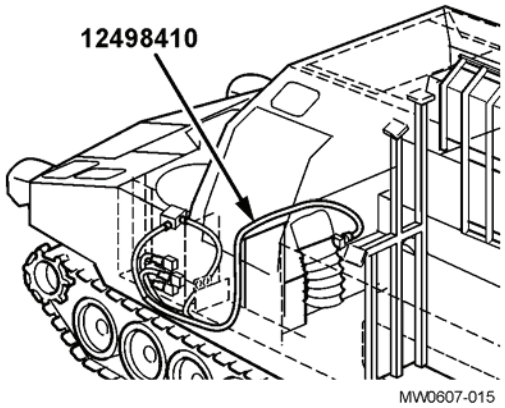
38. Install two engine AFES electrical relays 12498409 (Kit 57K3274) and relay 8762321, previously removed, and three ground straps 12268174-3 (Kit 57K3274) on shock mounts 10922334 with six plain hexagon nuts MS35649-2254 (Kit 57K3274), six flat washers MS15795-810 (Kit 57K3274), and six lockwashers MS35335-61 (Kit 57K3274).



10. MODIFICATION PROCEDURES (continued).

g. Installation (continued).

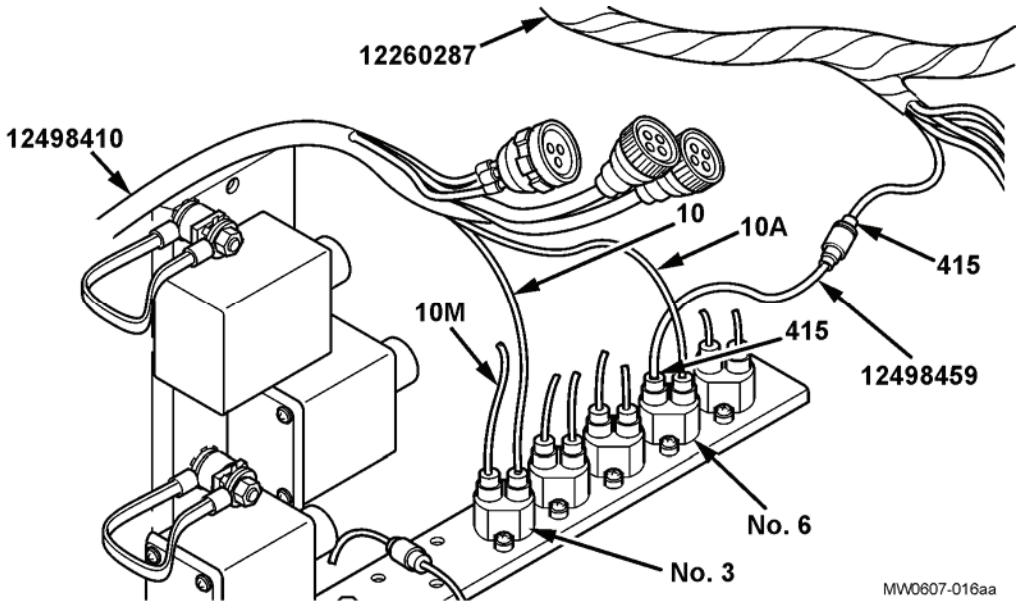
39. Position wiring harness 12498410 (Kit 57K3274) in vehicle.



40. Install jumper lead 12498459 (Kit 57K3274) to lead 415 of harness 12260287 and install on circuit breaker No. 6, as shown.

41. Connect wiring harness lead No. 10 to circuit breaker No. 3 on No. 2 circuit breaker panel, as shown.

42. Connect wiring harness lead No. 10A to circuit breaker No. 6 on No. 2 circuit breaker panel, as shown.



10. MODIFICATION PROCEDURES (continued).

g. Installation (continued).

NOTE

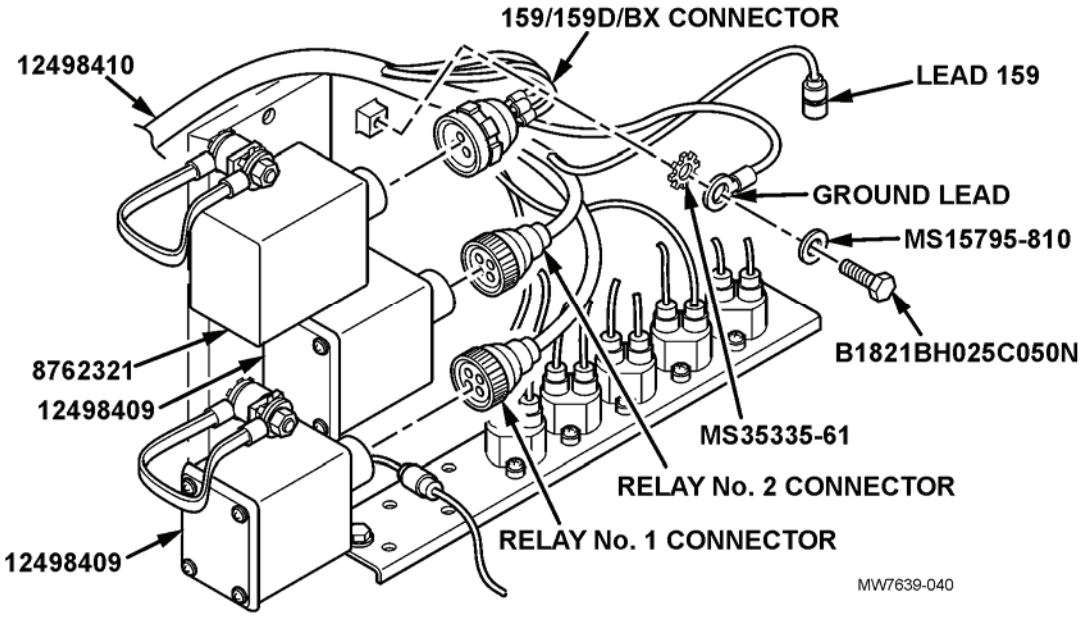
Wiring harness lead 159 connects to lead 591 of wiring harness 12498411 when installed.

43. Connect relay No. 1 connector, with lead 159, of wiring harness 12498410 attached, to No. 1 AFES electronic relay 12498409.

44. Connect relay No. 2 connector of wiring harness 12498410 to No. 2 AFES electronic relay 12498409.

45. Connect 159/159D/BX connector of wiring harness 12498410 to AFES electronic relay 8762321.

46. Install ground lead on bulkhead with lockwasher MS35335-61 (Kit 57K3274), capscrew B1821BH025C050N (Kit 57K3274), and flat washer MS15795-810 (Kit 57K3274).



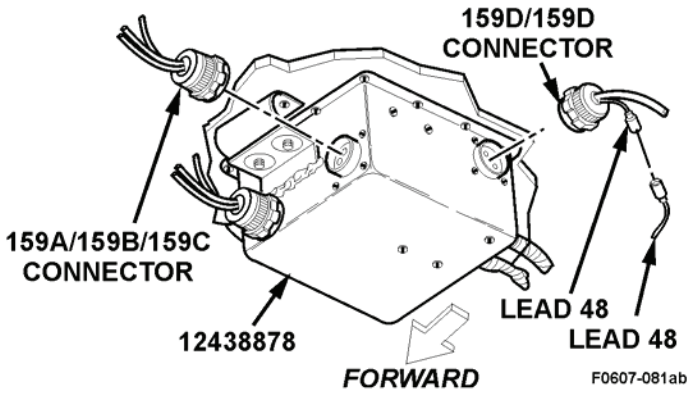
10. MODIFICATION PROCEDURES (continued).

g. Installation (continued).

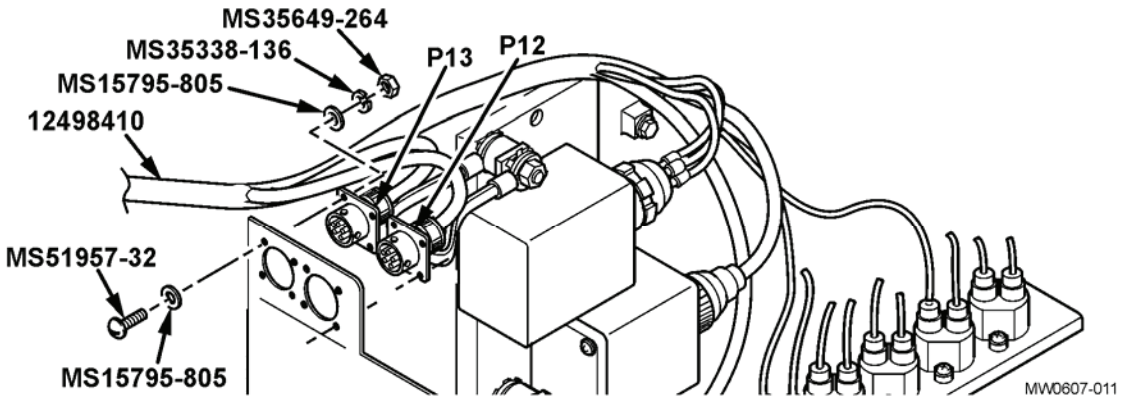
47. Install 159D/159D connector, with lead 48 attached, of wiring harness 12498410 to accessory control box 12438878.

48. Connect lead 48 of wiring harness 12498410 to lead 48 of wiring harness 12376405.

49. Install 159A/159B/159C connector of wiring harness 12498410 to accessory control box 12438878.



50. Install P12 and P13 connectors of wiring harness 12498410 to hull bracket with eight machine screws MS51957-32 (Kit 57K3274), eight lockwashers MS35338-136 (Kit 57K3274), eight plain hexagon nuts MS35649-264 (Kit 57K3274), and sixteen flat washers MS15795-805 (Kit 57K3274), as shown.



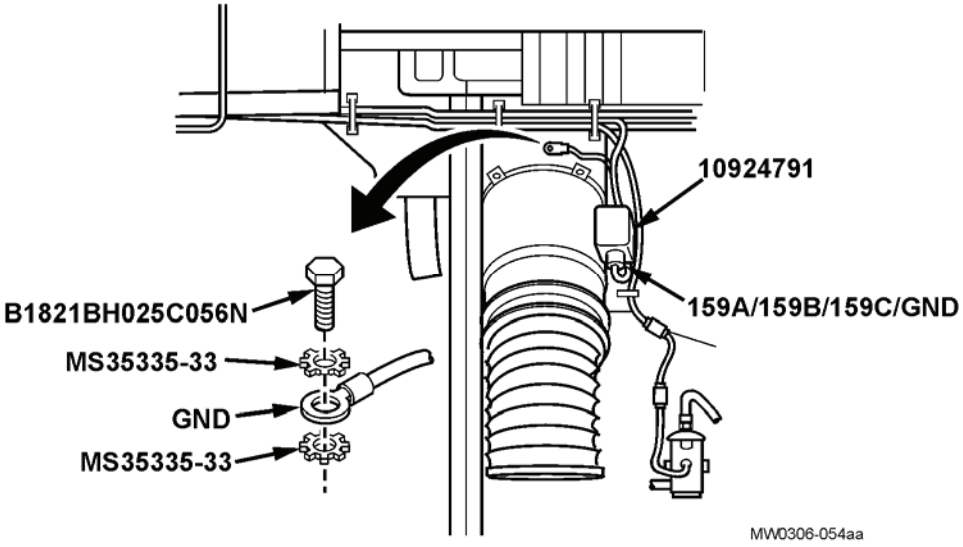
10. MODIFICATION PROCEDURES (continued).

g. Installation (continued).

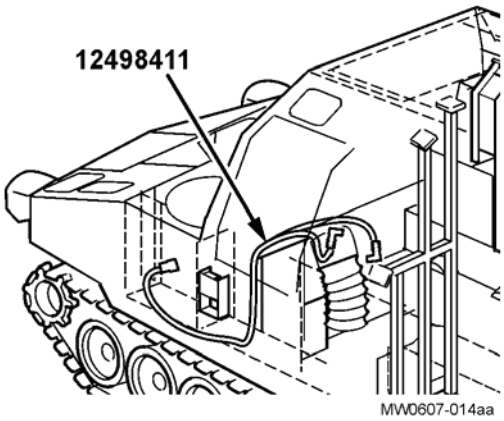
51. Loosen clamp on ventilation fan hose to allow access to personnel ventilation blower.

52. Connect GND lead of wiring harness 12498410 to forward bulkhead and secure with capscrew B1821BH025C056N (Kit 57K3276) and two lockwashers MS35335-33 (Kit 57K3276).

53. Connect 159D/159B/159C/GND connector to personnel ventilation blower 10924791.



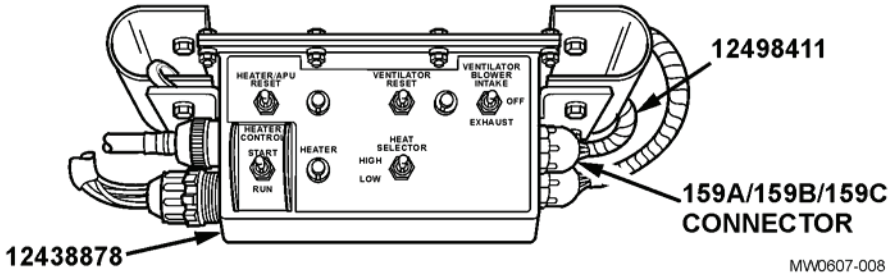
54. Position wiring harness 12498411 (Kit 57K3274) into vehicle.



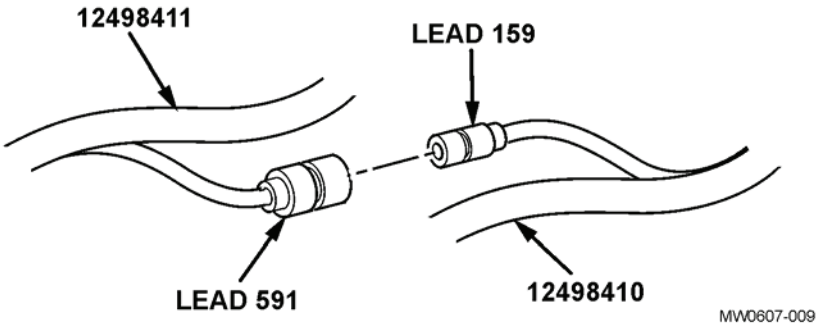
10. MODIFICATION PROCEDURES (continued).

g. Installation (continued).

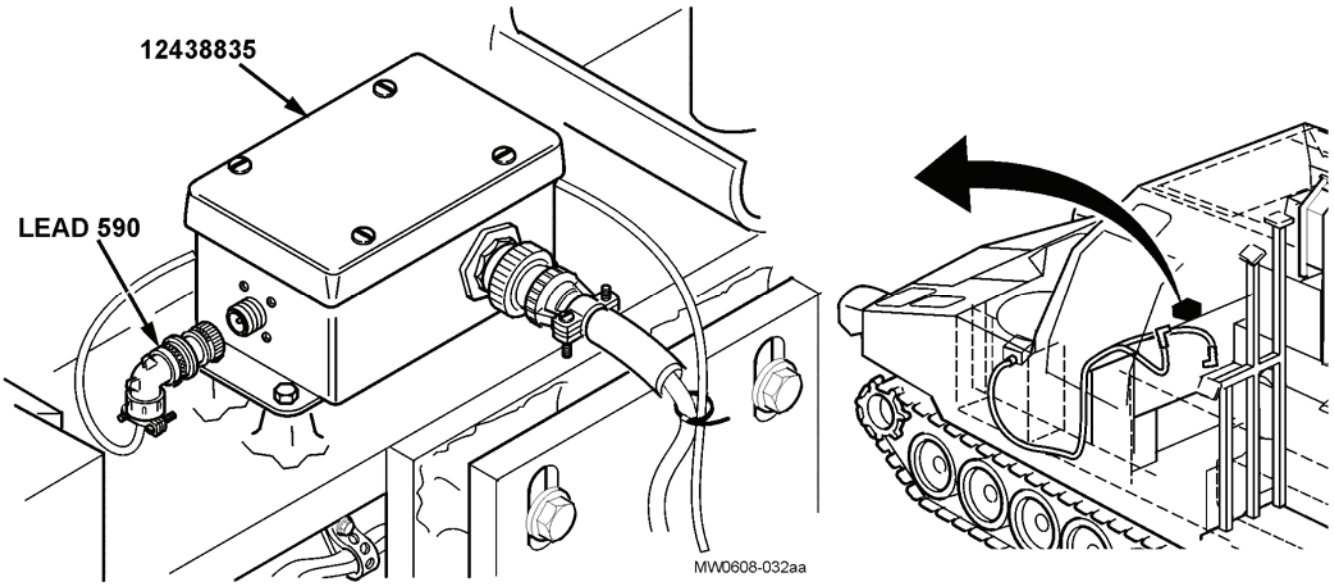
55. Connect connector 159A/159B/159C connector of wiring harness 12498411 to right side of accessory control box 12438878.



56. Connect lead 591 of wiring harness 12498411 to lead 159 of wiring harness 12498410.



57. Connect lead 590 of wiring harness 12498411 to linear actuator control box 12438835.

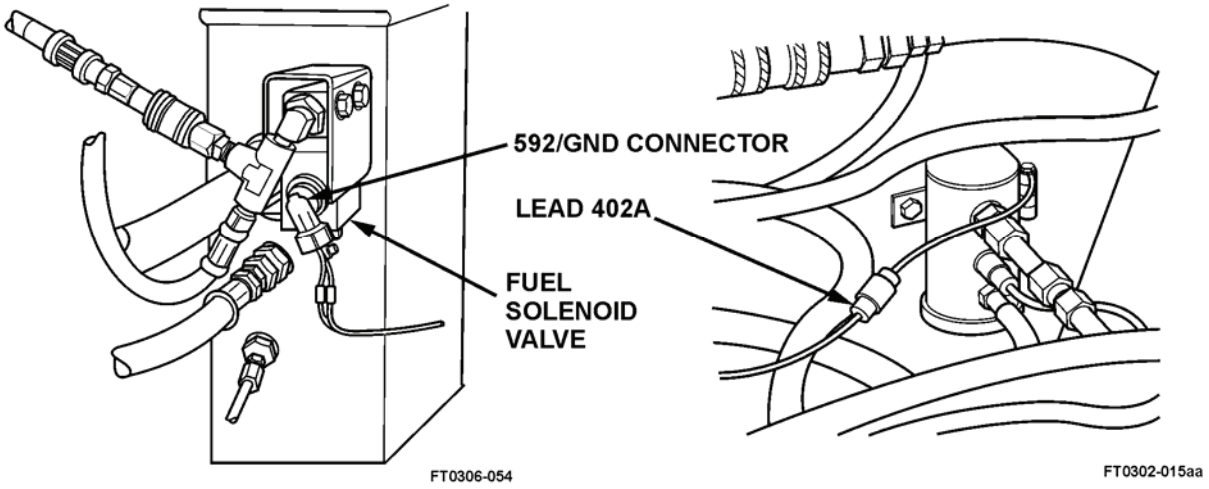


10. MODIFICATION PROCEDURES (continued).

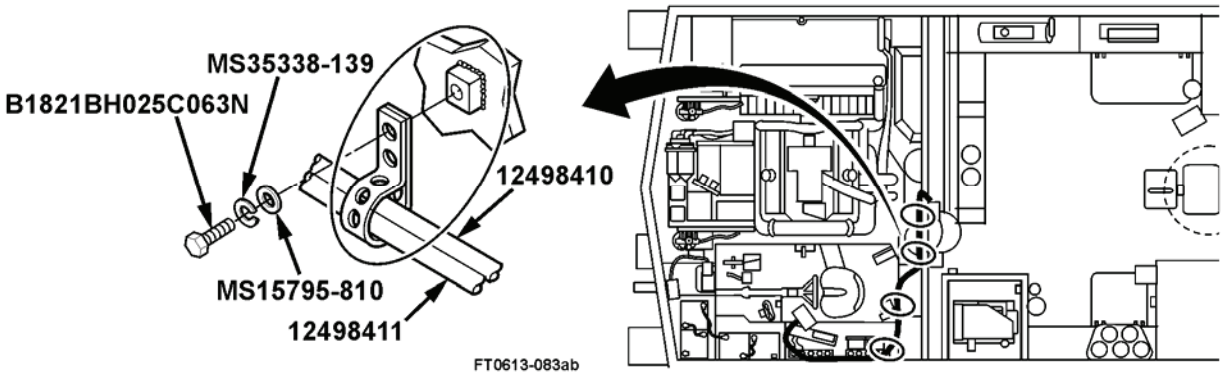
g. Installation (continued).

58. Connect 592/GND connector wiring harness 12498411 to fuel solenoid valve.

59. Connect lead 402A of wiring harness 12498411 to personnel heater fuel pump socket connector.



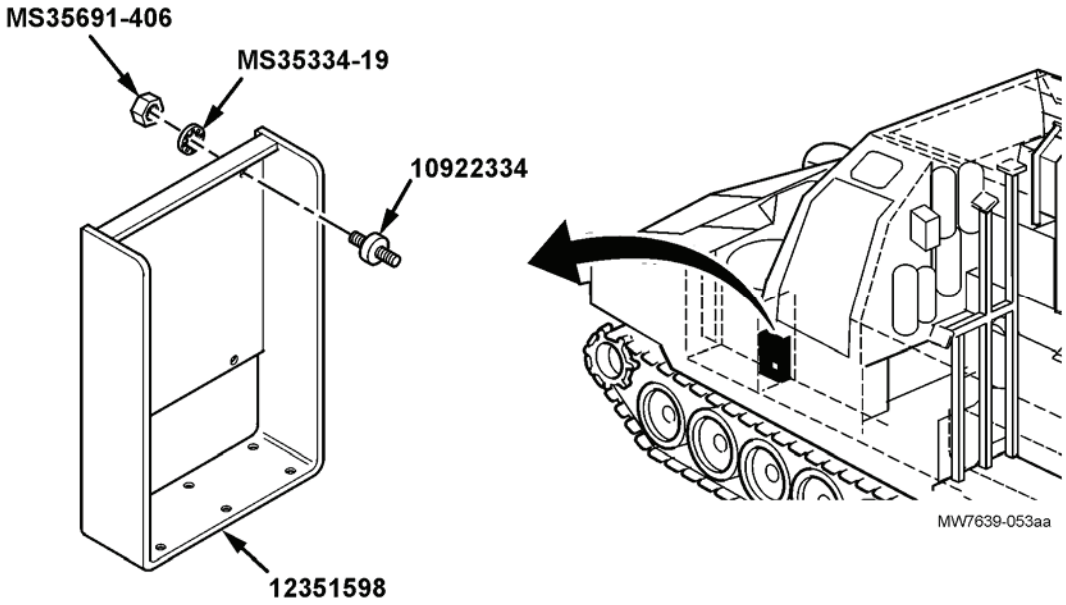
60. Secure wiring harnesses 12498410 and 12498411 to hull with four straps 10905840 (Kit 57K3276), flat washers MS15795-810 (Kit 57K3276), lockwashers MS35338-139 (Kit 57K3276), and capscrews B1821BH025C063N (Kit 57K3276).



10. MODIFICATION PROCEDURES (continued).

g. Installation (continued).

61. Install four isolators 10922334 (Kit 57K3274) on mounting bracket 12351598 with four lockwashers MS35334-19 (Kit 57K3274) and nuts MS35691-406 (Kit 57K3274).



10. MODIFICATION PROCEDURES (continued).

g. Installation (continued).

62. Install mounting bracket 12351598 and ground strap 12268174-4 (57K3274) on sponson with hexagon head capscrew B1821BH025C056N (Kit 57K3276) and two lockwashers MS35335-61 (Kit 57K3274).

NOTE

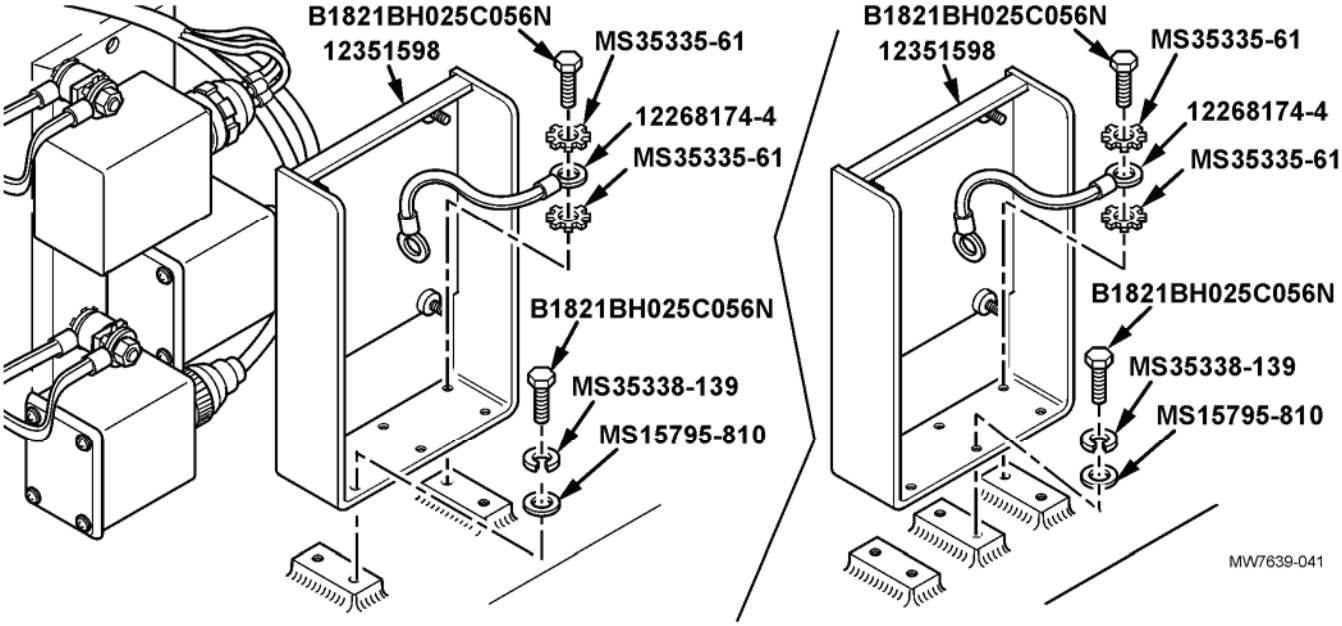
Perform Step 63 for vehicles S/N 1-344 only.

63. Install three hexagon head capscrews B1821BH025C056N (Kit 57K3276), lockwashers MS35338-139 (Kit 57K3276), and flat washers MS15795-810 (Kit 57K3276) on mounting bracket 12351598.

NOTE

Perform Step 64 for vehicles S/N 345 and above.

64. Install five hexagon head capscrews B1821BH025C056N (Kit 57K3276), lockwashers MS35338-139 (Kit 57K3276), and flat washers MS15795-810 (Kit 57K3276) on mounting bracket 12351598.



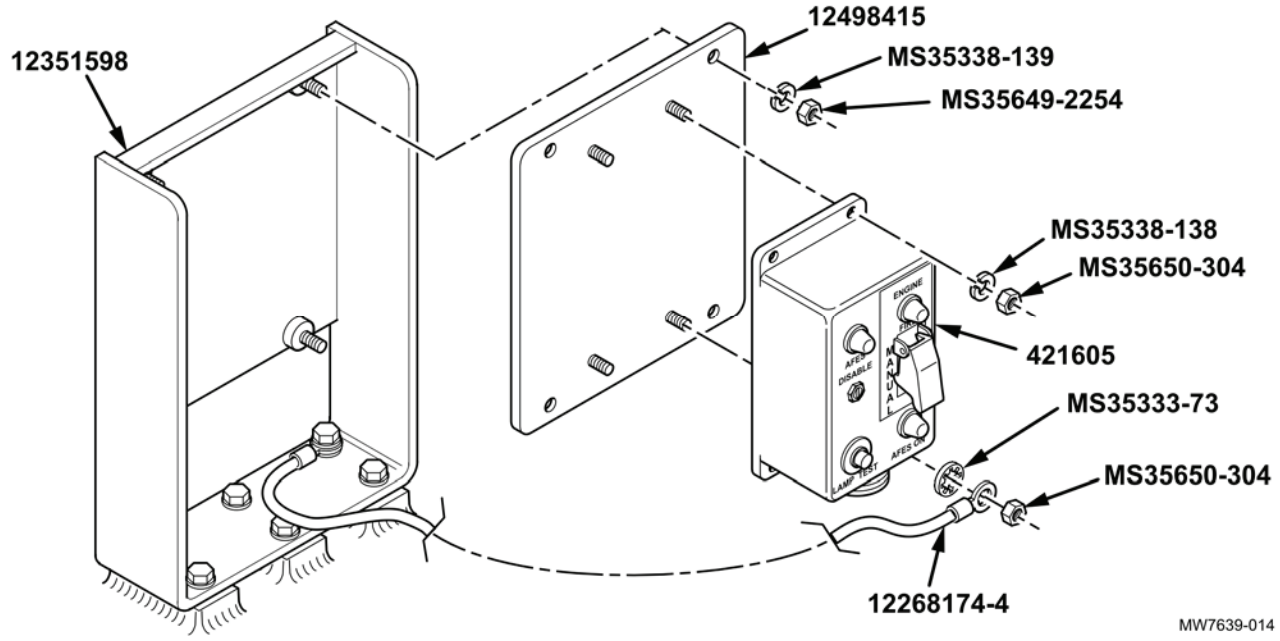
10. MODIFICATION PROCEDURES (continued).

g. Installation (continued).

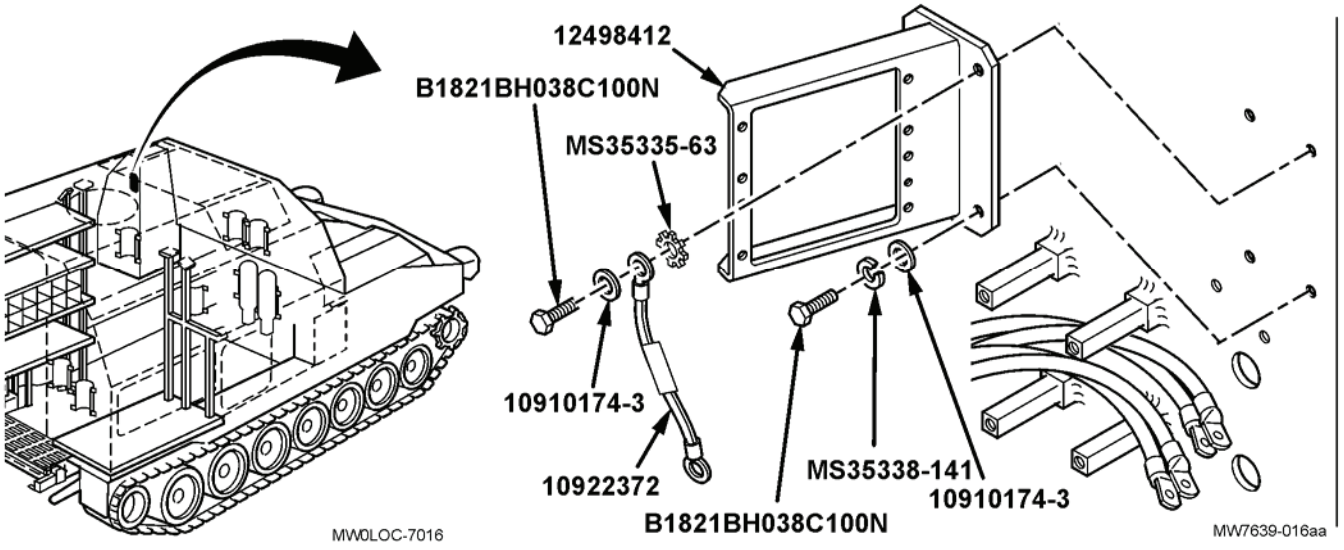
65. Install plate 12498415 (Kit 57K3274) to mounting bracket 12351598 with four plain nuts MS35649-2254 (Kit 57K3274) and lockwashers MS35338-139 (Kit 57K3274).

66. Install Driver's Control Panel (DCP) 421605 (Kit 57K3274) to plate 12498415 with three plain nuts MS35650-304 (Kit 57K3274) and lockwashers MS35338-138 (Kit 57K3274).

67. Install ground strap 12268174-4 on DCP 421605 with lockwasher MS35333-73 (Kit 57K3274) and plain nut MS35650-304 (Kit 57K3274).



68. Install mounting bracket 12498412 (Kit 57K3274) and ground lead 10922372 (Kit 57K3274) on APU compartment bulkhead with four hexagon head capscrews B1821BH038C100N (Kit 57K3274), four flat washers 10910174-3 (Kit 57K3274), three lockwashers MS35338-141 (Kit 57K3274) and one lockwasher MS35335-63 (Kit 57K3274).

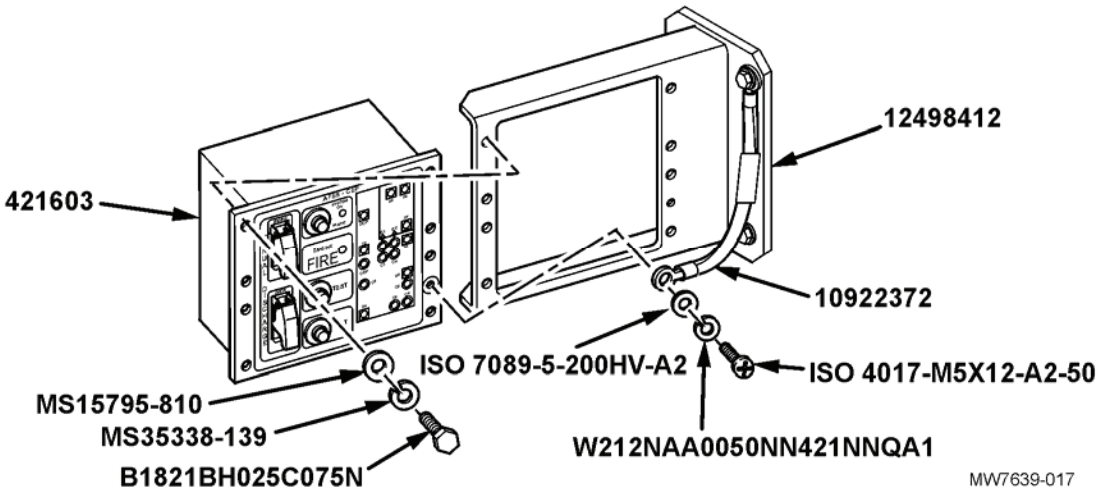


10. MODIFICATION PROCEDURES (continued).

g. Installation (continued).

69. Install Control Electronics Panel (CEP) 421603 (Kit 57K3274) on mounting bracket 12498412 with eight hexagon head capscrews B1821BH025C075N (Kit 57K3274), lockwashers MS35338-139 (Kit 57K3274), and flat washers MS15795-810 (Kit 57K3274).

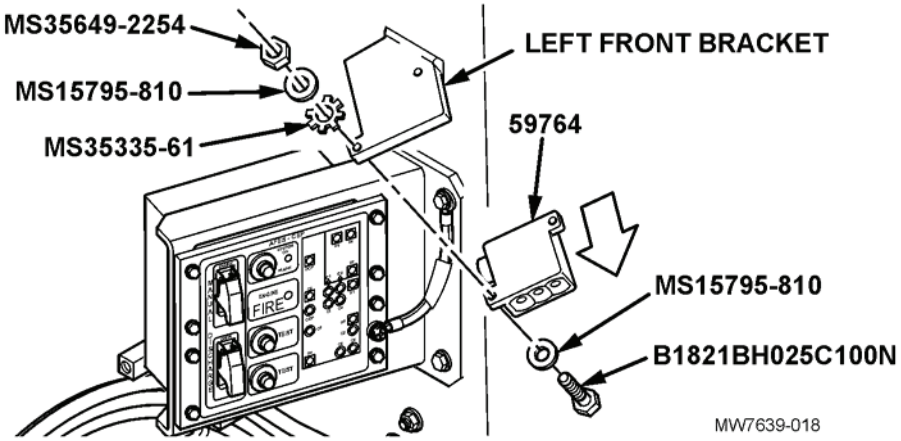
70. Install ground lead 10922372 to face of CEP 421603 with screw ISO 4017-M5X12-A2-50 (Kit 57K3274), lockwasher W212NAA0050NN421NNQA1 (Kit 57K3274), and flat washer ISO 7089-5-200HV-A2 (Kit 57K3274).



WARNING

Ensure the OFSAs are installed in the proper position as illustrated. Failure to do so can result in failure of the OFSA to detect a fire.

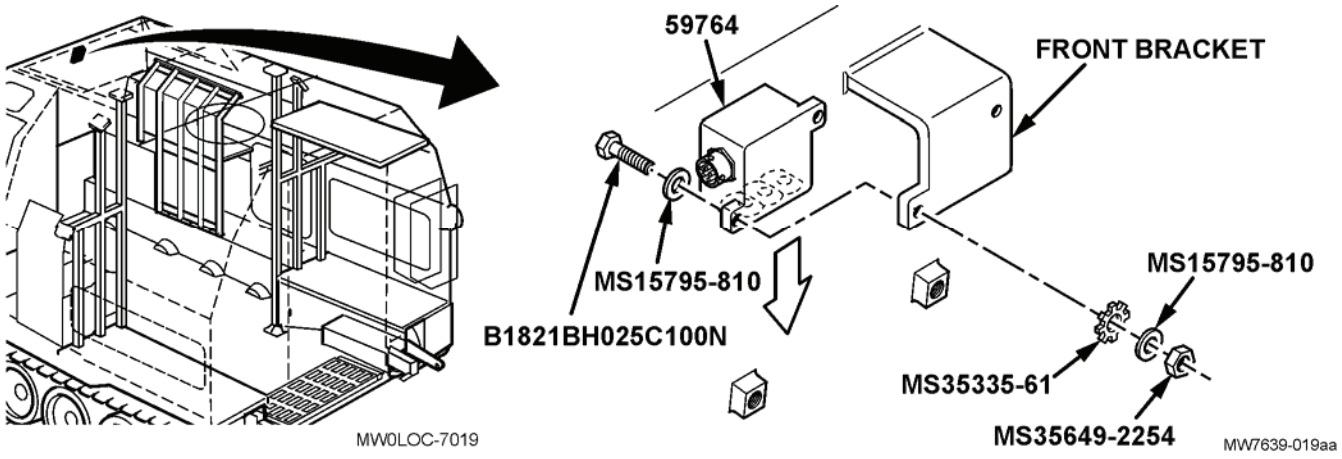
71. Position OFSA 59764 (Kit 57K3274) on left-front bracket with lenses facing in the direction as shown. Install OFSA 59764 on left-front bracket with two hexagon head capscrews B1821BH025C100N (Kit 57K3274), two lockwashers MS35335-61 (Kit 57K3274), two plain nuts MS35649-2254 (Kit 57K3274), and four flat washers MS15795-810 (Kit 57K3274).



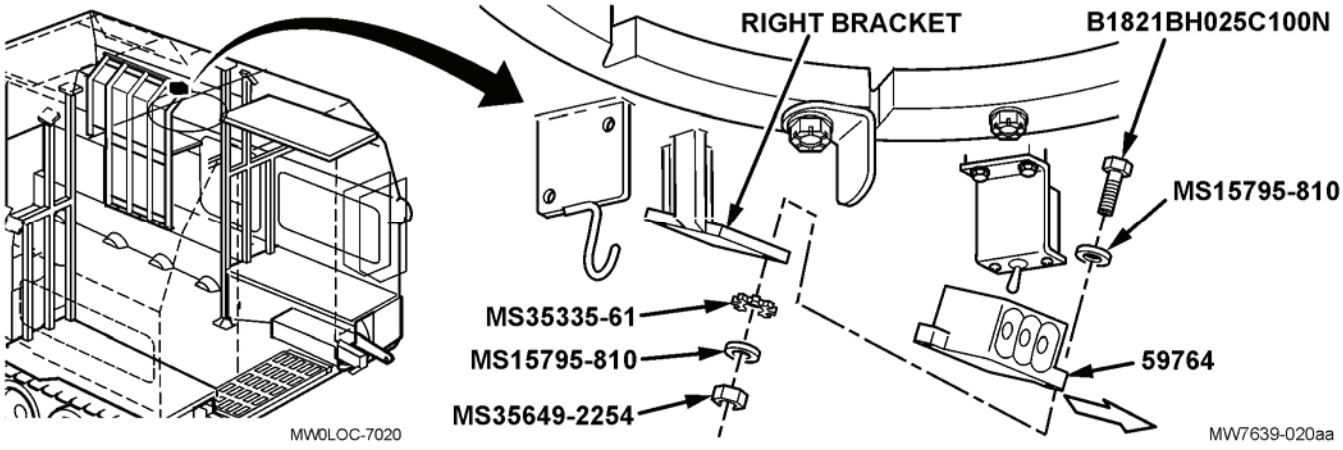
10. MODIFICATION PROCEDURES (continued).

g. Installation (continued).

72. Position OFSA 59764 (Kit 57K3274) on front bracket with lenses facing in the direction, as shown. Install OFSA 59764 on front bracket with two hexagon head capscrews B1821BH025C100N (Kit 57K3274), two lockwashers MS35335-61 (Kit 57K3274), two plain nuts MS35649-2254 (Kit 57K3274), and four flat washers MS15975-810 (Kit 57K3274).



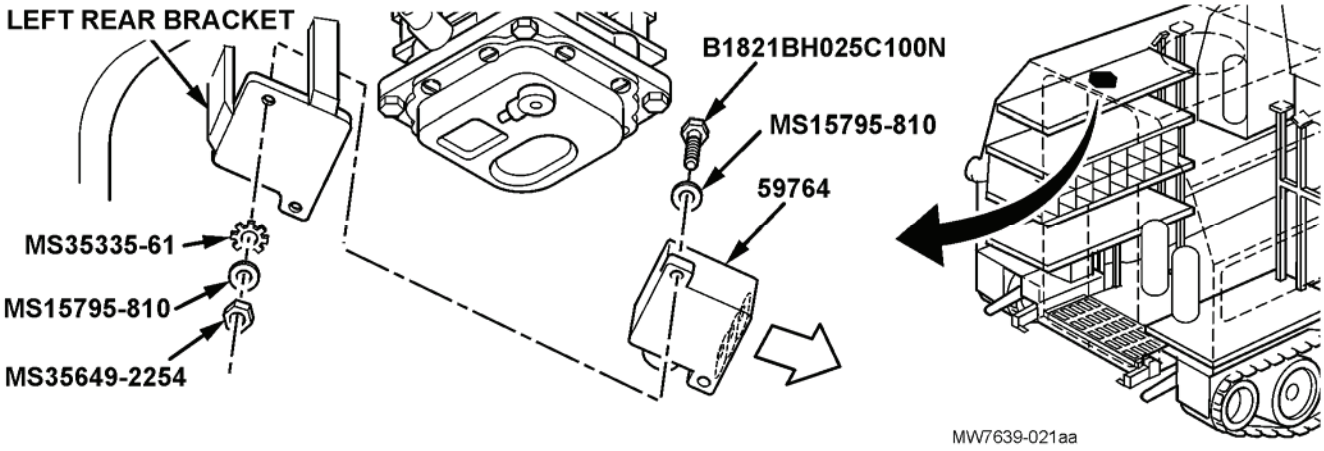
73. Position OFSA 59764 (Kit 57K3274) on right bracket with lenses facing in the direction as shown. Install OFSA 59764 on right bracket with two hexagon head capscrews B1821BH025C100N (Kit 57K3274), two lockwashers MS35335-61 (Kit 57K3274), two plain nuts MS35649-2254 (Kit 57K3274), and. four flat washers MS15795-810 (Kit 57K3274),



10. MODIFICATION PROCEDURES (continued).

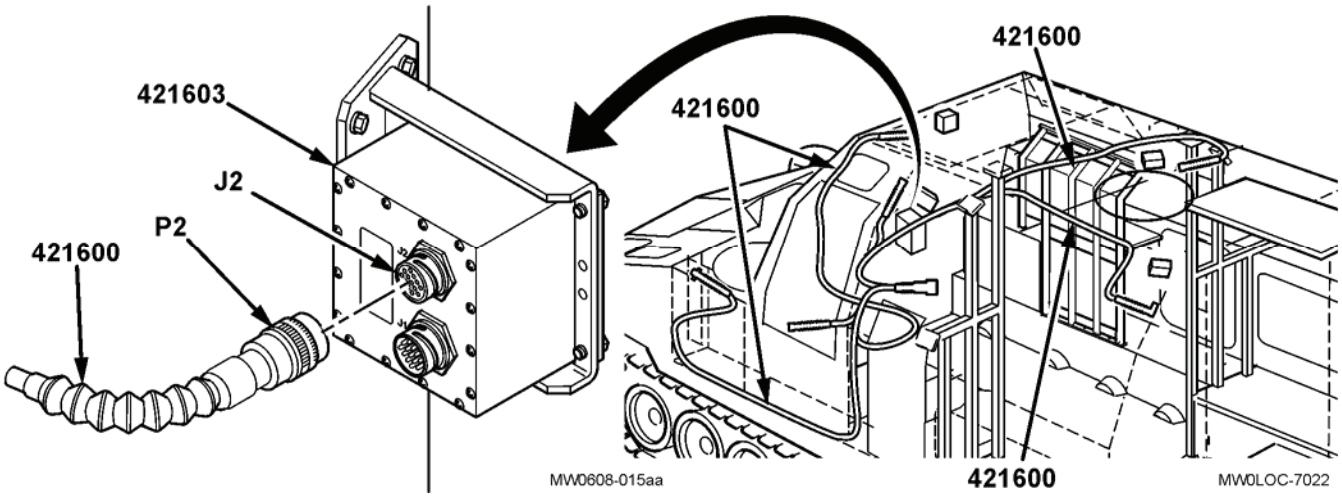
g. Installation (continued).

74. Position OFSA 59764 (Kit 57K3274) on left-rear bracket with lenses facing in the direction as shown. Install OFSA 59764 on left-rear bracket with two hexagon head capscrews B1821BH025C100N (Kit 57K3274), two lockwashers MS35335-61 (Kit 57K3274), two plain nuts MS35649-2254 (Kit 57K3274), and four flat washers MS15795-810 (Kit 57K3274).



75. Install crew-sensor wiring harness 421600 (Kit 57K3274) on vehicle.

76. Connect P2 connector of crew-sensor wiring harness 421600 to connector J2 of CEP 421603, as shown.

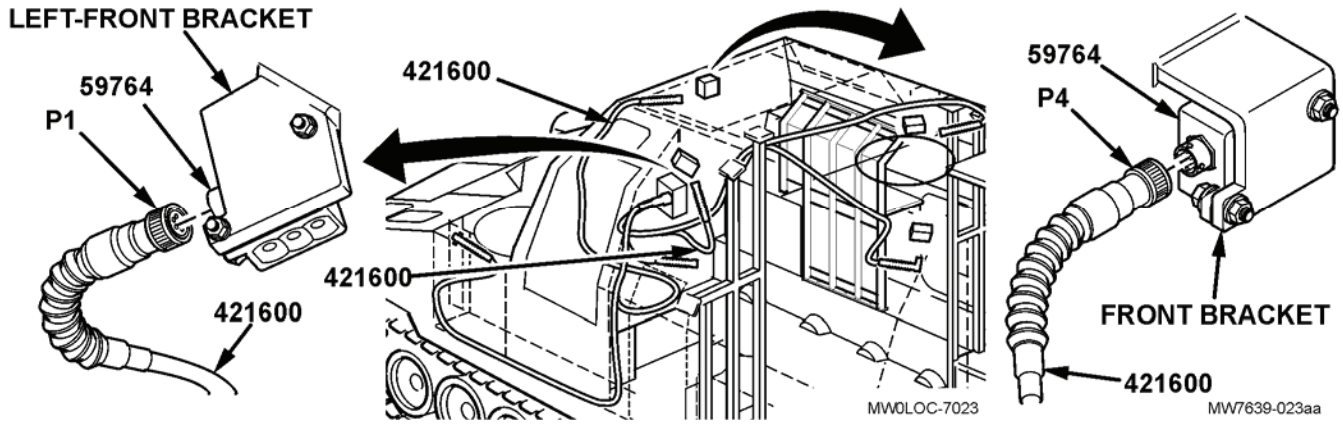


10. MODIFICATION PROCEDURES (continued).

g. Installation (continued).

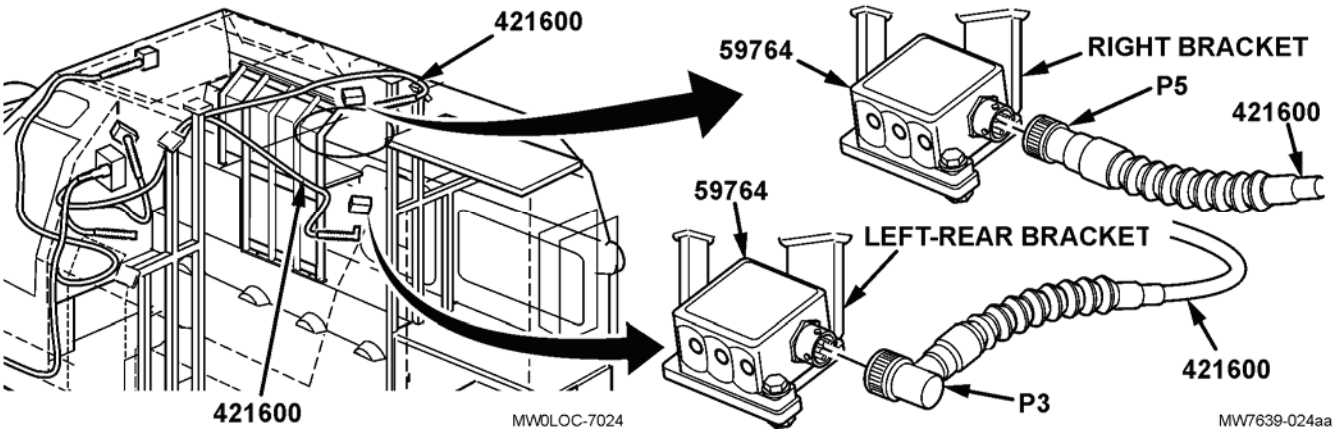
77. Route P1 connector of crew-sensor wiring harness 421600 to left-front bracket and connect to OFSA 59764, as shown.

78. Route P4 connector of crew-sensor wiring harness 421600 under APU compartment and to front bracket and connect to OFSA 59764, as shown.



79. Route P5 connector of crew-sensor wiring harness 421600 to right bracket and connect to OFSA 59764, as shown.

80. Route P3 connector of crew-sensor wiring harness 421600 to left-rear bracket and connect to OFSA 59764, as shown.

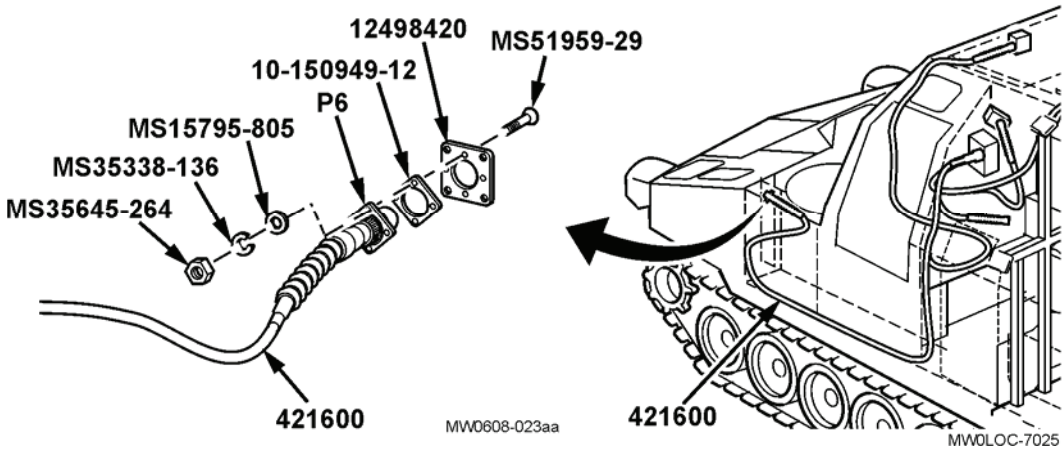


10. MODIFICATION PROCEDURES (continued).

g. Installation (continued).

81. Route P6 connector of crew-sensor wiring harness 421600 under APU compartment, through driver's compartment, to forward bulkhead, as shown.

82. Install gasket 10-150949-12 (Kit 57K3274) and adapter plate 12498420 (Kit 57K3274) on crew-sensor wiring harness 421600 with four screws MS51959-29 (Kit 57K3274), lockwashers MS35338-136 (Kit 57K3274), flat washers MS15795-805 (Kit 57K3274), and plain nuts MS35649-264 (Kit 57K3274).

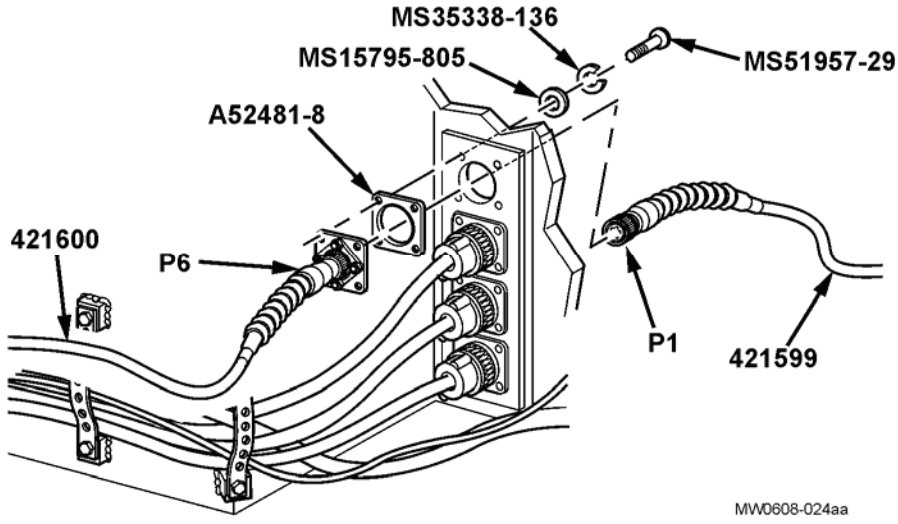


NOTE

Assistant will help with step 83.

83. Install P6 connector of crew-sensor wiring harness 421600 and gasket A52481-8 (Kit 57K3274) on bulkhead with four flat washers MS15795-805 (Kit 57K3274), screws MS51957-29 (Kit 57K3274), and lockwashers MS35338-136 (Kit 57K3274).

84. Connect P1 connector of bulkhead wiring harness 421599 to P6 connector of crew sensor wiring harness 421600.

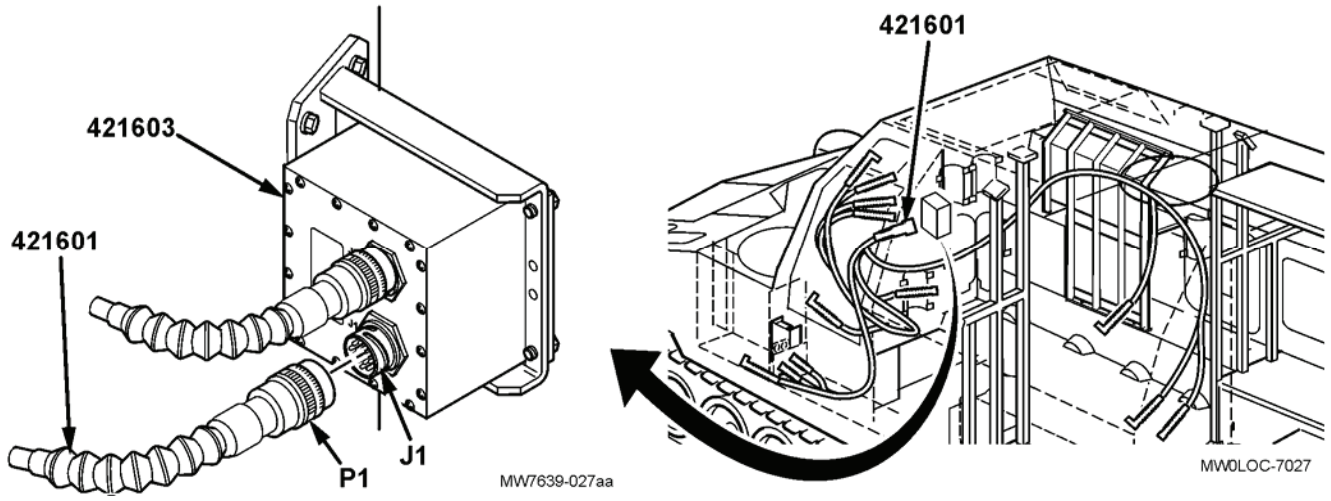


10. MODIFICATION PROCEDURES (continued).

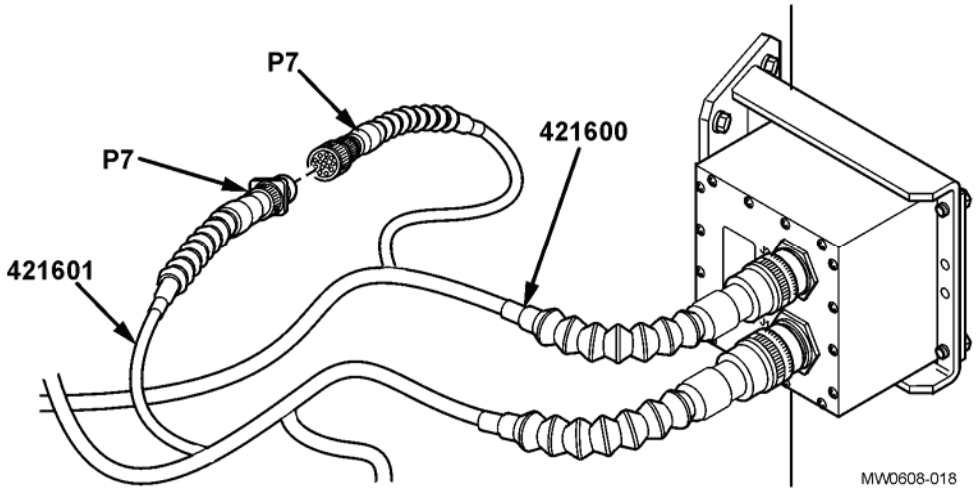
g. Installation (continued).

85. Position valve wiring harness 421601 (Kit 57K3274) on vehicle.

86. Connect P1 connector of valve wiring harness 421601 to connector J1 of CEP 421603, as shown.



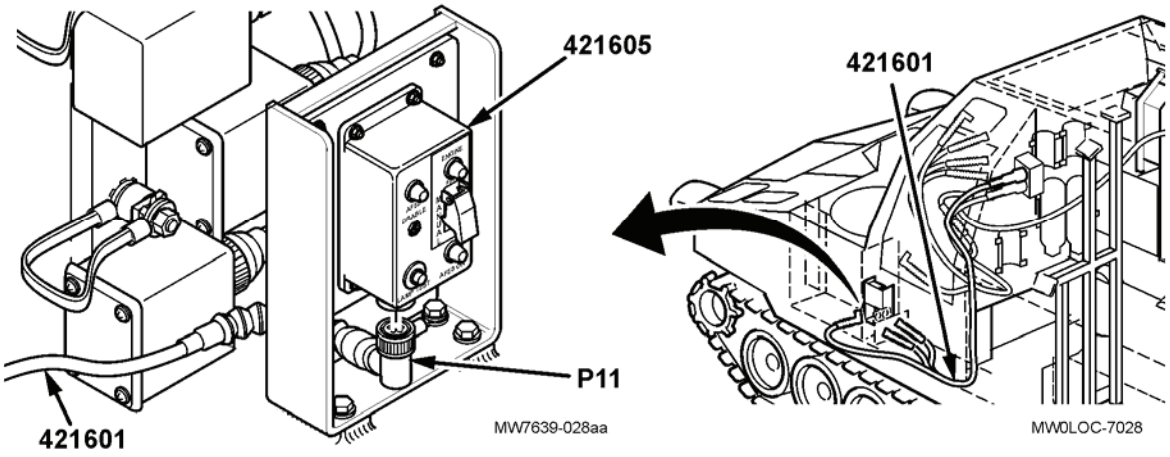
87. Connect P7 connector of valve wiring harness 421601 to P7 connector of crew sensor wiring harness 421600.



10. MODIFICATION PROCEDURES (continued).

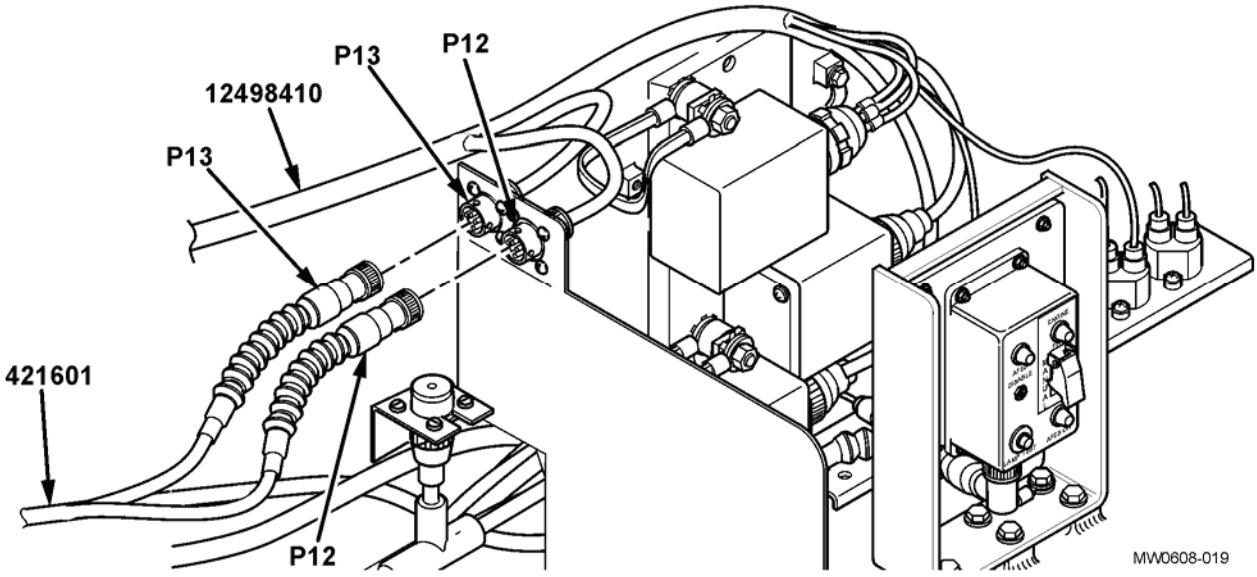
g. Installation (continued).

88. Route P11 connector of valve wiring harness 421601 under APU compartment, into driver's compartment, and connect to DCP 421605 in driver's compartment, as shown.



89. Connect P12 connector of wiring harness 12498410 to connector P12 of wiring harness 421601.

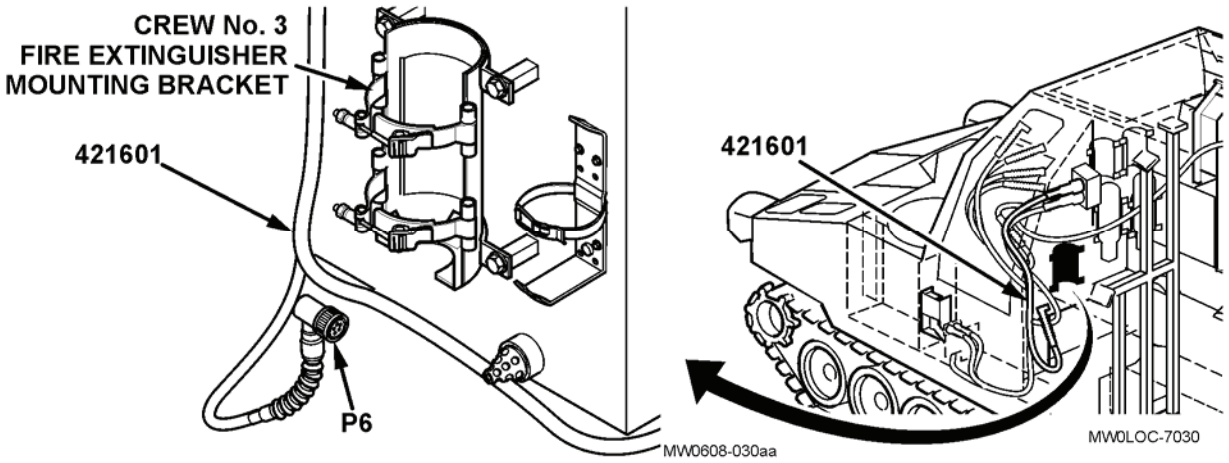
90. Connect P13 connector of wiring harness 12498410 to connector P13 of wiring harness 421601.



10. MODIFICATION PROCEDURES (continued).

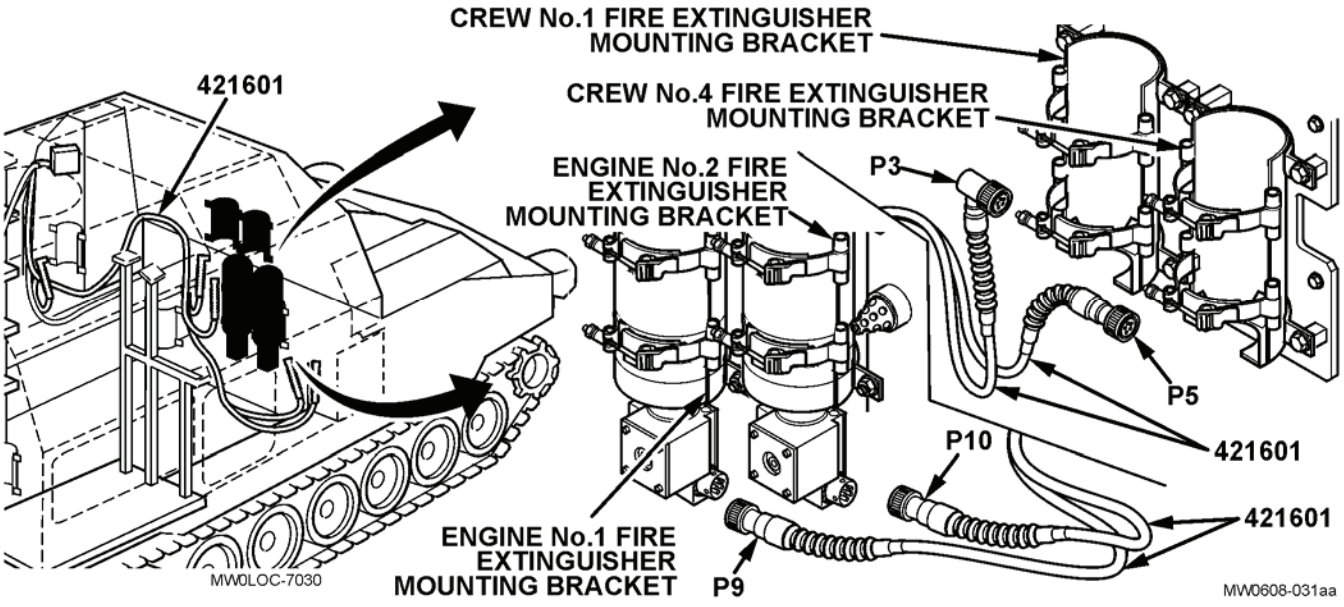
g. Installation (continued).

91. Route P6 connector of valve wiring harness 421601 to crew No. 3 fire extinguisher mounting bracket on APU compartment bulkhead, as shown.



92. Route connectors P3 and P5 of valve wiring harness 421601 to crew No. 1 and No. 4 fire extinguisher mounting brackets.

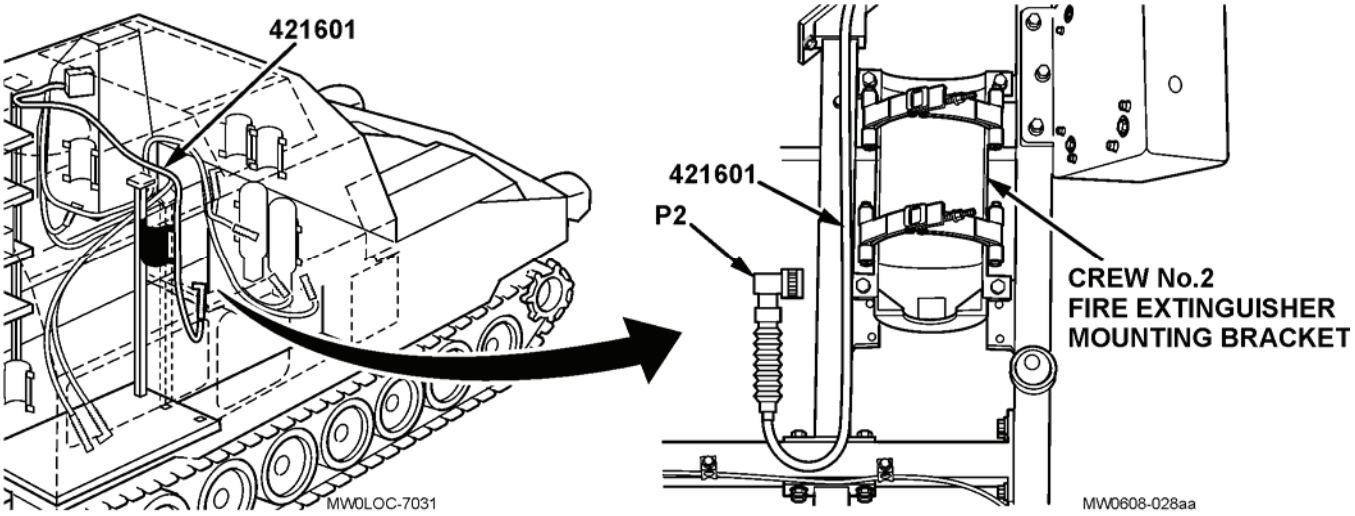
93. Route connectors P9 and P10 of valve wiring harness 421601 to engine No. 1 and No. 2 fire extinguisher mounting brackets.



10. MODIFICATION PROCEDURES (continued).

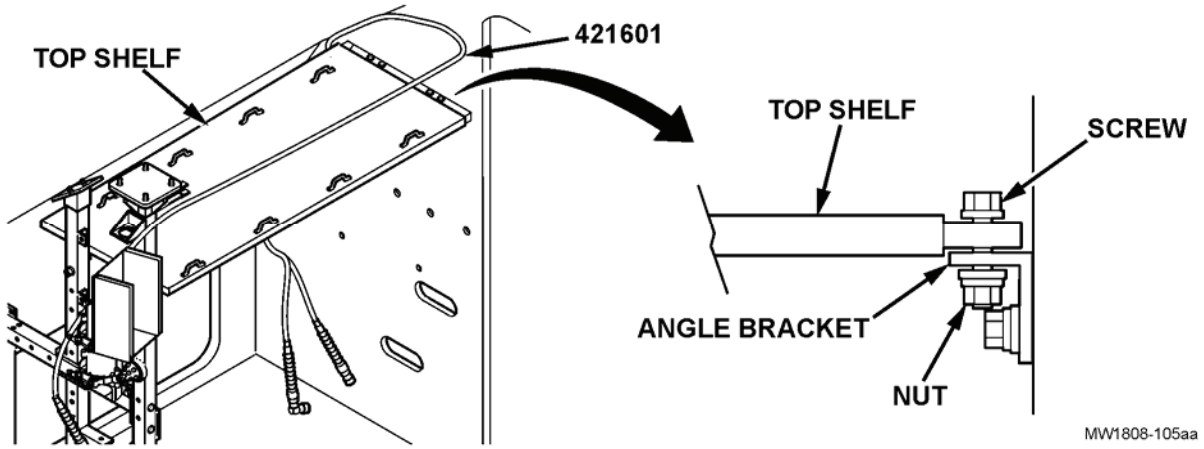
g. Installation (continued).

94. Route connector P2 of valve wiring harness 421601 to right side of crew compartment down right storage rack, and to crew No. 2 fire extinguisher mounting brackets, as shown.



95. Route connectors P4 and P8 of valve wiring harness 421601 to right-rear of crew compartment along existing wiring harness, as shown.

96. Loosen four screws and nuts from top shelf and angle bracket. Slide shelf to allow enough clearance for routing of valve wiring harness 421601. Tighten top shelf hardware after harness is properly routed.



10. MODIFICATION PROCEDURES (continued).

g. Installation (continued).

97. Route connectors P4 and P8 of valve wiring harness 421601 to right-rear of crew compartment by inserting connectors through upper slot in hull and into weapon access door 12352336, as shown.

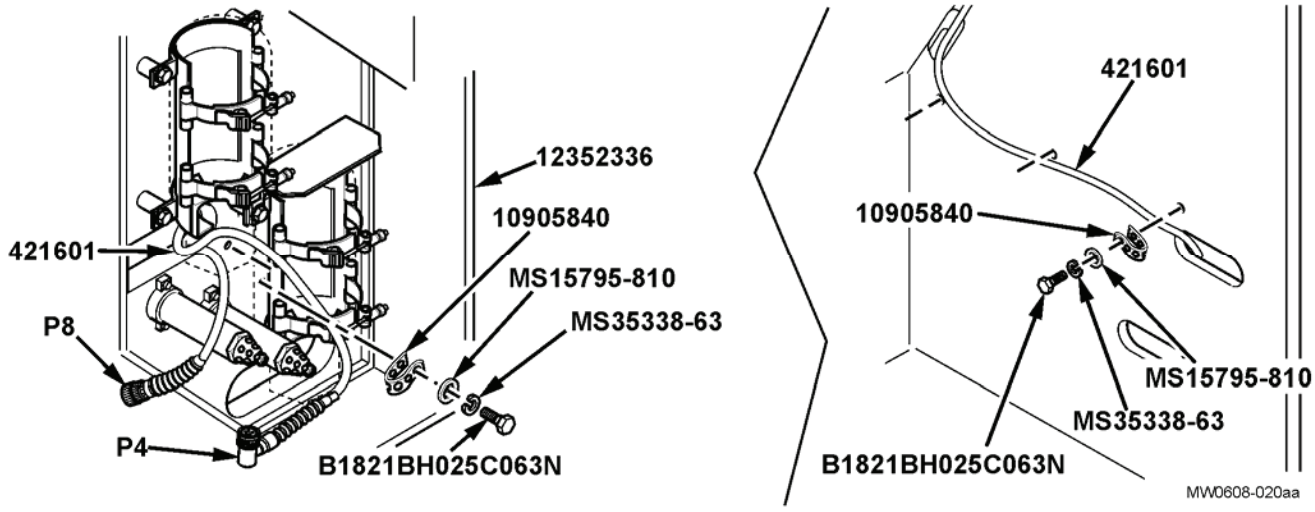
NOTE

Electrical tie down straps 10905840 are cut to length from bulk as required to secure the wiring harnesses onto the vehicle.

NOTE

For vehicles without the 4x6 honeycomb installed, perform Step 98.

98. Install valve wiring harness 421601 on rear hull and fire extinguisher box with five hexagon head capscrews B1821BH025C063N (Kit 57K3276), lockwashers MS35338-139 (Kit 57K3276), flat washers MS15795-810 (Kit 57K3276), and tie down straps 10905840 (Kit 57K3276).



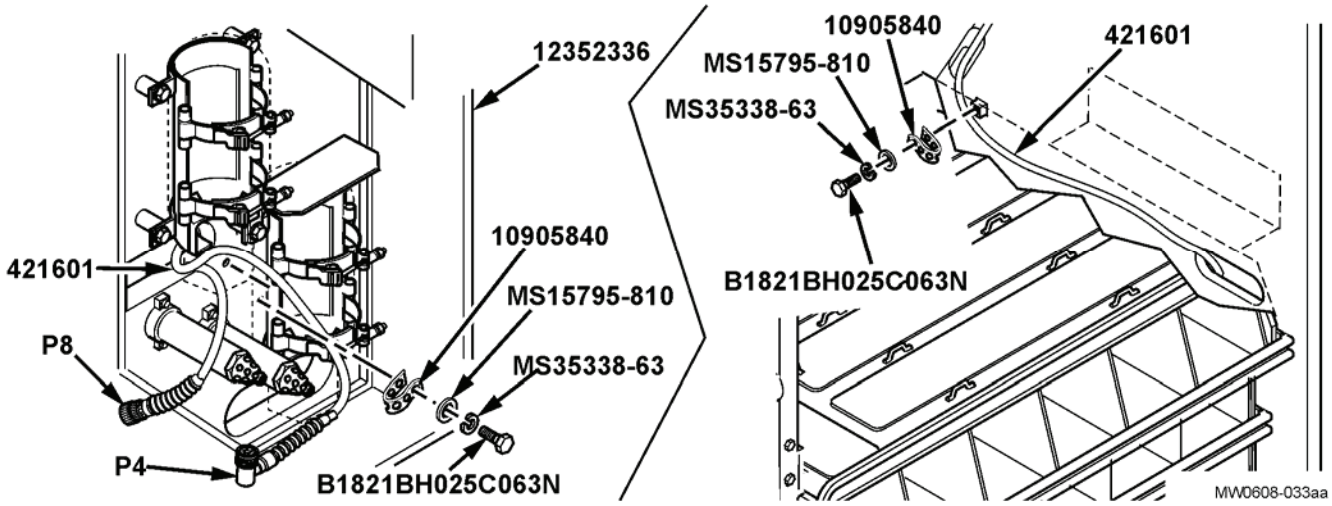
10. MODIFICATION PROCEDURES (continued).

g. Installation (continued).

NOTE

For vehicles with the 4x6 honeycomb installed, perform Step 99.

99. Install valve wiring harness 421601 on rear hull and fire extinguisher box with three hexagon head capscrews B1821BH025C063N (Kit 57K3276), lockwashers MS35338-139 (Kit 57K3276), flat washers MS15795-810 (Kit 57K3276), and tie down straps 10905840 (Kit 57K3276).



10. MODIFICATION PROCEDURES (continued).

g. Installation (continued).

WARNING

Ensure fire extinguisher bottles are mounted in the proper position. Failure to do so may render fire extinguisher useless in putting out crew compartment fires.

NOTE

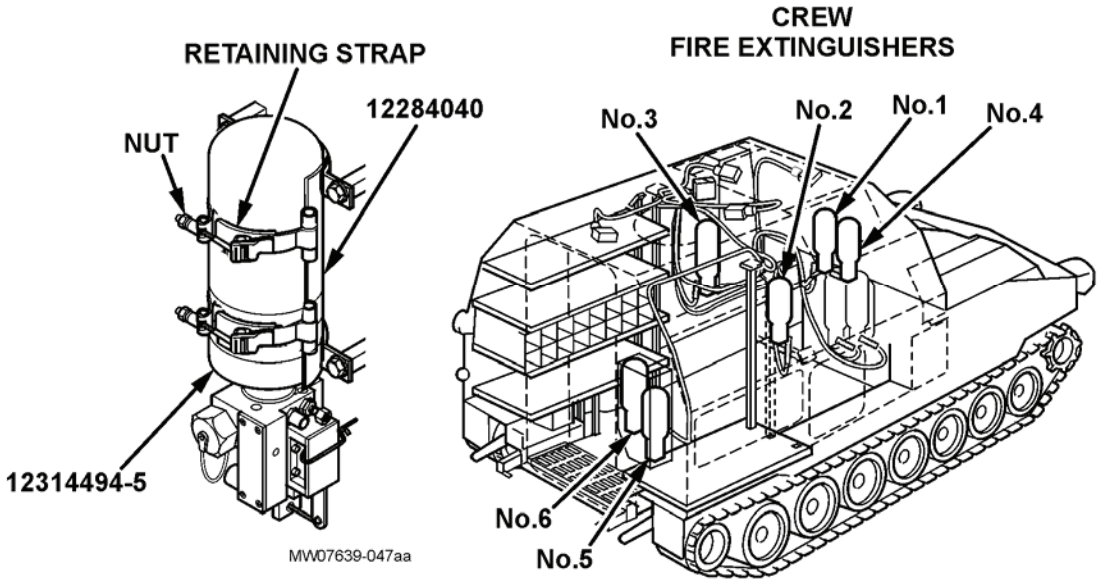
Perform Step 100 for vehicles S/N 1 through 344. Each crew fire extinguisher bottle is installed the same way.

100. Install crew fire extinguisher bottles No. 1, 2, 3, 4, 5, and 6 12314494-5 (Kit 57K3275) on mounting brackets 12284040 with retaining straps and two nuts.

NOTE

Perform Step 101 for vehicles S/N 345 and above. Each crew fire extinguisher bottle is installed the same way.

101. Install crew fire extinguisher bottles No. 2 and 3 12314494-5, previously removed, on mounting brackets 12284040 with retaining straps and two nuts.



10. MODIFICATION PROCEDURES (continued).

g. Installation (continued).

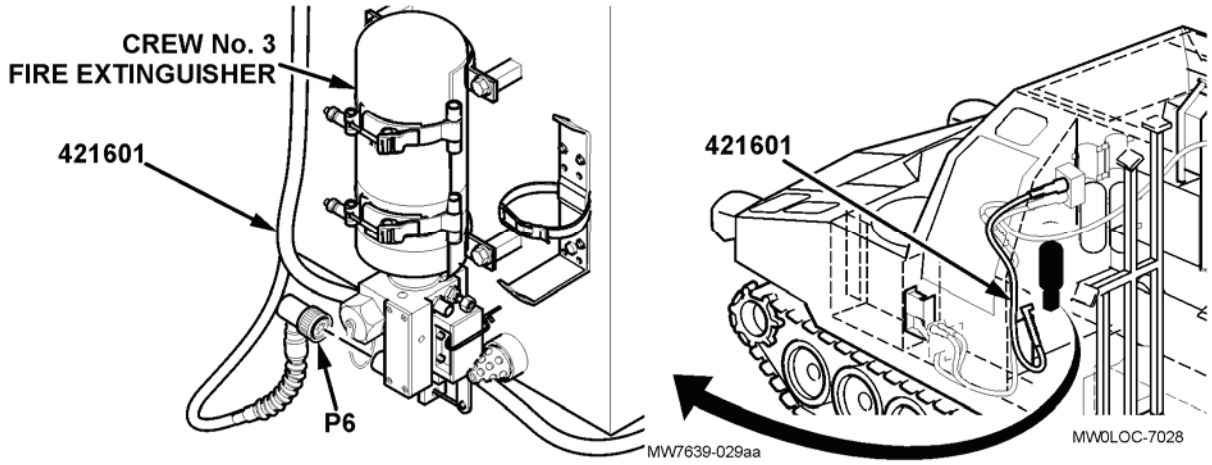
WARNING

Perform the AFES Test Procedure (Paragraph 11, Final Testing) to verify the system has been installed and performing properly. Do not install fire extinguisher bottles or make the final connection of the wiring harness until the AFES system passes test. Failure to perform the test may result in the AFES system not operating properly.

WARNING

Ensure fire extinguisher bottles are mounted in the proper position. Failure to do so may render fire extinguisher useless in putting out crew compartment fires.

102. Connect P6 connector of valve wiring harness 421601 to crew No. 3 fire extinguisher, as shown.



10. MODIFICATION PROCEDURES (continued).

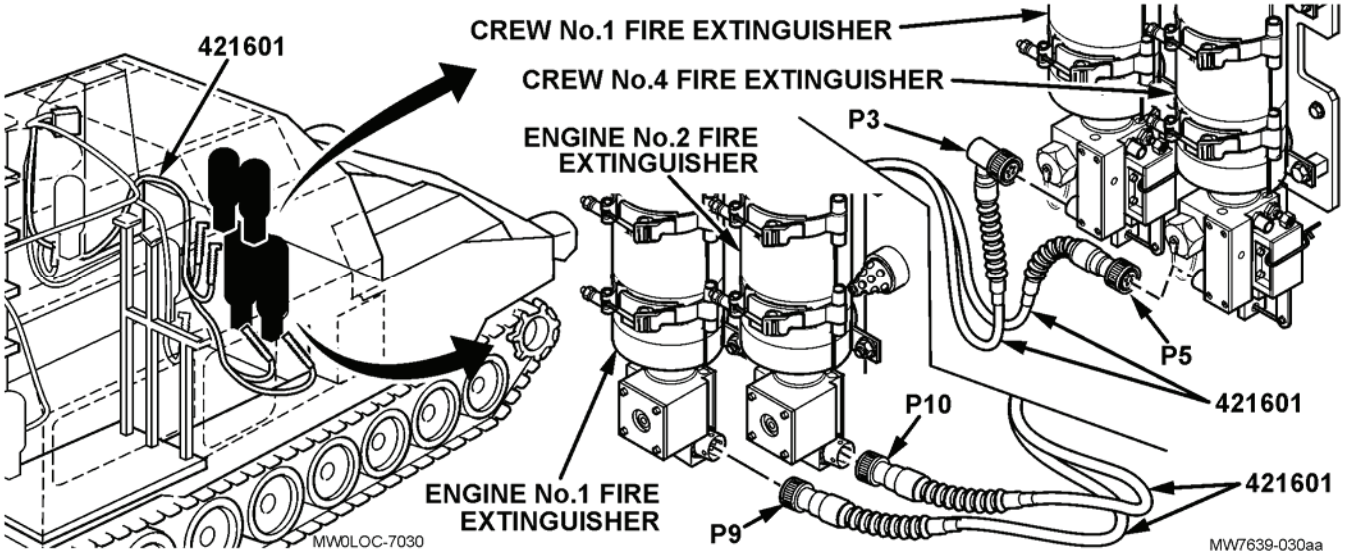
g. Installation (continued).

103. Connect P3 connector of valve wiring harness 421601 to valve of crew No. 1 fire extinguisher, as shown.

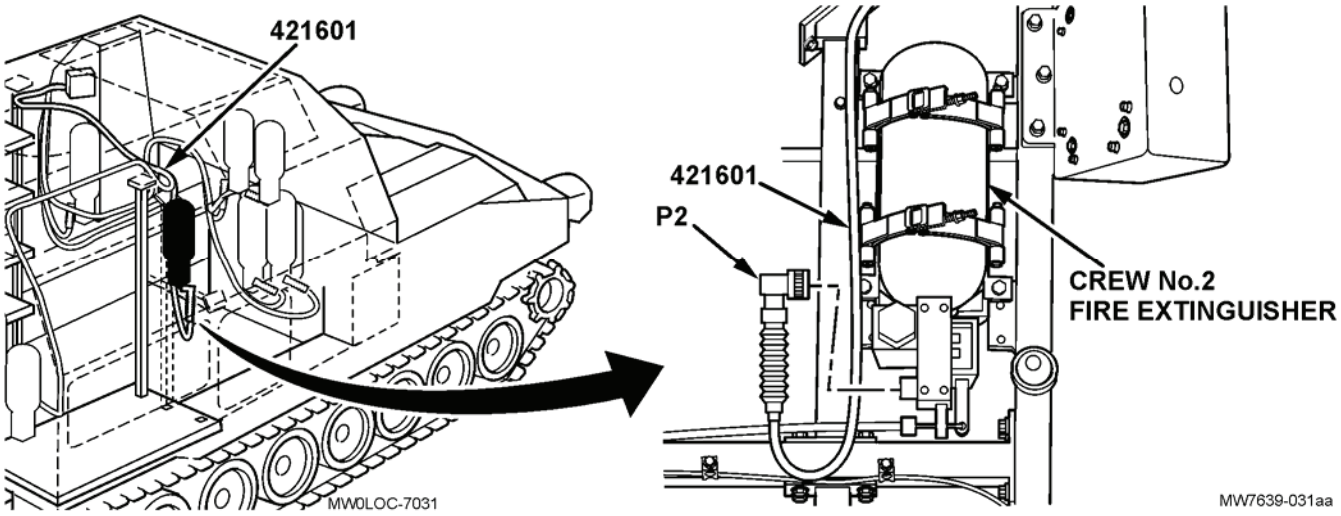
104. Connect P5 connector of valve wiring harness 421601 to valve of crew No. 4 fire extinguisher, as shown.

105. Connect P9 connector of valve wiring harness 421601 to valve of engine No. 1 fire extinguisher, as shown.

106. Connect P10 connector of valve wiring harness 421601 to valve of engine No. 2 fire extinguisher, as shown.



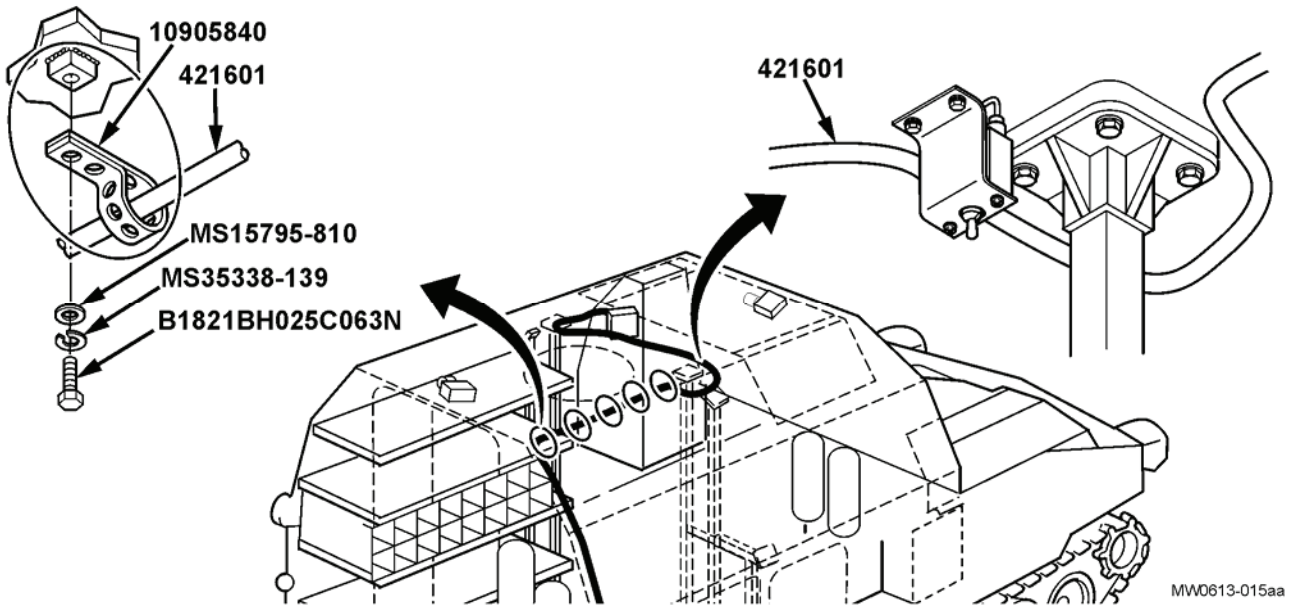
107. Connect P2 connector of valve wiring harness 421601 to valve of crew No. 2 fire extinguisher, as shown.



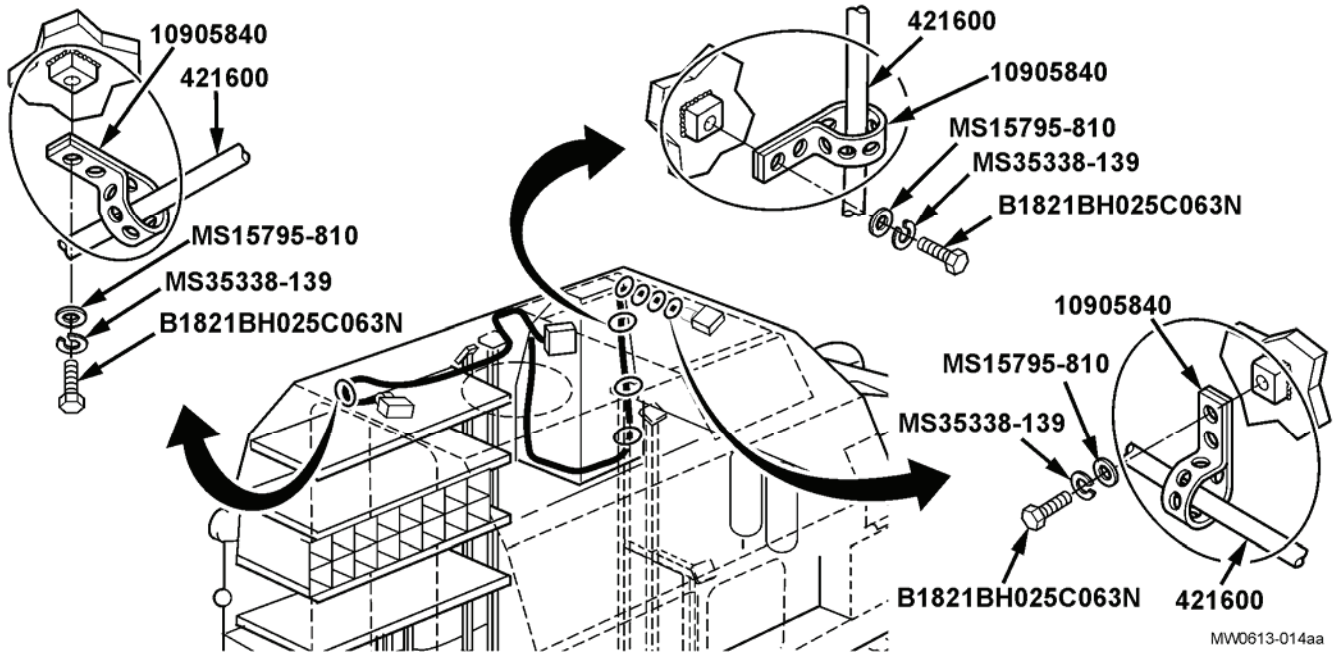
10. MODIFICATION PROCEDURES (continued).

g. Installation (continued).

108. Install valve wiring harness 421601 on hull with five straps 10905840 (Kit 57K3274), capscrews B1821BH 025C063N (Kit 57K3274), lockwashers MS35338-139 (Kit 57K3274), and flat washers MS15795-810 (Kit 57K3274), as shown.



109. Install crew-sensor wiring harness 421600 on hull with eight straps 10905840 (Kit 57K3274), capscrews B1821BH025C063N (Kit 57K3274), lockwashers MS35338-139 (Kit 57K3274), and flat washers MS15795-810 (Kit 57K3274), as shown.



10. MODIFICATION PROCEDURES (continued).

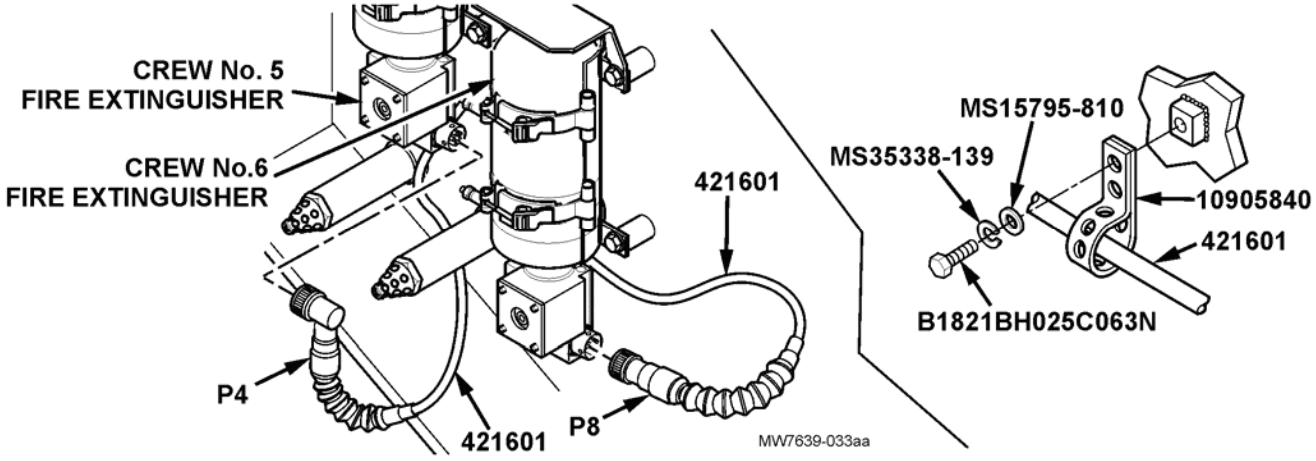
g. Installation (continued).

110. Connect P4 connector of valve wiring harness 421601 to valve of crew No. 5 fire extinguisher, as shown.

111. Connect P8 connector of valve wiring harness 421601 to valve of crew No. 6 fire extinguisher, as shown.

112. Install valve wiring harness 421601 to valve of crew No. 5 fire extinguisher, as shown.

113. Secure all remaining harnesses with forty straps 10905840 (Kit 57K3276), forty capscrews B1821BH025C063N (Kit 57K3276), lockwashers MS35338-139 (Kit 57K3276), and flat washers MS15795-810 (Kit 57K3276).



10. MODIFICATION PROCEDURES (continued).

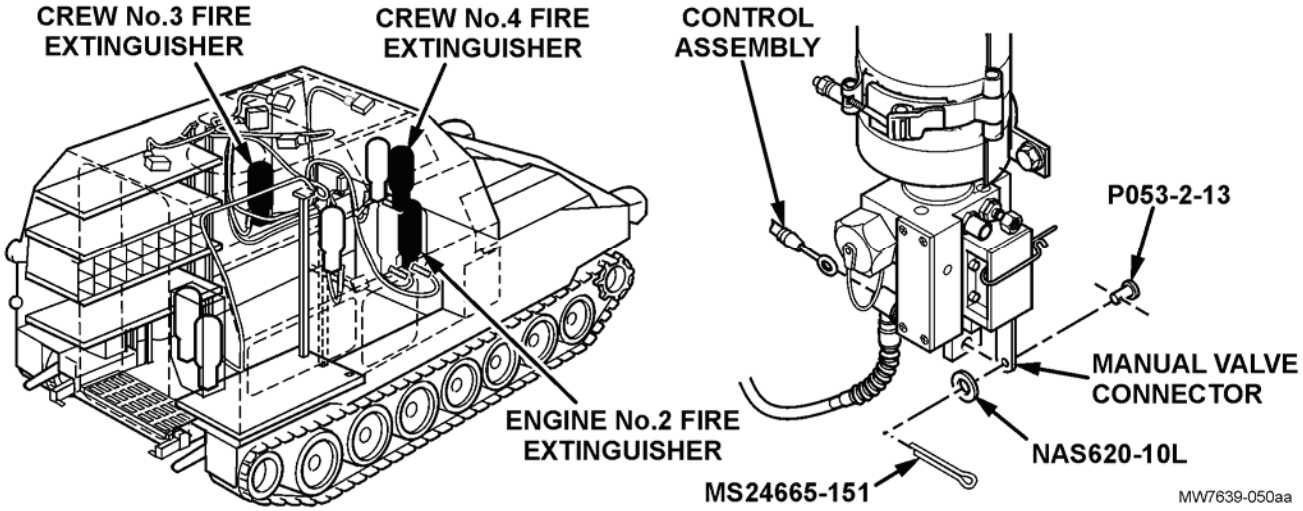
g. Installation (continued).

WARNING

Ensure safety pin is in valve actuator of crew No. 2, 3, and 4 fire extinguishers.

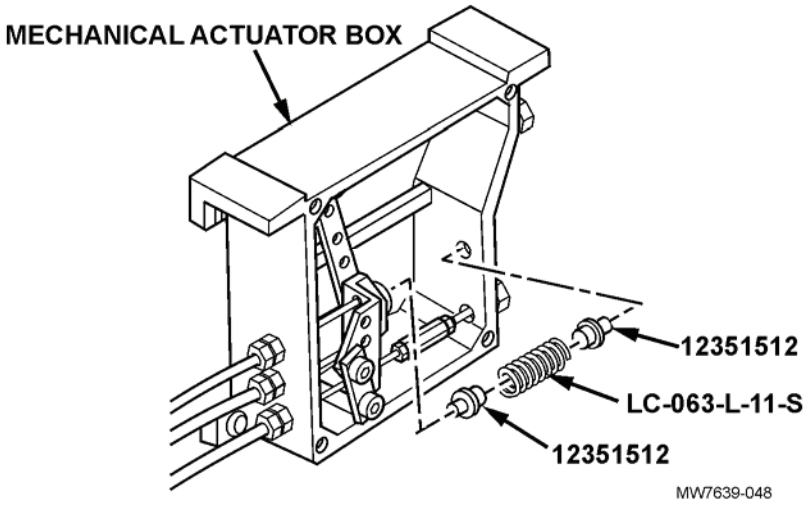
114. Connect control assemblies to manual valve connector of engine No. 3 and 4 fire extinguisher bottles with two washers NAS620-10L (Kit 57K3276), pins P053-2-13 (Kit 57K3276), and cotter pins MS24665-151 (Kit 57K3276).

115. Connect control assembly to manual valve connector of engine No. 2 fire extinguisher bottle with washer NAS620-10L (Kit 57K3276), pin P053-2-13 (Kit 57K3276), and cotter pin MS24665-151 (Kit 57K3276).



116. Install two shoulder pins 12351512 onto mechanical actuator box, previously removed.

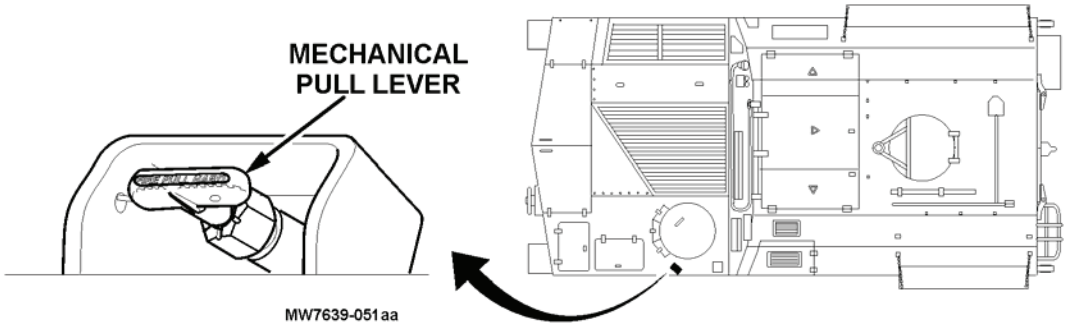
117. Compress spring LC-063-L-11-S (Kit 57K3274) and install on shoulder pins 12351512.



10. MODIFICATION PROCEDURES (continued).

g. Installation (continued).

118. Using one hand, grasp mechanical pull lever, and while applying moderate effort, gradually pull and release (do not yank) mechanical pull lever five times to remove any slack in control assembly cables.



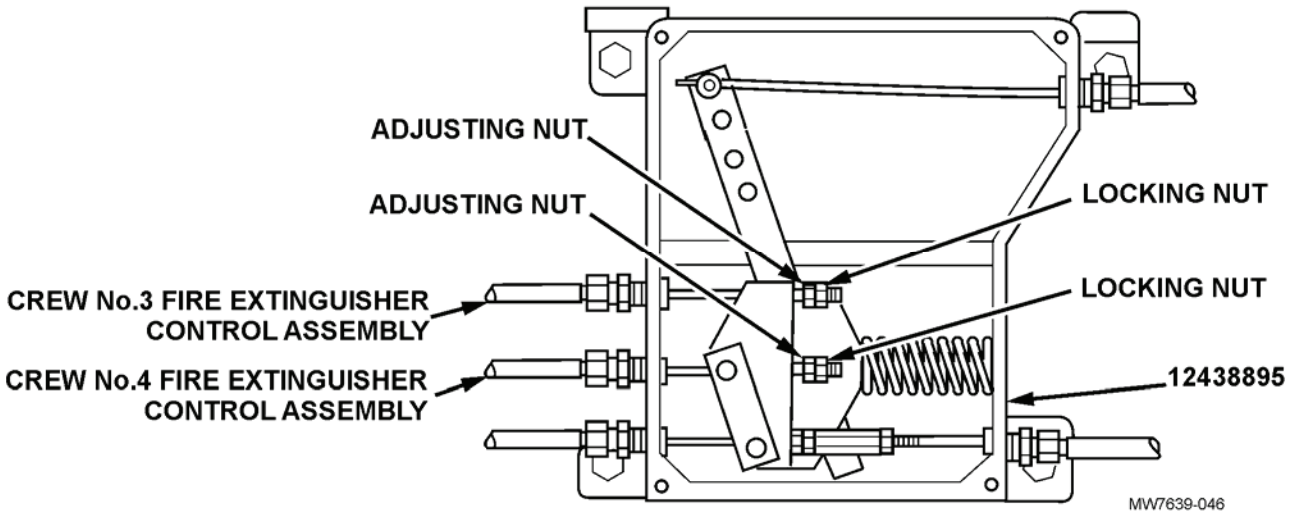
10. MODIFICATION PROCEDURES (continued).

g. Installation (continued).

119. Assess how tight control assembly cables are at fire extinguisher valves with finger tip pressure on control assembly cables; re-adjust as necessary making sure all control assembly cables are equally tight.

120. Remove slack from crew No. 4 fire extinguisher control assembly. Set adjustment nut for a 0.115-inch gap to cable bracket. Tighten locking nut against adjustment nut.

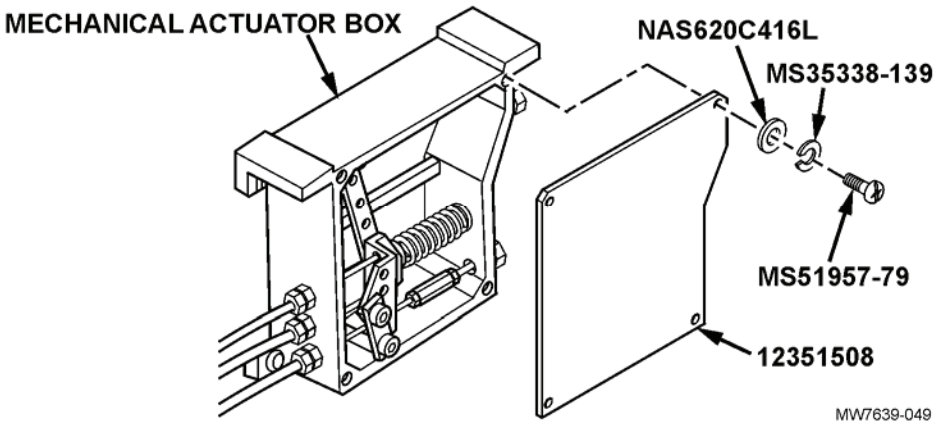
121. Remove slack from crew No. 3 fire extinguisher control assembly. Set adjustment nut for a 0.145-inch gap to cable bracket. Tighten locking nut against adjustment nut.



10. MODIFICATION PROCEDURES (continued).

g. Installation (continued).

122. Install cover 12351508 (Kit 57K3274) on mechanical actuator box with four flat washers NAS620C416L (Kit 57K3276), lockwashers MS35338-139 (Kit 57K3276), and machine screws MS51957-79 (Kit 57K3276).

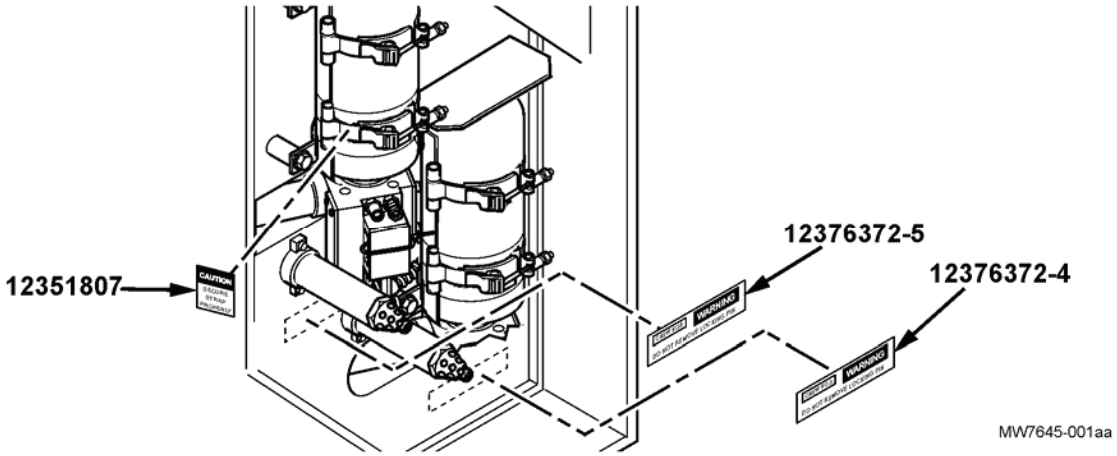


NOTE

Perform Step 123 and 124 for vehicles S/N 1-344.

123. Install marker 12376372-5 (Kit 57K3275) and marker 12376372-4 (Kit 57K3275), as shown.

124. Install four labels 12351807 (Kit 57K3275) to bracket straps, as shown.



11. FINAL TESTING.

General.

This section introduces the FAASV AFES test set and its use to verify the performance of the AFES system installed in the engine and crew compartments of the FAASV.

Equipment Description and Data.

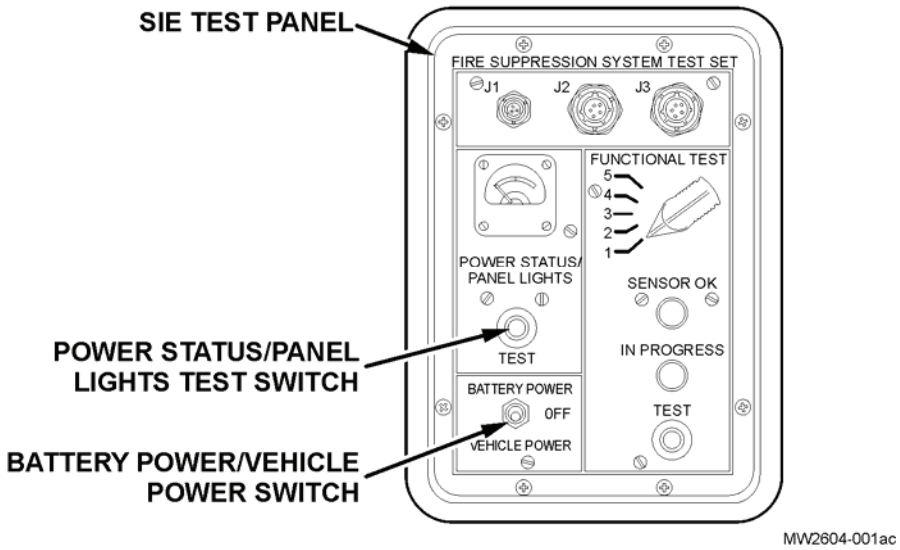
The FAASV AFES Test Set 421869 consists of a power cable, for connecting the Stryker System Interface Electronics (SIE) Test Set to the electrical system of the FAASV, and eight valve simulators that are connected to the engine and crew fire extinguisher valve cables during testing. The test set is used in conjunction with the Stryker AFES Test Set and contains the electronics needed to determine if the valve signal from the Control Electronics Panel (CEP) is capable of activating a fire extinguisher valve. Seven of the valve simulators (57293-99) are connected to the wiring harness at the engine (E1 only) and crew fire extinguisher valves to ensure they are receiving the proper signal from the CEP. The eighth valve simulator (57293-98) is only used on the E2 engine fire extinguisher, since it's never electronically activated.

The Stryker AFES Test Set 53698-6 consists of a System Interface Electronics (SIE) Test Set, PM-34 Infrared Radiation (IRR) unit, valve simulators (not used for FAASV AFES), and interconnecting cables described as follows:

System Interface Electronics (SIE) Test Set. Contains the electronics and controls necessary to perform the tests and checks needed to verify the proper operation of the AFES system. The SIE generates signals to the Infrared Radiation (IRR) unit, generates test and timing signals, provides the necessary threshold and logic circuits, and contains its own power source. Panel layout for the SIE is shown in the following figures and an explanation of each panel feature follows.

Battery Power/Vehicle Power Switch. Used to select SIE power source. Switch is to be in OFF position when SIE is not being used to prevent battery discharge.

Power Status/Panel Lights Test Switch. Condition of SIE battery or internal regulated power supply, depending on setting of Power Switch, and SENSOR OK and IN PROGRESS lamps are checked when switch is pressed.

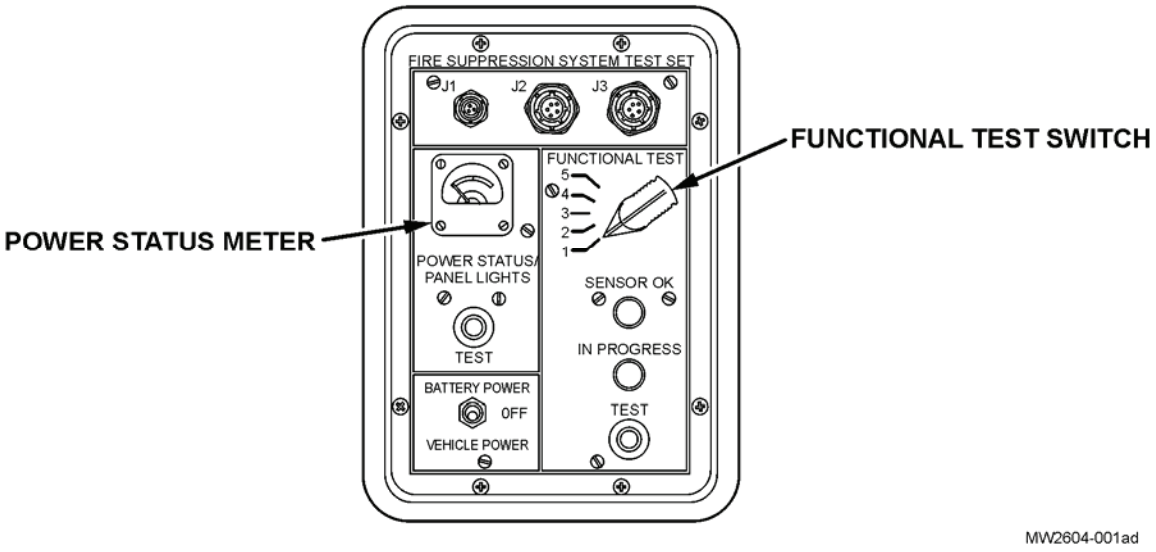


11. FINAL TESTING (continued).

Equipment Description and Data (continued).

Power Status Meter. Shows condition of SIE battery or internal regulated power supply, depending on setting of Power Switch, when TEST Switch is pressed.

Functional Test Switch. Used to select any one of five test modes for the AFES System or Sensor Only Tests. With the functional test switch in the first position, far and near sensor channels are energized simultaneously and the valve output should occur. In the second position, the far sensor channel is energized and valve output should not occur. In the third position, the near sensor channel is energized and valve output should not occur. In the fourth position, the far and near sensor channels and the discrimination channel are energized simultaneously and the valve output should not occur. The fourth position is used only for testing crew sensors, and is not to be used when testing engine sensors. The fifth position of the functional test switch is used only during the sensor only test. In this position, the sensor self-test functions are stimulated.



11. FINAL TESTING (continued).

Equipment Description and Data (continued).

Sensor OK Light. Lights momentarily at end of sensor-only test if sensor being tested is good.

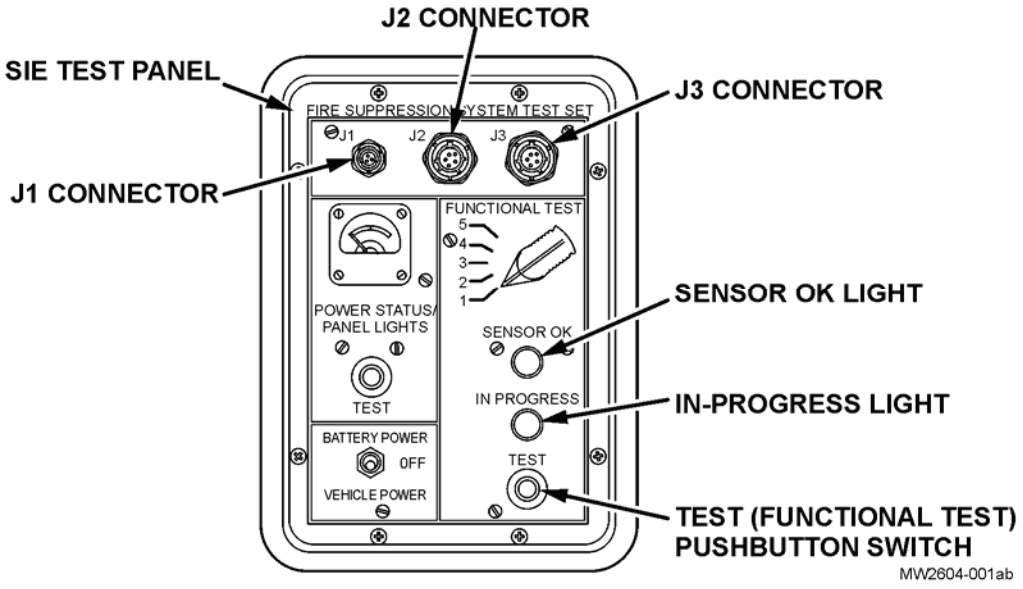
In-Progress Light. Lights when functional TEST pushbutton switch is pressed during system function test and sensor-only test to show test is in progress.

Test (Functional Test) Pushbutton Switch. Initiates system functional test and sensor-only test when pressed.

J1 Connector. Used to connect vehicle power (24 Vdc) to SIE using power cable.

J2 Connector. Used to connect IRR unit to SIE using IRR cable.

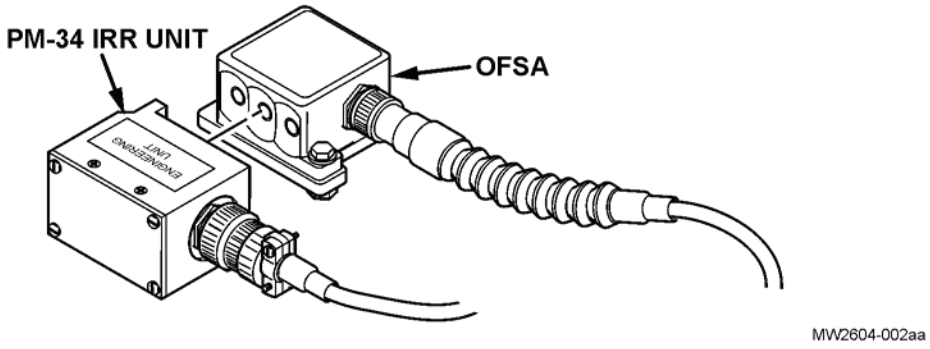
J3 Connector. Used to connect fire sensor (installed on the vehicle) to SIE using sensor cable.



11. FINAL TESTING (continued).

Equipment Description and Data (continued).

PM-34 Infrared Radiation (IRR) Unit. The PM-34 IRR unit is used to determine the proper operation of the Optical Fire Sensing Assemblies (OFSA). The IRR unit contains three infrared radiation sources that emit infrared radiation of the proper spectral bands and energy levels, which simulate a flash fire. The IRR unit face is keyed to fit the front surface of the OFSA when the correct mechanical orientation is achieved.



Valve Simulators. Eight valve simulators are provided with the Stryker AFES test set, however are not used for testing the FASSV AFES.

Interconnecting cables. The interconnecting cables consist of:

6-pin sensor cable (W3-2), P/N 53698-92

IRR cable (W2), P/N 53698-94

Power cable (W1), P/N 57293-97

Carrying case

11. FINAL TESTING (continued).

Preparations for Testing.

WARNING

Vehicle MASTER BATTERY switch must be in OFF position and SYSTEM ON LED on the CEP must be OFF when disconnecting connecting electrical connectors to prevent accidental fire extinguisher discharge.

WARNING

Before testing system, disconnect vehicle cables from all eight fire extinguishers to prevent accidental discharge of bottles during testing.

NOTE

No service is required upon receipt of the SIE test set.

NOTE

Except for visual inspection and periodic calibration, there are no preventive maintenance checks and services for the SIE test set.

NOTE

The SIE should not be operated when the IRR unit is exposed to rain.

NOTE

The case is equipped with a pressure relief valve which should be turned counter clockwise two turns before opening the case and turned clockwise until tight before sealing the case shut with the latches.

NOTE

When testing the OFSA, the OFSA and IRR unit should be at approximately the same temperature.

NOTE

Connect battery leads if disconnected (TM 9-2350-372-20).

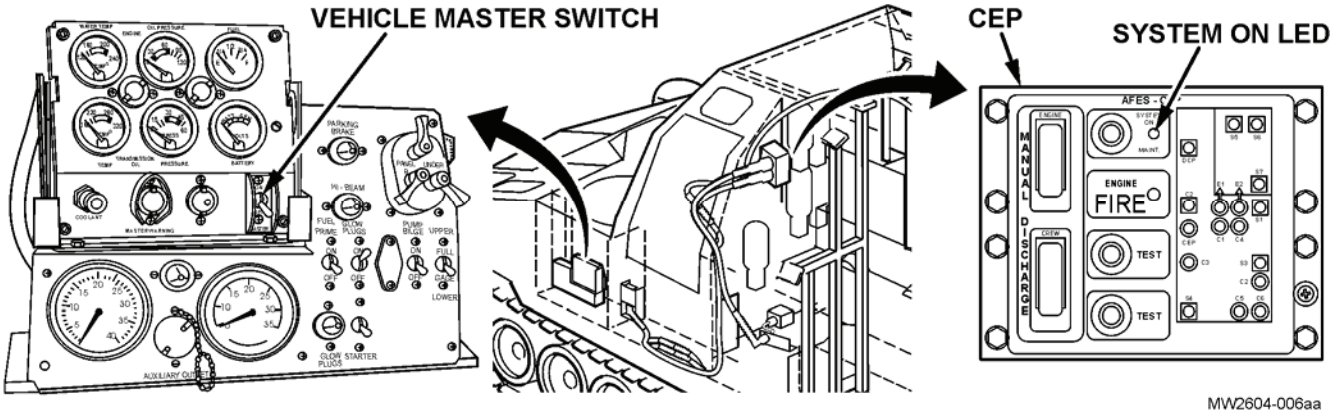
11. FINAL TESTING (continued).

Preparations for Testing (continued).

1. Open Stryker Test Set carrying case and remove the IRR cable (W2) 53698-92 and PM-34 IRR unit 53698-97.

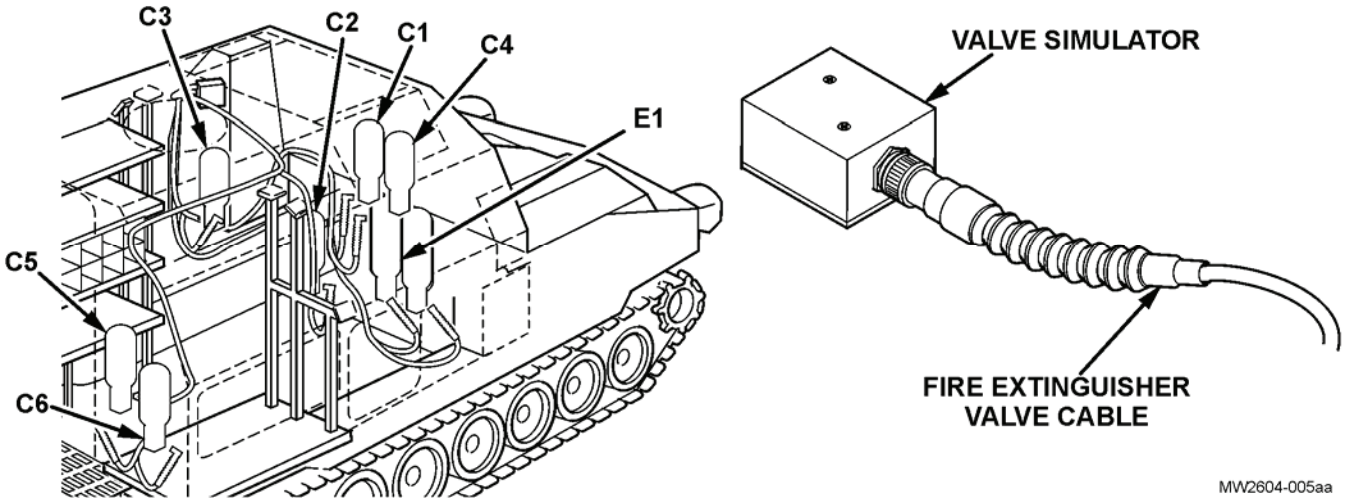
2. Remove the seven valve simulators 57293-99, valve simulator 57293-98, and power cable 57293-99 from the FAASV AFES Test Set case.

3. Ensure vehicle MASTER switch is in OFF position and SYSTEM ON LED on the CEP is not illuminated. If MASTER switch is OFF and SYSTEM ON LED on the CEP is illuminated, press the MAINTENANCE switch on the CEP to disable AFESA and turn off the SYSTEM ON LED.



4. Disconnect wiring harness cables from the valves of all eight fire extinguishers.

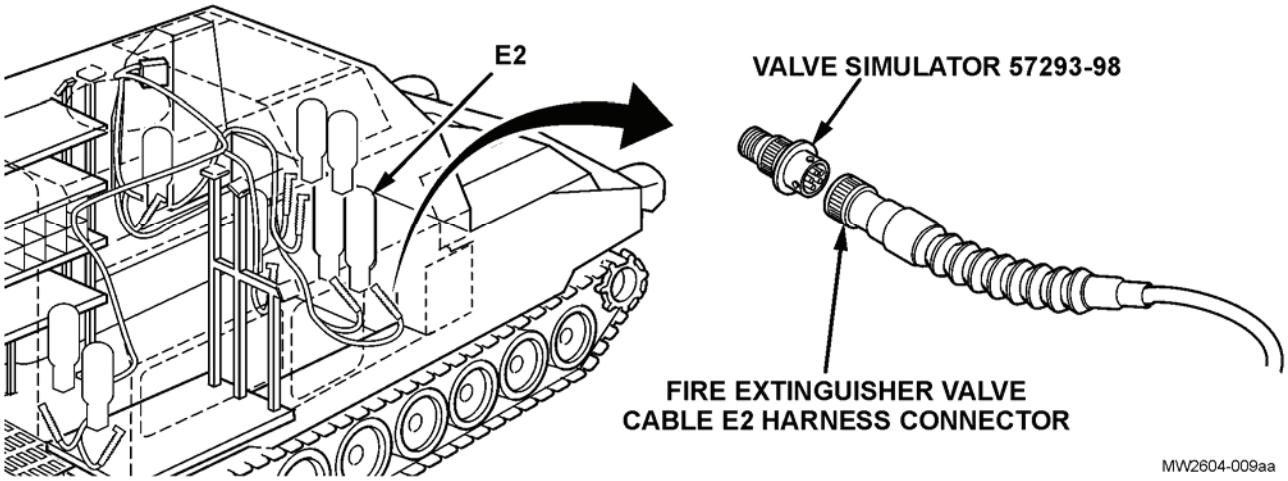
5. Connect the seven valve simulators 57293-99 to the wiring harness connector at engine fire extinguisher (E1) and the six crew compartment fire extinguishers, as shown.



11. FINAL TESTING (continued).

Preparations for Testing (continued).

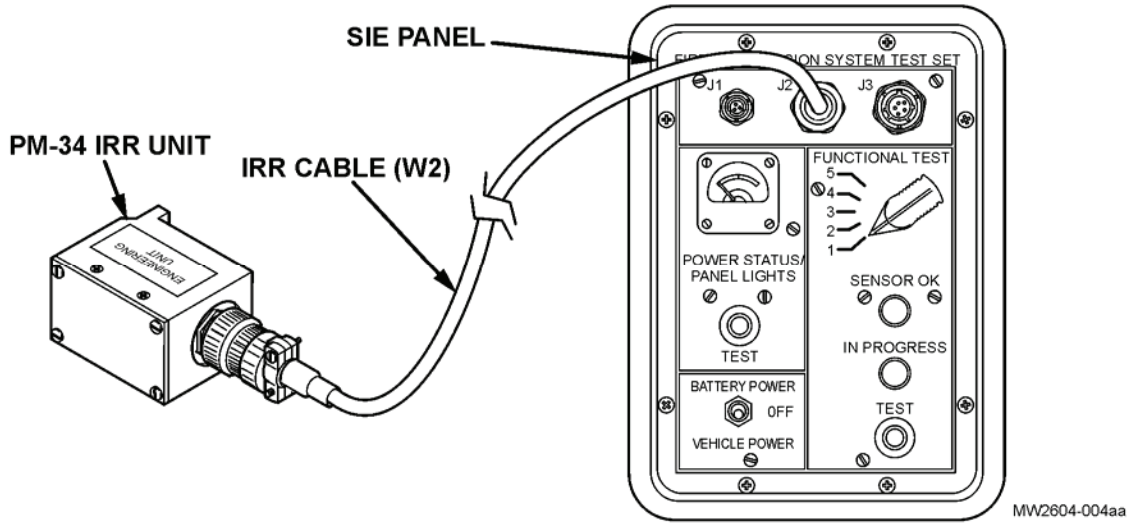
6. Connect the valve simulator 57293-98 to the wiring harness connector at engine fire extinguisher (E2) as shown.



CAUTION

Connecting IRR cable to the wrong connector may damage the SIE.

7. Connect the IRR cable (W2) 53698-92 to J2 connector on the SIE panel and to the IRR unit, as shown.



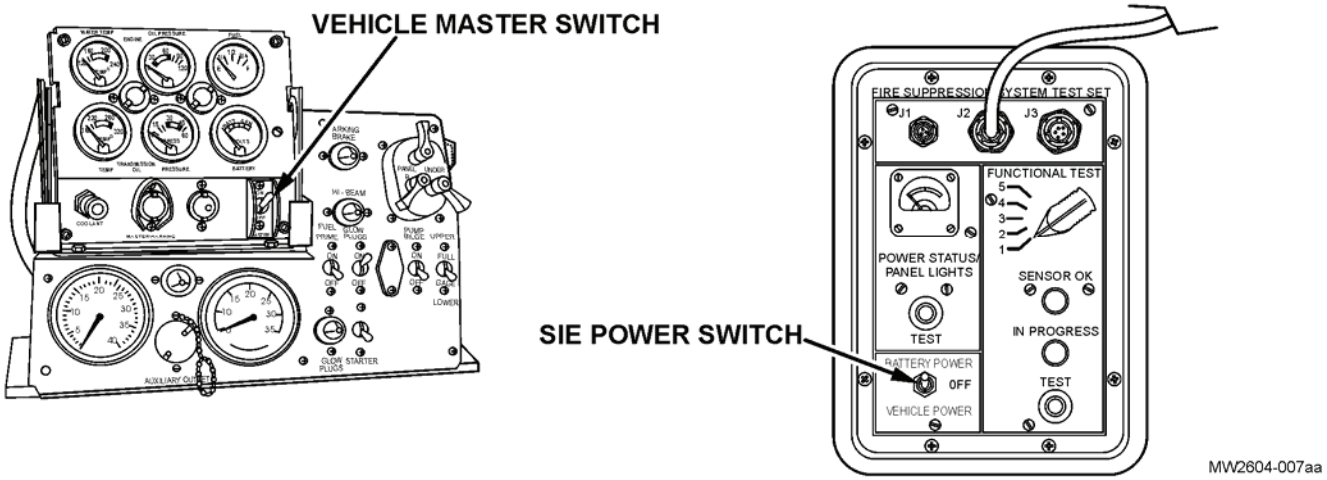
11. FINAL TESTING (continued).

SIE Power Status Test.

The Power Status Test checks the internal regulated power supply when the SIE power switch is in the VEHICLE POWER position and the SIE is connected to vehicle power. This test also checks the status of the internal battery when the power switch is in the BATTERY POWER position.

1. Place vehicle MASTER switch in the ON position.

2. Place the SIE power switch in the BATTERY POWER position.



NOTE

After power is applied to the SIE, wait five seconds before performing any tests.

NOTE

Depress the power status/panel light test switch only for a few seconds.

3. Press the POWER STATUS/PANEL LIGHTS TEST switch to check the status of the SIE battery. The POWER STATUS meter should indicate to the right of mid-scale. If the POWER STATUS of the battery is acceptable, proceed to the light panel test after Step 6. If the POWER STATUS of the battery is not acceptable, proceed to Step 4 to recharge SIE battery, or perform testing using vehicle power.

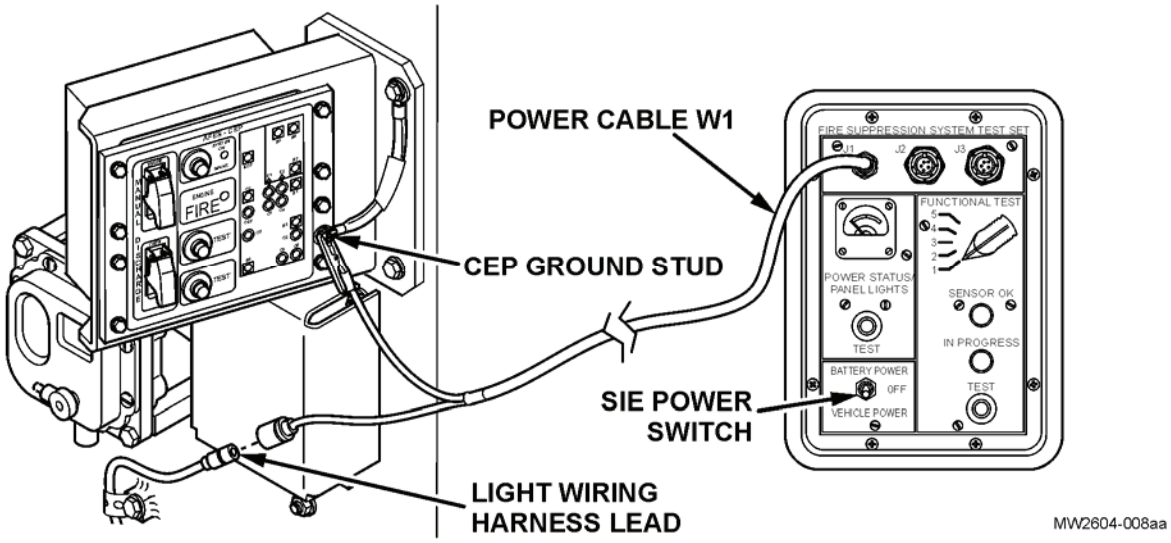
11. FINAL TESTING (continued).

SIE Power Status Test (continued).

NOTE

The battery is charged by connecting a 24 Vdc source to the J1 connector on the SIE panel with the SIE switch in the OFF position. The SIE will full charge after a minimum of sixteen hours. It is recommended that charging be performed at approximately 70°F (20°C). Also, battery life is enhanced when recharging only after a test indicates "LOW BATTERY".

4. Disconnect the wiring harness lead from the hull light and attach to the power cable W1 to the hull light power connector and to the ground stud at the CEP.



5. Place the SIE power switch to VEHICLE POWER position.

NOTE

After power is applied to the SIE, wait five seconds before performing any tests.

NOTE

Depress the power status/panel light test switch only for a few seconds.

6. Press the POWER STATUS/PANEL LIGHTS TEST switch to check the status of the internal regulated power supply. The POWER STATUS/POWER LIGHTS meter should indicate to the right of mid-scale. If the power status of the vehicle is acceptable, proceed to Step 12. If the power status of the vehicle is not acceptable, recharge vehicle batteries (TM 9-2325-372-24).

11. FINAL TESTING (continued).

SIE Panel Lights Test.

This test energizes both panel lights when the POWER STATUS/ PANEL LIGHTS TEST switch is depressed.

NOTE

Depress switch only for a few seconds.

Press the POWER STATUS/PANEL LIGHTS TEST switch to check the status of both indicator lights. If both lights turn on, proceed with the AFES System Test. If either indicator is off with this switch depressed, replace lamp and repeat test.

AFES System Test.

Test performed using the FUNCTIONAL TEST portion of the SIE test set. This test checks the proper operation of the entire AFES system by injecting optical signals into the OFSA via the IRR unit and monitoring the response of the system at the CEP and DCP. With the functional test switch in the first position, far and near sensor channels are energized simultaneously and the valve output should occur. In the second position, the far sensor channel is energized and valve output should not occur. In the third position, the near sensor channel is energized and valve output should not occur. In the fourth position, the far and near sensor channels and the discrimination channel are energized simultaneously and the valve output should not occur. The fourth position is used only for testing crew sensors, and is not to be used when testing engine sensors. The fifth position of the functional test switch is used only during the sensor only test. In this position, the sensor self-test functions are stimulated.

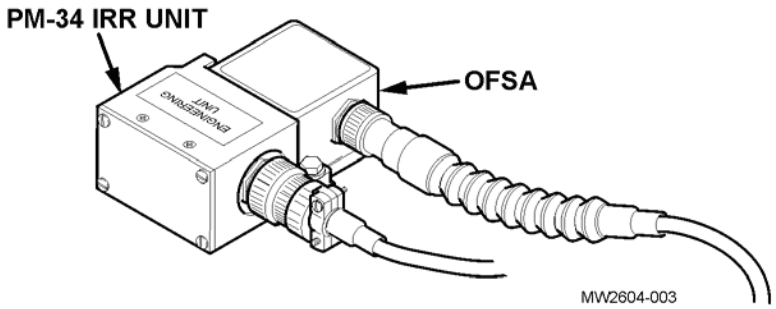
Engine AFES Test.

1. Verify test set components are properly connected for testing the engine AFES system.

NOTE

The 6-pin sensor cable (W3-2) is not connected to the engine OFSA for system verification tests and therefore the SENSOR OK light will not light during system tests.

2. Place vehicle MAIN POWER switch in the ON position. Rotate the FUNCTIONAL TEST switch to the first position. Place the IRR unit in front of any engine OFSA with the IRR unit windows pointing into the sensor windows. Correct alignment is as shown. Be sure to maintain this alignment throughout this test period.



11. FINAL TESTING (continued).

Engine AFES Test (continued).

3. Press the TEST push-button switch and note that the white (IN PROGRESS) indicator is on. Hold the IRR unit in place until the indicator turns off.

NOTE

Do not tamper with the SIE when IN PROGRESS light is on.

NOTE

A regular blink rate is defined as the LED turning on and off at a steady rate of two times per second. An irregular blink rate is defined as the LED turning on and off two times in less than 1/4 of a second, then off for one second and repeating.

   a. The appropriate extinguisher LEDs on the CEP should blink at a regular rate. If any of the LEDs blink at an irregular rate, a system failure has occurred.

   b. When testing crew sensors, crew extinguisher LEDs C1, C2 and C5 should blink at a regular rate. Also, the personnel ventilation fan should be activated. Activate the personnel ventilation fan reset switch located on the driver's accessory control box.

   c. When testing engine sensors, the ENGINE FIRE LEDs on the CEP and DCP should blink for approximately one second. Also, the engine (automatic) extinguisher LED E1 should blink at a regular rate. If the indicators on the CEP and DCP do not activate, a system failure has occurred.

   d. The RESET switch on the CEP must be actuated to turn off the blinking extinguisher LEDs.

4. Rotate the FUNCTIONAL TEST switch to the second position. Wait ten seconds.

5. Place the IRR unit in front of the Fire Sensor. Be sure to maintain correct alignment.

6. Press the TEST push-button switch and note that the white (IN PROGRESS) indicator is on. Hold the IRR unit in place until the indicator turns off. The CEP should not indicate any extinguishers have fired.

7. Rotate the FUNCTIONAL TEST switch to the third position. Wait ten seconds.

8. Place the IRR unit in front of the sensor. Be sure to maintain correct alignment.

9. Press the TEST push-button switch and note that the white (IN PROGRESS) indicator is on. Hold the IRR unit in place until the indicator turns off. The CEP should not indicate any extinguishers have fired.

10. Repeat Steps 2 through 10 for the remaining engine OFSAs.

11. FINAL TESTING (continued).

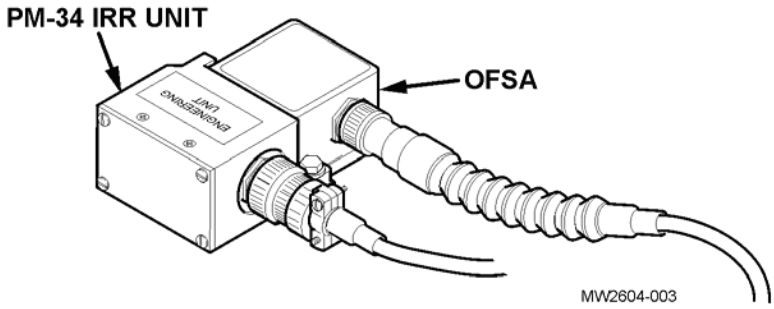
Crew AFES Test.

1. Verify test set components are properly connected for testing the crew AFES system.

NOTE

The 6-pin sensor cable (W3-2) is not connected to the crew OFSA for system verification tests and therefore the SENSOR OK light will not light during system tests.

2. Place vehicle MAIN POWER switch in the ON position. Rotate the FUNCTIONAL TEST switch to the first position. Place the IRR unit in front of any crew OFSA with the IRR unit windows pointing into the sensor windows. Correct alignment is as shown. Be sure to maintain this alignment throughout this test period.



3. Press the TEST push-button switch and note that the white (IN PROGRESS) indicator is on. Hold the IRR unit in place until the indicator turns off.

NOTE

Do not tamper with the SIE when IN PROGRESS light is on.

NOTE

A regular blink rate is defined as the LED turning on and off at a steady rate of two times per second. An irregular blink rate is defined as the LED turning on and off two times in less than 1/4 of a second, then off for one second and repeating.

a. The appropriate extinguisher LEDs on the CEP should blink at a regular rate. If any of the LEDs blink at an irregular rate, a system failure has occurred.

b. When testing crew sensors, crew extinguisher LEDs C1, C2, and C5 should blink at a regular rate. Also, the personnel ventilation fan should be activated. Activate the personnel ventilation fan reset switch located on the driver's accessory control box.

c. When testing engine sensors, the ENGINE FIRE LEDs on the CEP and DCP should blink for approximately one second. Also, the engine (automatic) extinguisher LED E1 should blink at a regular rate. If the indicators on the CEP and DCP do not activate, a system failure has occurred.

d. The RESET switch on the CEP must be actuated to turn off the blinking extinguisher LEDs.

11. FINAL TESTING (continued).

Crew AFES Test (continued).

4. Rotate the FUNCTIONAL TEST switch to the second position. Wait ten seconds.

5. Place the IRR unit in front of the Fire Sensor. Be sure to maintain correct alignment.

6. Press the TEST push-button switch and note that the white (IN PROGRESS) indicator is on. Hold the IRR unit in place until the indicator turns off. The CEP should not indicate any extinguishers have fired.

7. Rotate the FUNCTIONAL TEST switch to the third position. Wait ten seconds.

8. Place the IRR unit in front of the sensor. Be sure to maintain correct alignment.

9. Press the TEST push-button switch and note that the white (IN PROGRESS) indicator is on. Hold the IRR unit in place until the indicator turns off. The CEP should not indicate any extinguishers have fired.

10. Rotate the FUNCTIONAL TEST switch to the fourth position. Wait ten seconds.

11. Place the IRR unit in front of the crew sensor. Be sure to maintain correct alignment.

12. Press the TEST push-button switch and note that the white (IN PROGRESS) indicator is on. Hold the IRR unit in place until the indicator turns off.

13. The CEP should not indicate any extinguishers have fired.

14. If the CEP does indicate that crew valves have fired, wait ten seconds and repeat this test. Be sure to maintain correct alignment between the IRR unit and the sensor.

15. Repeat Steps 2 through 15 for the remaining three crew OFSAs.

11. FINAL TESTING (continued).

CEP and DCP Test.

1. Momentarily activate the CREW MANUAL DISCHARGE switch on the CEP and verify that C1, C2, and C5 LEDs blink at a regular rate. After waiting between 5 and 10 seconds, again momentarily activate the CREW MANUAL DISCHARGE switch. Verify that C3, C4, and C6 LEDs blink at a regular rate. Activate the RESET switch on the CEP to turn off the blinking LEDs.

2. Momentarily activate the ENGINE MANUAL DISCHARGE switch on the CEP and verify that the E1 LED blinks at a regular rate. Wait at least five seconds, and again momentarily activate the ENGINE MANUAL DISCHARGE switch on the CEP. Verify that E2 LED does not blink. Activate the RESET switch on the CEP to turn off the blinking LED.

3. Momentarily activate the ENGINE MANUAL DISCHARGE switch on the DCP and verify that the E1 LED blinks at a regular rate. Activate the RESET switch on the CEP to turn off the blinking LED.

4. Activate the LAMP TEST switch on the DCP and verify that the ENGINE FIRE and AFES DISABLE LEDs illuminate.

5. Ensure that master power is ON. Place the AFES DISABLE switch on the DCP into the disable position (CCW) and verify that the AFES DISABLE LED on the DCP illuminates. Also verify that the AFES ON LED on the DCP and the SYSTEM ON LED on the CEP turn off.

6. Turn master power OFF and verify that the AFES DISABLE LED on the DCP turns off.

7. Turn master power ON and confirm that AFES DISABLE LED on the DCP is on. Place the AFES DISABLE switch into the enable position (CW) and verify that AFES DISABLE LED turns off. Also verify that the AFES ON LED on the DCP and the SYSTEM ON LED on the CEP turn on.

8. Disconnect the C3 valve simulator and verify that the vent fan does not turn on. Reconnect the C3 valve simulator.

9. Disconnect the C4 valve simulator and verify that the vent fan does not turn on. Reconnect the C4 valve simulator.

10. Within one second, disconnect both the C3 and C4 valve simulators. Verify that the vent fan turns on. Reset the vent fan and reconnect the C3 and C4 valve simulators.

11. Turn master power OFF and confirm that the AFES ON LED on the DCP and the SYSTEM ON LED on the CEP remain on.

12. Depress the TEST switch on the CEP and verify that all LEDs illuminate. Release the TEST switch and verify that all LEDs except the SYSTEM ON LED blink in a clockwise rotation for approximately three seconds. Verify that only the SYSTEM ON LED remains illuminated on the CEP subsequent to the test.

13. Momentarily activate the MAINTENANCE switch on the CEP and verify that the AFES ON LED on the DCP and the SYSTEM ON LED on the CEP turn off.

12. FOLLOW-ON TASK.

1. Install right-front dome light MS51073-1 (TM 9-2350-372-20) on bulkhead with four new hexagon head capscrews B1821BH025C075N (Kit 57K3276), three flat washers MS15795-810 (Kit 57K3276), three lockwashers MS35338-139 (Kit 57K3276), and lockwasher MS35333-167 (Kit 57K3276).

2. Connect wiring harness 12330252-2 and install on bulkhead with two new tie down straps 10905840 (Kit 57K3276), two hexagon head capscrews B1821BH025C063N (Kit 57K3276), flat washers MS15795-810 (Kit 57K3276), and lockwashers MS35338-139 (Kit 57K3276).

3. Install APU junction box 302-9004 (TM 9-2350-372-20) on APU bulkhead with two new hexagon head capscrews ISO 4017-M8X30-8.8-A2A (Kit 57K3276), two flat washers DIN125A-M8-A24 (Kit 57K3276), two lockwashers DIN127B-M8-A2A (Kit 57K3276), two nuts DIN934-M8-8.8-A2A, (Kit 57K3276) four lockwashers MS35338-139 (Kit 57K3276), four flatwashers MS15795-810 (Kit 57K3276), and four nuts MS35649-2254 (Kit 57K3276).

4. Install left-front dome light MS51073-1 (TM 9-2350-372-20) on bulkhead with four new hexagon head capscrews B1821BH025C075N (Kit 57K3276), three flat washers MS15795-810 (Kit 57K3276), three lockwashers MS35338-139 (Kit 57K3276), and one lockwasher MS35333-167 (Kit 57K3276).

5. Install APU junction box terminal cover 903181-1 on APU compartment bulkhead with two hexagon head capscrews B1821BH025C063N (Kit 57K3276), flat washers MS15795-810 (Kit 57K3276), and lockwashers MS35338-139 (Kit 57K3276).

6. Install wiring harness guard 12333557 on bulkhead with three hexagon head capscrews B1821BH025C063N (Kit 57K3276), flat washers MS15795-810 (Kit 57K3276), and lockwashers MS35338-139 (Kit 57K3276).

7. Install APU control box 302-9003 on bracket with four hexagon head capscrews B1821BH025C050N (Kit 57K3276), flat washers MS15795-810 (Kit 57K3276), and lockwashers MS35338-139 (Kit 57K3276).

8. Connect lead P3 of APU control box harness 302-0051 to circuit breaker No. 8 on circuit breaker board.

9. Install M45 periscope stowage box 10913358 (TM 9-2350-372-20) on bracket with four hexagon head capscrews B1821BH025C050N (Kit 57K3276) and lockwashers MS35338-139 (Kit 57K3276).

10. Install right-rear tank splash guard BML60102 and strap BML60101 (TM 9-2350-372-20) on hull with four new lockwashers MS35338-46 (Kit 57K3276) and hexagon head capscrews B1821BH0038F100N (Kit 57K3276) (S/N 1-344).

11. Install personnel heater vent ducts (TM 9-2350-372-20) with eight new lockwashers MS35338-138 (Kit 57K3276), screws MS16998-27 (Kit 57K3276), and flat washers MS9549-09 (Kit 57K3276).

12. FOLLOW-ON TASK (continued).

12. Install ammo racks (TM 9-2350-372-20) with two lockwashers MS35338-46 (Kit 57K3276), screws B1821BH038C125N (Kit 57K3276), and flat washers MS27183-14 (Kit 57K3276).

13. Install hand held fire extinguisher bottle and bracket with two hexagon head capscrews B1821BH025C075N (Kit 57K3276), lockwashers MS35338-139 (Kit 57K3276), and flat washers MS15795-810 (Kit 57K3276).

14. Install engine fuel line bracket 12260232 with two hexagon head capscrews B1821BH031C100N (Kit 57K3276), lockwashers MS35338-64 (Kit 57K3276), and flat washers MS15795-812 (Kit 57K3276).

15. Close and secure all open doors and hatches.

16. Connect wiring harness to master relay in engine compartment.

13. CALIBRATION REQUIREMENTS.

There are no calibration requirements applicable to this MWO.

14. WEIGHT AND BALANCE DATA.

Weight and balance are not significantly affected.

15. QUALITY ASSURANCE REQUIREMENTS.

The following information is supplied to ensure the proper application of this modification and provide clarification in regards to the adequacy of the installer's inspection methods and procedures applicable to quality assurance. The procedures include, but are not limited to, installer responsibilities, government verification, and in-process and workmanship inspections. Inspections shall be in accordance with TM 750-245-4, Direct Support and General Support for Quality Control Inspector's Inspection Criteria.

The installer is responsible for compliance with quality assurance requirements specified herein. These requirements and the installer's plan of inspection, or quality assurance program, constitute the minimum examinations and test necessary to assure compliance with established requirements. The requirements contained in this MWO shall include the installer's plan or quality program. Specific installer responsibilities for this MWO are as follows:

The installer is responsible for following the instructions contained in this MWO for installing the KIDDE AFES and converting FAASV S/N 1-344, where applicable.

The installer is responsible for following the instructions contained in this MWO for removing all components applicable to the PAC SCI AFES, supporting hardware, and electrical system.

The installer is responsible for notifying the Government POC or representative if kit is received incomplete, opened, or damaged.

The installer is responsible for observing all quality and safety standards.

16. FINAL INSPECTION REQUIREMENTS.

a. Final Inspection.

1. Ensure all components, removed for the purpose of installing MWO kit components, are installed properly and secure.

2. Ensure all OFSAs and mounting brackets are tight and secure; sensors are facing in the proper direction with no obstructions; and electrical connections are tight, secure, and properly grounded.

3. Ensure CEP and mounting bracket are properly installed and secured. Ensure electrical connections are tight, secure, and properly grounded.

4. Ensure CEP operates properly in automatic and manual modes.

5. Ensure DCP and mounting bracket are properly installed and secured. Ensure electrical connections are tight, secure, and properly grounded.

6. Ensure DCP operates properly in automatic and manual modes.

7. Ensure DCP shuts down AFES operation in maintenance mode.

8. Ensure crew and engine fire extinguisher bottles, mounting brackets, and dispersal nozzles are properly installed and secured. Ensure electrical connectors are secured and locking pins are installed in valve actuators.

9. Ensure all wiring harnesses are properly routed and secured, and that electrical connections are secure, tight, and properly grounded.

10. Ensure that the fire box door operates freely with no binding, and door latch operates properly.

11. Ensure APU junction box is properly installed and secured. Ensure electrical connections are tight and secure.

12. Ensure APU junction box terminal cover is properly installed and secured.

13. Ensure left and right projectile rack assemblies and stowage boxes are properly installed and secured. Ensure stowage box guard retainers channel restraints and locking latches operate properly and do not bind.

b. Final Paint.

1. Inspect exterior painted surfaces for signs of overspray, runs, rust, blistering, and chips.

2. Ensure all data plates and warning labels are clear of paint and readable.

3. Ensure all indicators, gages, and warning lights are free from paint.

4. Ensure areas such as screw threaded parts, hinges, seal surfaces, rubber casings, and wiring harnesses are clean and free from paint.

5. Ensure all CARC painted surfaces have been applied in accordance with MIL-C-53072.

17. FINAL INSPECTION RECORD.

1. The vehicle shall be subjected to visual and functional examinations to determine conformance to the applicable MWO and ATPD-2082P. Inspection and tests must be completed prior the final approval and release of the vehicle.

2. Conformance or non-conformance of items and items not applicable will be indicated by the appropriate symbol in the space provided. Specific values will be used only where specified or as agreed by Program Manager/FAASV and depot representatives.

3. Deficiencies disclosed during this inspection will be delineated on the deficiency sheet(s) and will contain sufficient description of the deficiencies. The deficiencies will be identified with the pertinent FIR Item Number, not with a sequential listing of entry.

4. The following characteristics are common to most items and are to be considered as part of each, where applicable. They are defined in general in this section to eliminate their repetition; however, they must be reviewed visually and/or functionally in each item and delineated on the deficiency sheet(s) when found deficient.

   (a) Mounting: Completeness of assembly with all mounting devices and hardware as required per installation drawing. Any evidence of parts being incomplete and/or improperly secured will be cause for rejection.

   (b) Connections: All wiring harnesses, water, fuel, and air lines, operating linkages (cable or shaft), and conduits must be properly routed, secured, and attached as per their respective installation drawings. Sufficient clearance between these and adjacent parts must be maintained to insure that there is no interference. Physically handle the item to verify that it is secure.

   (c) Operation: Component or assembly items which require movement and/or positioning shall be physically manipulated as required to prove operational acceptance. For primary functional testing, actuate proper switches or control devices as required and note response of warning or indicator lights or actual operation of the unit being tested.

5. Defective vehicles (complete or in-process) shall be returned to the proper source for repair or replacement of defective parts. Corrective action taken will be noted in the proper column of the deficiency sheet(s). The deficiency will be reinspected for conformance to requirements and/or repair procedures.

17. FINAL INSPECTION RECORD (continued).

EXPLANATION OF COLUMNS

Column 1 – Final Inspection Record (FIR) Item Number. This number is assigned to identify the characteristic and method of inspection for a component or assembly.

Column 2 – Characteristic. This column identifies the component, subassembly, inspection location, and test procedures to be performed.

Column 3 – Inspection Method. This column indicates the type of inspection required to perform the inspection of the characteristic.

Column 4 – Verified By. Use initials or the inspector's stamp to indicate conformance to the characteristic.

ITEM	CHARACTERISTIC	METHOD INSPECTION	VERIFIED BY
100	Ensure all components, removed for the purpose of installing MWO kit components, are installed properly and secure.	Visual	
101	Ensure AFES fire box (S/N 1-344) has been properly installed and secured, door operates freely (no binding), handle/latch assembly operates properly, door seals are tight and fit.	Visual Functional	
102	Ensure APU junction box is properly installed and secured. Ensure electrical connections are tight and secure.	Visual	
103	Ensure APU junction box terminal cover is properly installed and secured.	Visual	
104	Ensure crew and engine fire extinguisher bottles, mounting brackets, and dispersal nozzles are properly installed and secured. Ensure electrical connectors are secured and locking pins are installed in valve actuators.	Visual	

17. FINAL INSPECTION RECORD (continued).

ITEM	CHARACTERISTIC	METHOD INSPECTION	VERIFIED BY
105	Ensure crew and engine fire extinguisher bottles are fully charged and pressure gages indicate full pressure.	Visual	
106	Ensure all wiring harnesses are properly routed and secured; electrical connections are secure, tight, and properly grounded.	Visual	
107	Ensure all engine compartment OFSAs and mounting brackets are tight and secure, sensors are facing in the proper direction with no obstructions, and electrical connections are tight, secure, and properly grounded.	Visual	
108	Ensure CEP and mounting bracket are properly installed and secured. Ensure electrical connections are tight, secure, and properly grounded.	Visual	
109	**WARNING** **Do not actuate the crew or engine MANUAL DISCHARGE switches during inspection. Doing so will cause the fire extinguisher to discharge, possibly causing injury to personnel.** Ensure CEP operates properly with no LEDs illuminated after completion of the BIT.	Visual Functional	
110	Ensure DCP and mounting bracket are properly installed and secured. Ensure electrical connections are tight, secure, and properly grounded.	Visual	

17. FINAL INSPECTION RECORD (continued).

ITEM	CHARACTERISTIC	METHOD INSPECTION	VERIFIED BY
111	**WARNING** **Do not actuate the engine MANUAL DISCHARGE switch during inspection. Doing so will cause the fire extinguisher to discharge, possibly causing injury to personnel.** Ensure DCP operates properly in automatic and manual modes.	Visual Functional	
112	Ensure DCP shuts down AFES operation on maintenance mode and amber LED illuminates.	Visual Functional	
113	Inspect painted surfaces for signs of overspray, runs, rust, blistering, and chips.	Visual	
114	Ensure all data plates and warning labels are clear of paint and readable.	Visual	
115	Ensure all indicators, gages, and warning lights are free from paint.	Visual	
116	Ensure areas such as hinges, seal surfaces, rubber casings, and wiring harnesses are clean and free from paint.	Visual	
117	Ensure all CARC painted surfaces have been applied in accordance with MIL-C-53072.	Visual	
118	Ensure safety wire has been installed securely to interior and exterior lanyard cable pull handles.	Visual	
119	Ensure safety wire has been installed securely to CEP crew and engine manual discharge switch covers.	Visual	

18. RECORDING AND REPORTING OF THE MODIFICATION.

a. Records and Report Forms. Refer to DA Pam 750-8, DA Pam 738-751, and TB 9-1100-803-15.

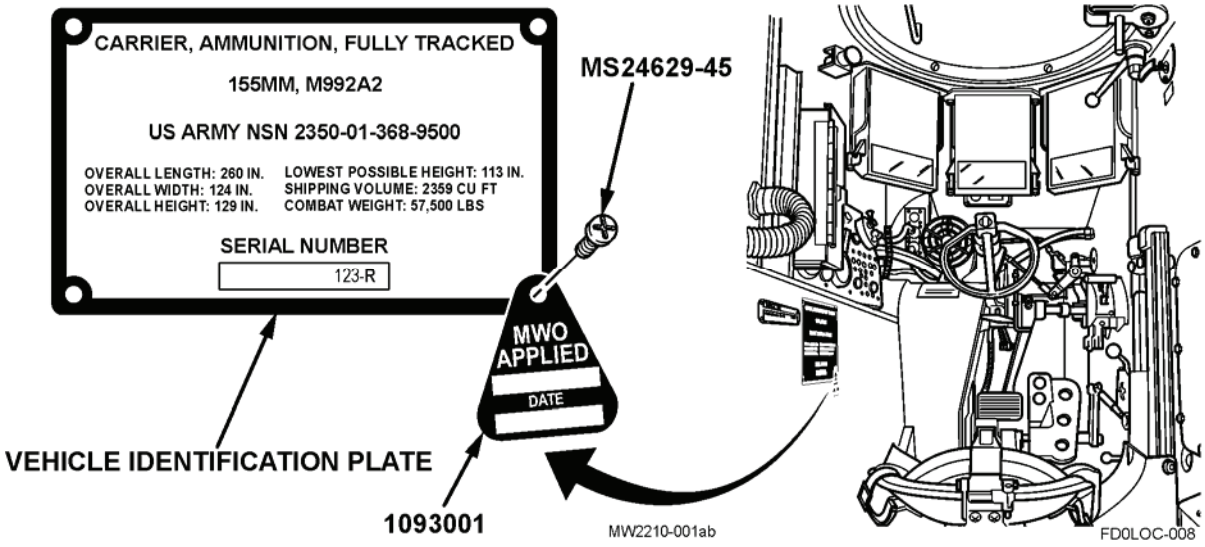
b. Marking Equipment. Apply MWO data plate 0930014 marked "MWO 9-2350-372-30-1".

19. MATERIEL CHANGE (MC) NUMBER.

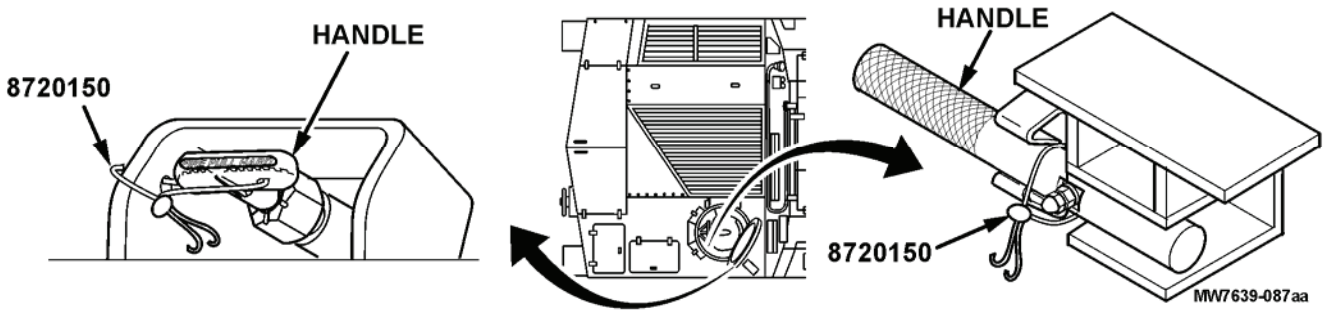
This MWO is authorized by MC Number 2-06-06-0001.

20. MODIFICATION IDENTIFICATION.

1. When this MWO has completed installation and inspection, install the MWO data plate 10930014 (Kit 57K3274) using drive-screw MS24629-45 (Kit 57K3274). The MWO data plate will identify the MWO, as shown.



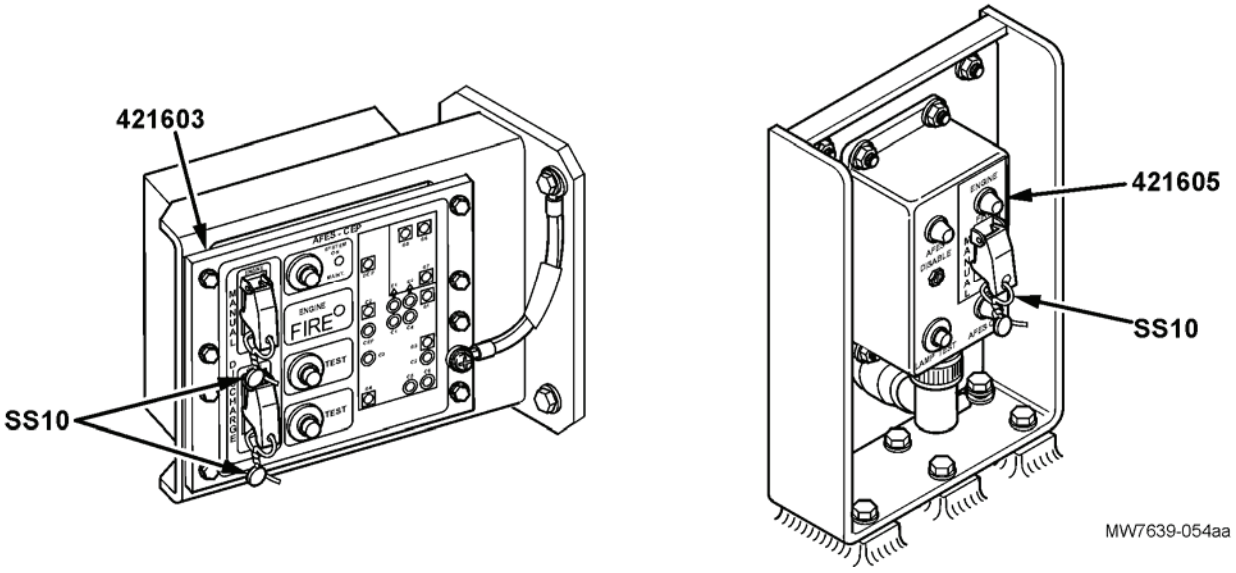
2. Install safety wire 8720150 (Kit 57K3274) on exterior and interior lanyard pull cable handles, as shown.



20. MODIFICATION IDENTIFICATION.

3. Install safety wire SS10 (Kit 57K3274) on CEP crew and engine manual discharge switches, as shown.

4. Install safety wire SS10 (Kit 57K3274) on DCP engine manual discharge switches, as shown.



21. VERIFICATION.

The validation and/or verification requirements shall be in accordance with the FAASV Statement Of Work (SOW), dated 13 August 2004.

22. PACKAGING.

For acquisition purposes, the packaging requirements shall be specified in the contract or task order. When actual packaging of materiel is to be performed by DOD personnel, these personnel need to contact the responsible packaging activity to ascertain requisite packaging requirements. Packaging requirements are maintained by the Inventory Control Point's packaging activity within the Military Department or Defense Agency, or within the Military Department's System Command. Packaging data retrieval is available from the managing Military Department or Defense Agency's automated packaging files or CD-ROM products, or by contacting the responsible packaging activity.

RECOMMENDED CHANGES TO PUBLICATIONS AND BLANK FORMS For use of this form, see AR 25-30; the proponent agency is ODISC4.	Use Part II *(reverse)* for Repair Parts and Special Tool Lists (RPSTL) and Supply Catalogs/Supply Manuals (SC/SM).	DATE Date you filled out this form.
TO: *(Forward to proponent of publication or form) (Include ZIP Code)* AMSTA-LC-LPIT / TECH PUBS, TACOM-RI 1 Rock Island Arsenal Rock Island, IL 61299-7630	FROM: *(Activity and location) (Include ZIP Code)* Your mailing address	

PART I – ALL PUBLICATIONS (EXCEPT RPSTL AND SC/SM) AND BLANK FORMS

PUBLICATION/FORM NUMBER	DATE	TITLE
MWO 9-2350-372-30-1	31 July 2006	Modification Work Order (MWO) for Carrier, Ammunition Tracked: M992A2

ITEM NO.	PAGE NO.	PARA-GRAPH	LINE NO. *	FIGURE NO.	TABLE NO.	RECOMMENDED CHANGES AND REASON (Provide exact wording of recommended changes, if possible).
	0004 00-1					Callouts on art are numbered incorrectly Callouts 3, 4, and 5 should be 6, 7, and 8

**Reference to line numbers within the paragraph or subparagraph.*

TYPED NAME, GRADE OR TITLE	TELEPHONE EXCHANGE/AUTOVON, PLUS EXTENSION	SIGNATURE
Your Name		Your Signature

TO: *(Forward direct to addressee listed in publication)*	FROM: *(Activity and location)(Include Zip Code)* (Your Mailing Address)	DATE (Date You Will Fill Out This Form)

PART II - REPAIR PARTS AND SPECIAL TOOLS LISTS AND SUPPLY CATALOGS/SUPPLY MANUALS

PUBLICATION NUMBER	DATE	TITLE

PAGE NO.	COLM NO.	LINE NO.	NATIONAL STOCK NUMBER	REFERENCE NO.	FIGURE NO.	ITEM NO.	TOTAL NO. OF MAJOR ITEMS SUPPORTED	RECOMMENDED ACTION
260			4730-00-273-6772		134	4	1	Change from Hex to Socket Plug.
260-1			4730-00-273-6772			4	1	Change part Number to 12301694.

PART III - REMARKS *(Any general remarks or recommendations, or suggestions for improvement of publications and blank forms. Additional blank sheets may be use dif more space is needed.)*

TYPED NAME, GRADE OR TITLE	TELEPHONE EXCHANGE/AUTOVON, PLUS EXTENSION	SIGNATURE
John Doe SSG	xxx-xxxx	John Doe

USAPA V3.01

RECOMMENDED CHANGES TO PUBLICATIONS AND BLANK FORMS For use of this form, see AR 25-30; the proponent agency is ODISC4.	Use Part II *(reverse)* for Repair Parts and Special Tool Lists (RPSTL) and Supply Catalogs/Supply Manuals (SC/SM).	DATE
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MWO 9-2350-372-30-1	31 July 2006	Modification Work Order (MWO) for Carrier Ammunition Tracked, M992A2

ITEM NO.	PAGE NO.	PARA-GRAPH	LINE NO. *	FIGURE NO.	TABLE NO.	RECOMMENDED CHANGES AND REASON *(Provide exact wording of recommended changes, if possible).*

**Reference to line numbers within the paragraph or subparagraph.*

TYPED NAME, GRADE OR TITLE	TELEPHONE EXCHANGE/AUTOVON, PLUS EXTENSION	SIGNATURE

DA FORM 2028, FEB 74 REPLACES DA FORM 2028, 1 DEC 68, WHICH WILL BE USED. USAPPC V3.00

TO: *(Forward direct to addressee listed in publication)*	FROM: *(Activity and location)(Include Zip Code)*	DATE

PART II - REPAIR PARTS AND SPECIAL TOOLS LISTS AND SUPPLY CATALOGS/SUPPLY MANUALS

PUBLICATION NUMBER	DATE	TITLE

PAGE NO.	COLM NO.	LINE NO.	NATIONAL STOCK NUMBER	REFERENCE NO.	FIGURE NO.	ITEM NO.	TOTAL NO. OF MAJOR ITEMS SUPPORTED	RECOMMENDED ACTION

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By Order of the Secretary of the Army:

PETER J. SCHOOMAKER
General, United States Army
Chief of Staff

Official:

JOYCE E. MORROW
Administrative Assistant to the
Secretary of the Army
0620601

Distribution:

To be distributed in accordance with the initial distribution number (IDN) 372597, requirements for MWO 9-2350-372-30-1.

THE METRIC SYSTEM AND EQUIVALENTS

LINEAR MEASURE

1 Centimeter = 10 Millimeters = 0.01 Meters = 0.3937 Inch
1 Meter = 100 Centimeters = 1000 Millimeters = 39.37 Inches
1 Kilometer = 1000 Meters = 0.621 Mile

SQUARE MEASURE

1 Sq. Centimeter = 100 Sq. Millimeters = 0.155 Sq. Inch
1 Sq. Meter = 10,000 Sq. Centimeters = 10.76 Sq. Feet
1 Sq. Kilometer = 1,000,000 Sq. Meters = 0.386 Sq. Mile

WEIGHTS

1 Gram = 0.001 Kilogram = 1000 Milligrams = 0.035 Ounce
1 Kilogram = 1000 Grams = 2.2 Lb
1 Metric Ton = 1000 Kilograms = 1 Megagram = 1.1 Short Tons

CUBIC MEASURE

1 Cu. Centimeter = 1000 Cu. Millimeters = 0.06 Cu. Inch
1 Cu. Meter = 1,000,000 Cu. Centimeters = 35.31 Cu. Feet

LIQUID MEASURE

1 Milliliter = 0.001 Liter = 0.0338 Fluid Ounce
1 Liter = 1000 Milliliters = 33.82 Fluid Ounces

TEMPERATURE

5/9 (°F – 32) = °C
212° Fahrenheit is equivalent to 100° Celsius
90° Fahrenheit is equivalent to 32.2° Celsius
32° Fahrenheit is equivalent to 0° Celsius
9/5 (°C + 32) = °F

APPROXIMATE CONVERSION FACTORS

TO CHANGE	TO	MULTIPLY BY
Inches	Centimeters	2.540
Feet	Meters	0.305
Yards	Meters	0.914
Miles	Kilometers	1.609
Square Inches	Square Centimeters	6.451
Square Feet	Square Meters	0.093
Square Yards	Square Meters	0.836
Square Miles	Square Kilometers	2.590
Acres	Square Hectometers	0.405
Cubic Feet	Cubic Meters	0.028
Cubic Yards	Cubic Meters	0.765
Fluid Ounces	Milliliters	29.573
Pints	Liters	0.473
Quarts	Liters	0.946
Gallons	Liters	3.785
Ounces	Grams	28.349
Pounds	Kilograms	0.454
Short Tons	Metric Tons	0.907
Pound-Feet	Newton-Meters	1.356
Pounds per Square Inch	Kilopascals	6.895
Miles per Gallon	Kilometers per Liter	0.425
Miles per Hour	Kilometers per Hour	1.609

TO CHANGE	TO	MULTIPLY BY
Centimeters	Inches	0.394
Meters	Feet	3.280
Meters	Yards	1.094
Kilometers	Miles	0.621
Square Centimeters	Square Inches	0.155
Square Meters	Square Feet	10.764
Square Kilometers	Square Miles	0.386
Square Hectometers	Acres	2.471
Cubic Meters	Cubic Feet	35.315
Cubic Meters	Cubic Yards	1.308
Milliliters	Fluid Ounces	0.034
Liters	Pints	2.113
Liters	Quarts	1.057
Liters	Gallons	0.264
Grams	Ounces	0.035
Kilograms	Pounds	2.205
Metric Tons	Short Tons	1.102
Newton-Meters	Pound-Feet	0.738
Kilopascals	Pounds per Square Inch	0.145
Kilometers per Liter	Miles per Gallon	2.354
Kilometers per Hour	Miles per Hour	0.621