

**TECHNICAL MANUAL
MAINTENANCE INSTRUCTIONS
UNIT MAINTENANCE
M1078 SERIES, 2 1/2-TON, 4 X 4,
LIGHT MEDIUM TACTICAL VEHICLES (LMTV)
VOLUME NO. 3 OF 5**

**HOW TO USE THIS MANUAL
PAGE iv**

**FUEL SYSTEM MAINTENANCE
PAGE 4-1**

**EXHAUST SYSTEM MAINTENANCE
PAGE 5-1**

**COOLING SYSTEM MAINTENANCE
PAGE 6-1**

**ELECTRICAL SYSTEM
MAINTENANCE PAGE 7-1**

**TRANSMISSION MAINTENANCE
PAGE 8-1**

**PROPELLER SHAFT MAINTENANCE
PAGE 9-1**

**FRONT AND REAR AXLE
MAINTENANCE
PAGE 10-1**

**BRAKE SYSTEM MAINTENANCE
PAGE 11-1**

**WHEELS, TIRES, AND HUBS
MAINTENANCE
PAGE 12-1**

MODEL	NSN	EIC
TRK, CAR., LMTV, M1078		
W/WN	2320-01-360-1898	BHH
W/O WN	2320-01-354-3385	BHD
TRK, VAN, LMTV, M1079		
W/WN	2320-01-360-1891	BHG
W/O WN	2320-01-354-3384	BHE
TRK, CHAS, LMTV, M1080	2320-01-353-9098	BHC
TRK, CAR., LMTV, AIR DROP, M1081		
W/WN	2320-01-360-1899	BHJ
W/O WN	2320-01-355-3064	BHF

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Washington, D.C., 17 June 1998

Unit Maintenance Manual

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TABLE OF CONTENTS

	Page
HOW TO USE THIS MANUAL	iii
CHAPTER 4 FUEL SYSTEM MAINTENANCE	4-1
Section I Introduction	4-1
Section II Maintenance Procedures	4-2

TABLE OF CONTENTS (CONT)

	Page
CHAPTER 5 EXHAUST SYSTEM MAINTENANCE	5-1
Section I Introduction	5-1
Section II Maintenance Procedures	5-2
CHAPTER 6 COOLING SYSTEM MAINTENANCE	6-1
Section I Introduction	6-1
Section II Maintenance Procedures	6-2
CHAPTER 7 ELECTRICAL SYSTEM MAINTENANCE	7-1
Section I Introduction	7-2
Section II Maintenance Procedures	7-3
CHAPTER 8 TRANSMISSION MAINTENANCE	8-1
Section I Introduction	8-1
Section II Maintenance Procedures	8-2
CHAPTER 9 PROPELLER SHAFT MAINTENANCE	9-1
Section I Introduction	9-1
Section II Maintenance Procedures	9-2
CHAPTER 10 FRONT AND REAR AXLE MAINTENANCE	10-1
Section I Introduction	10-1
Section II Maintenance Procedures	10-2
CHAPTER 11 BRAKE SYSTEM MAINTENANCE	11-1
Section I Introduction	11-1
Section II Maintenance Procedures	11-2
CHAPTER 12 WHEELS, TIRES, AND HUBS MAINTENANCE	12-1
Section I Introduction	12-1
Section II Maintenance Procedures	12-2
CHAPTER 13 STEERING SYSTEM MAINTENANCE	13-1
Section I Introduction	13-1
Section II Maintenance Procedures	13-2

CHAPTER 14 FRAME, TOWING ATTACHMENTS, AND DRAWBARS MAINTENANCE

Section I	Introduction	14-1
Section II	Maintenance Procedures	14-2

CHAPTER 15 SUSPENSION MAINTENANCE

Section I	Introduction	15-1
Section II	Maintenance Procedures	15-2

APPENDIXES

A.	REFERENCES	A-1
B.	MAINTENANCE ALLOCATION CHART	B-1
C.	TOOLS IDENTIFICATION LIST	C-1
D.	EXPENDABLE/DURABLE SUPPLIES AND MATERIALS LIST	D-1
E.	ILLUSTRATED LIST OF MANUFACTURED ITEMS	E-1
F.	TORQUE LIMITS	F-1
G.	MANDATORY REPLACEMENT PARTS	G-1
H.	LUBRICATION ORDER	H-1
J.	ADDITIONAL AUTHORIZATION LIST (AAL)	J-1
K.	TRANSMISSION/TRANSMISSION CONTROLS ADAPTABILITY CHART	K-1

SUBJECT INDEX	Index-1
GLOSSARY	Glossary-1

LIST OF ILLUSTRATIONS

Figure No.	Figure Title	Page
7-1.	Power Distribution Panel (PDP) Circuit Breakers, Diodes, and Relays	7-36
11-1.	Front Brake Shoe Service Criteria	11-4
11-2.	Rear Brake Shoe Service Criteria	11-11
11-3.	Rear Brake Air Hose Locations	11-97
11-4.	Rear Brake Control Air Hose Locations	11-99
11-5.	Front Brake Air Hose Locations	11-101
E-1.	Brake Adjusting Tool Support	E-4
E-2.	Brake Plunger Seal Driver	E-5
E-3.	Cab Support Tool Strut and Cab Rest	E-6
E-4.	Cab Support Tool Seat	E-7
E-5.	Cab Support Tool Seat Layout	E-8
E-6.	Cab Support Tool Assembly	E-9
E-7.	Headlight Adjustment Screen	E-10
E-8.	Lanyard Assembly	E-17
E-9.	CTIS Seal Driver	E-19
E-10.	Wheel Hub Grease Seal Driver	E-20
E-11.	Purge Valve Tool	E-22

LIST OF TABLES

Table No.	Table Title	Page
7-1.	Power Distribution Panel (PDP) Relays	7-36.1
7-1.1.	Power Distribution Panel (PDP) Circuit Breakers	7-36.2

LIST OF TABLES (CONT)

Table No.	Table Title	Page
7-1.2.	Electrical Gages Connectors	7-89
7-2.	Rocker Switch Connectors	7-90
7-3.	M1081 Cab Clearance and Marker Light Connectors	7-230
7-4.	Cab Clearance and Marker Light Connectors	7-245
8-1.	WTEC II Diagnostic Code List and Description	8-10
8-2.	WTEC III Diagnostic Code List and Description	8-15
11-1.	Air Chamber Pressure Limits	11-60
11-2.	Rear Brake Air Hose Locations	11-97
11-3.	Rear Brake Control Air Hose Locations	11-99
11-4.	Front Brake Air Hose Locations	11-101
E-1.	Pneumatic Tube Lengths	E-13
E-2.	Non-Metallic Electrical Cable Conduit Lengths	E-15
F-1.	Dry Torque Limits for SAE and ANSI Screws and Free Spinning Nuts	F-2
F-2.	Dry Torque Limits for SAE and ANSI Prevailing Torque Nuts	F-4
F-3.	Dry Torque Limits for Metric Screws and Free Spinning Nuts	F-5
F-4.	Dry Torque Limits for Metric Prevailing Torque Nuts	F-6
F-5.	Wet Torque Limits for SAE and ANSI Screws and Free Spinning Nuts	F-7

HOW TO USE THIS MANUAL

OVERVIEW

This technical manual (TM) is provided to help you maintain the LMTV at the Unit Maintenance level. Because of its size, it is divided into five volumes. Volume 3 contains the following major sections in order of appearance:

- **WARNING SUMMARY.** Provides a summary of the most important warnings that apply throughout the manual.
- **CHAPTER 4, FUEL SYSTEM MAINTENANCE**
- **CHAPTER 5, EXHAUST SYSTEM MAINTENANCE**
- **CHAPTER 6, COOLING SYSTEM MAINTENANCE**
- **CHAPTER 7, ELECTRICAL SYSTEM MAINTENANCE**
- **CHAPTER 8, TRANSMISSION MAINTENANCE**
- **CHAPTER 9, PROPELLER SHAFT MAINTENANCE**
- **CHAPTER 10, FRONT AND REAR AXLE MAINTENANCE**
- **CHAPTER 11, BRAKE SYSTEM MAINTENANCE**
- **CHAPTER 12, WHEELS, TIRES, AND HUBS MAINTENANCE**
- **CHAPTER 13, STEERING SYSTEM MAINTENANCE**
- **CHAPTER 14, FRAME, TOWING ATTACHMENTS, AND DRAWBARS MAINTENANCE**

OVERVIEW (CONT)

- **CHAPTER 15, SUSPENSION MAINTENANCE**
- **APPENDIX A, REFERENCES.** Lists publications used with the LMTV.
- **APPENDIX B, MAINTENANCE ALLOCATION CHART.** The maintenance allocation chart denotes the level of maintenance which performs specific maintenance tasks and the time required. It also lists tools and special tools required for each task.
- **APPENDIX C, TOOLS IDENTIFICATION LIST.** Lists equipment used in the performance of maintenance and references publications which contain information regarding the equipment.
- **APPENDIX D, EXPENDABLE/DURABLE SUPPLIES AND MATERIALS LIST.** Lists expendable and durable items used in the performance of maintenance.
- **APPENDIX E, ILLUSTRATED LIST OF MANUFACTURED ITEMS.** Illustrates and describes items that must be fabricated from bulk materials for repair of the LMTV.
- **APPENDIX F, TORQUE LIMITS.** Lists the standard torque values for specific attaching hardware.
- **APPENDIX G, MANDATORY REPLACEMENT PARTS.**
- **APPENDIX H, LUBRICATION ORDER.**
- **APPENDIX J, ADDITIONAL AUTHORIZATION LIST (AAL).**
- **APPENDIX K, TRANSMISSION/TRANSMISSION CONTROLS ADAPTABILITY CHART.**
- **SUBJECT INDEX.** Lists important subjects contained in volume 3 in alphabetical order and gives the associated paragraph number.

FINDING INFORMATION

There are several ways to find the information you need in this manual. They are as follows:

- **FRONT COVER INDEX.** The front cover index contains a list of the most important topics contained in each volume. It features a black box at the right edge of the cover which corresponds with a black box on the page containing the topic. The topics listed on the front cover are highlighted in the table of contents with a box.
- **TABLE OF CONTENTS.** Lists chapters, sections, appendixes, and indexes with page numbers in order of appearance.
- **CHAPTER INDEXES.** List paragraphs contained in the individual chapters with paragraph and page numbers in order of appearance.
- **SYMPTOM INDEX.** Lists malfunctions contained in the troubleshooting table with page numbers in order of appearance.

TROUBLESHOOTING

Troubleshooting is contained in chapter 2. When a malfunction occurs, look at the symptom index for the vehicle troubleshooting table in chapter 2. Find the malfunction in the index. Turn to the page number listed for the malfunction in the troubleshooting table. Perform the steps required to correct the malfunction. If you can't find the malfunction, or the malfunction is not corrected, notify your supervisor.

MAINTENANCE

- **SCHEDULED MAINTENANCE.** Your scheduled maintenance is located in Volume 1, table 2-1, PMCS. These checks and services are mandatory at the intervals listed. Always follow the WARNINGS and CAUTIONS.
- **UNSCHEDULED MAINTENANCE.** Unscheduled maintenance is located in chapters 3 through 22. The PMCS and troubleshooting tables often reference you to these procedures. When you perform maintenance, look over the entire procedure before starting. Make sure you have the necessary tools and materials at hand. Always follow the WARNINGS and CAUTIONS.

FOLLOW THESE GUIDELINES WHEN USING THIS MANUAL:

- Become familiar with the entire maintenance procedure before beginning a maintenance task.
- Read all **WARNINGS** and **CAUTIONS** before performing any procedures.

CHAPTER 4 FUEL SYSTEM MAINTENANCE

RESTRICTED MAINTENANCE NOTICE

Units not authorized SC 4910-95-CL-A72 (SHOP EQUIPMENT, COMMON NO. 2) in their T.O.E. may be unable to perform some of the maintenance tasks described in this chapter. If the required tools are not authorized, the equipment must be submitted to DS Maintenance for repair.

Section I. INTRODUCTION	4-1
4-1. INTRODUCTION	4-1
Section II. MAINTENANCE PROCEDURES	4-2
4-2. INTAKE AIR CLEANER FILTER ELEMENT, AIR CLEANER ASSEMBLY, AND PARTICLE EXTRACTION TUBE REPLACEMENT	4-2
4-3. FUEL PRESSURE REGULATING VALVE REPLACEMENT	4-25
4-4. TURBOCHARGER TO CHARGE AIR COOLER TUBE AND HOSES REPLACEMENT	4-28
4-5. CHARGE AIR COOLER TO AIR INLET ELBOW TUBES AND HOSES REPLACEMENT	4-31
4-6. FUEL RATIO CONTROL TUBE REPLACEMENT	4-37
4-7. ORIFICE TUBE ASSEMBLY REPLACEMENT	4-40
4-8. FUEL TANK AND BRACKETS REPLACEMENT	4-42
4-9. FUEL HOSES REPLACEMENT	4-50
4-10. FUEL FILTER TUBES REPLACEMENT	4-60
4-11. FUEL SYSTEM BLEEDING	4-67
4-12. GOVERNOR LINKAGE REPLACEMENT	4-69
4-13. FUEL/WATER SEPARATOR AND FILTER REPLACEMENT	4-72
4-14. FUEL FILTER AND FILTER BASE REPLACEMENT	4-76
4-15. ETHER STARTING AID REPLACEMENT	4-82
4-16. THROTTLE POSITION SENSOR (TPS) CABLE ASSEMBLY REPLACEMENT	4-85
4-17. HAND THROTTLE LEVER REPLACEMENT/ADJUSTMENT	4-87
4-18. THROTTLE CONTROL CABLE REPLACEMENT/ADJUSTMENT	4-89
4-19. THROTTLE CONTROL THREADED ROD REPLACEMENT	4-96
4-20. THROTTLE CONTROL LEVER REPLACEMENT	4-99
4-21. ACCELERATOR PEDAL REPLACEMENT	4-102
4-22. CHECKING AND STENCILING HIGH/LOW HAND THROTTLE POSITIONS	4-103

Section I. INTRODUCTION

4-1. INTRODUCTION

This chapter contains maintenance instructions for replacing, repairing, and adjusting fuel system components authorized by the Maintenance Allocation Chart (MAC) at the Unit Maintenance level.

Section II. MAINTENANCE PROCEDURES

4-2. INTAKE AIR CLEANER FILTER ELEMENT, AIR CLEANER ASSEMBLY, AND PARTICLE EXTRACTION TUBE REPLACEMENT

This task covers:

- | | |
|---|--|
| a. Intake Air Cleaner Filter Element Removal | g. M1081 Intake Air Cleaner Assembly Installation |
| b. Intake Air Cleaner Filter Element Installation | h. Intake Air Cleaner Assembly Installation (except M1081) |
| c. Intake Air Cleaner Assembly Removal (except M1081) | i. Particle Extraction Tube Removal |
| d. M1081 Intake Air Cleaner Assembly Removal | j. Particle Extraction Tube Installation |
| e. Intake Air Cleaner Disassembly | k. Follow-On Maintenance |
| f. Intake Air Cleaner Assembly | |

INITIAL SETUP

Equipment Conditions

Engine shut down (TM 9-2320-365-10).
 Cab raised (TM 9-2320-365-10).
 Batteries disconnected (para 7-48).
 Chemical detection unit removed, if equipped (TM 3-6665-225-12).
 Transmission oil fill tube removed (M1081 only) (para 8-13).

Tools and Special Tools

Tool Kit, Genl Mech (Item 44, Appendix C)
 Wrench, Torque, 0-175 lb-ft (Item 57, Appendix C)
 Crowfoot Attachment, Socket Wrench (Item 6, Appendix B)
 Screwdriver Attachment, Socket Wrench (Item 46, Appendix B)
 Socket Set, Socket Wrench (Item 35, Appendix C)

Tools and Special Tools (Cont)

Wrench, Torque, 0-200 lb-in. (Item 58, Appendix C)

Materials/Parts

Rag, Wiping (Item 51, Appendix D)
 Gasket (Item 32, Appendix G)
 Filter Element (Item 18, Appendix G)
 Washer, Spring (2) (Item 278, Appendix G)
 Nut, Self-Locking (3) (Item 140, Appendix G)
 Nut, Self-Locking (3) (Item 134, Appendix G) (M1081)
 Nut, Self-Locking (3) (Item 141, Appendix G) (all models except M1081)

References

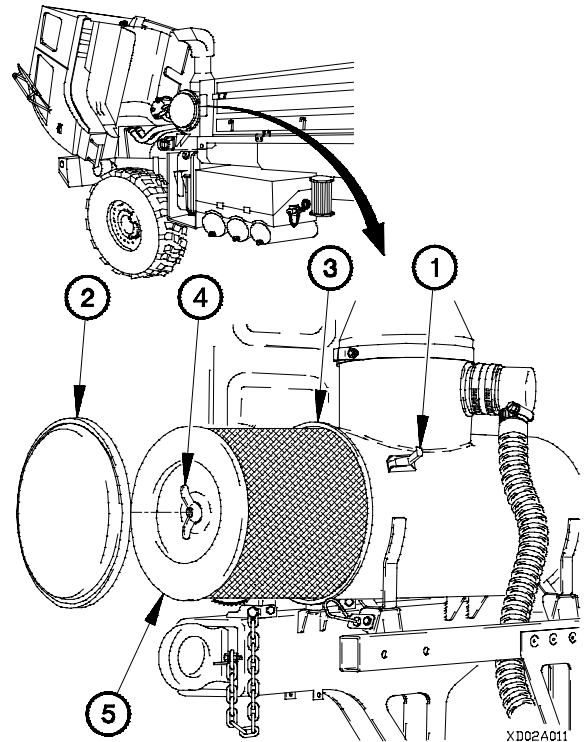
TM 3-6665-225-12
 FM 3-4
 FM 3-5

WARNING

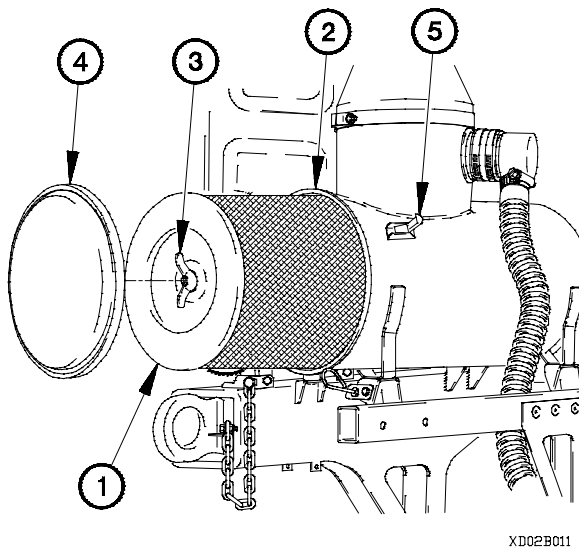
After Nuclear, Biological, or Chemical (NBC) exposure of vehicle, all air filters shall be handled with extreme caution. Unprotected personnel may experience serious injury or death if residual toxic agents or radioactive materials are present. If vehicle is exposed to chemical or biological agents, servicing personnel shall wear protective mask, hood, protective overgarments, and chemical protective gloves and boots in accordance with FM 3-4. All contaminated air filters shall be placed in double-lined plastic bags and moved swiftly to a segregation area away from the worksite. The same procedure applies for radioactive dust contamination. The Company NBC team should measure radiation prior to filter removal to determine extent of safety procedures required per the NBC Annex to the unit Standard Operating Procedures (SOP). The segregation area in which the contaminated air filters are temporarily stored shall be marked with appropriate NBC placards. Final disposal of contaminated air filters shall be in accordance with local SOP. Decontamination operation shall be in accordance with FM 3-5 and local SOP. Failure to comply may result in serious injury or death to personnel.

a. Intake Air Cleaner Filter Element Removal.

- (1) Unlatch three clasps (1) on cover (2).
- (2) Remove cover (2) from intake air cleaner housing (3).
- (3) Loosen wingnut (4) and remove filter element (5) from intake air cleaner housing (3). Discard filter element.



b. Intake Air Cleaner Filter Element Installation.



NOTE

Wipe inside of intake air cleaner housing with damp wiping rag.

- (1) Position filter element (1) in intake air cleaner housing (2).

CAUTION

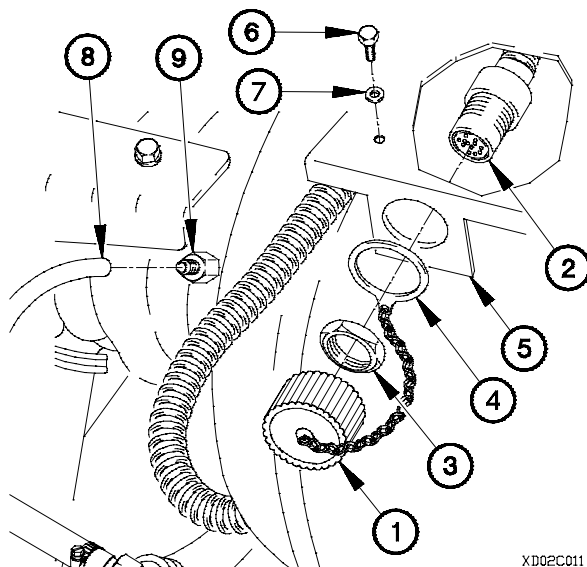
Tighten wingnut securely to prevent air leakage around air cleaner filter element. Do not overtighten. Failure to comply may result in damage to equipment.

- (2) Tighten wingnut (3) on filter element (1).
- (3) Install cover (4) on intake air cleaner housing (2) with three clasps (5).

4-2. INTAKE AIR CLEANER FILTER ELEMENT, AIR CLEANER ASSEMBLY, AND PARTICLE EXTRACTION TUBE REPLACEMENT (CONT)

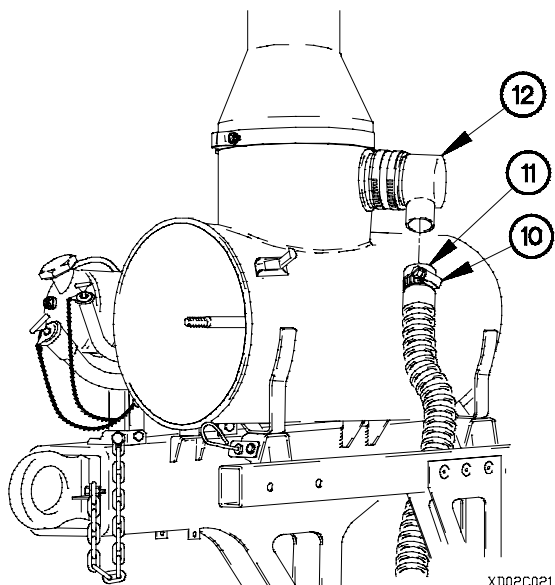
c. Intake Air Cleaner Assembly Removal (except M1081).

- (1) Remove dust cap (1) from connector J106 (2).
- (2) Remove nut (3), dust cap lanyard (4), and connector J106 (2) from chemical detector mounting bracket (5).
- (3) Remove four screws (6) and washers (7) from chemical detector mounting bracket (5).
- (4) Disconnect air filter restriction gauge hose (8) from air flow sensor (9).



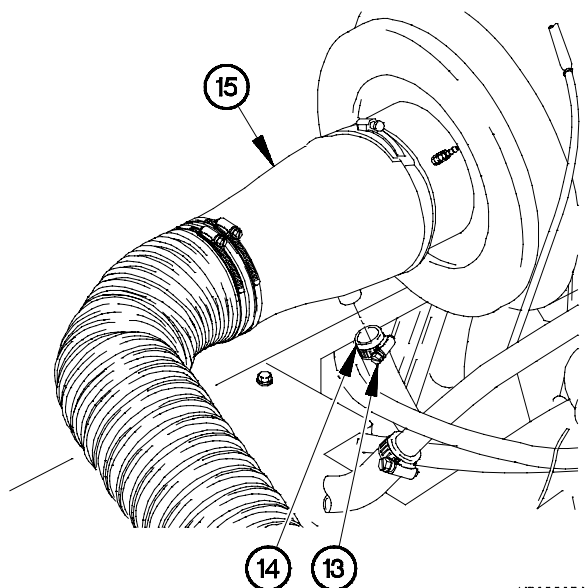
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- (5) Loosen clamp (10) on particle extraction hose (11).
- (6) Remove particle extraction hose (11) from adapter (12).



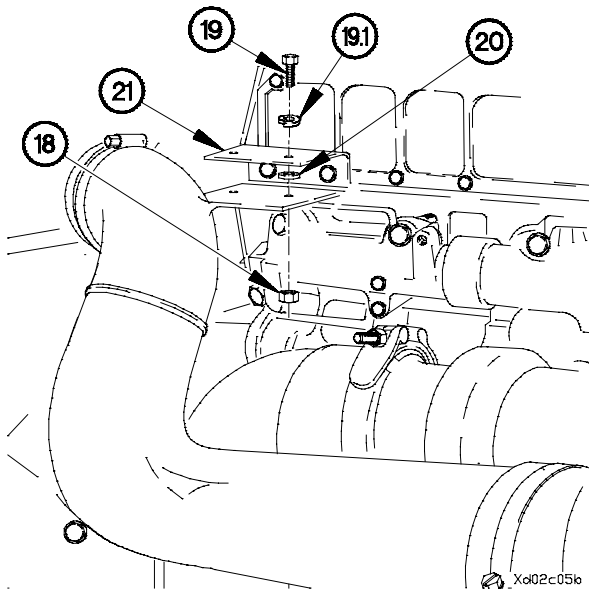
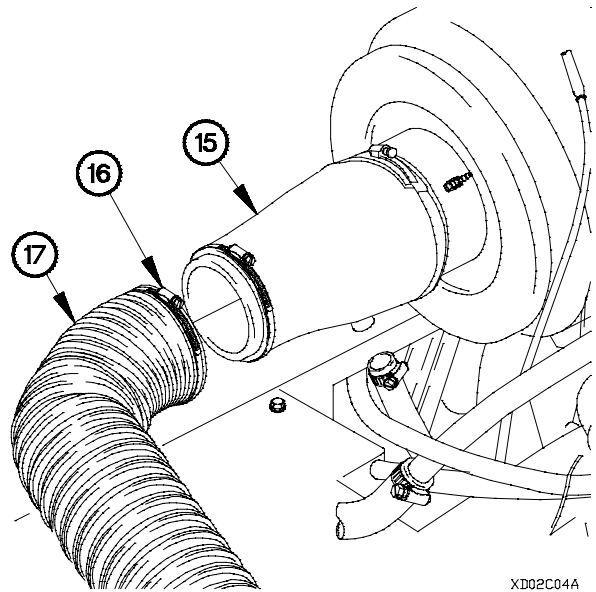
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- (7) Loosen clamp (13) on air compressor intake hose (14).
- (8) Remove air compressor intake hose (14) from intake air cleaner boot (15).



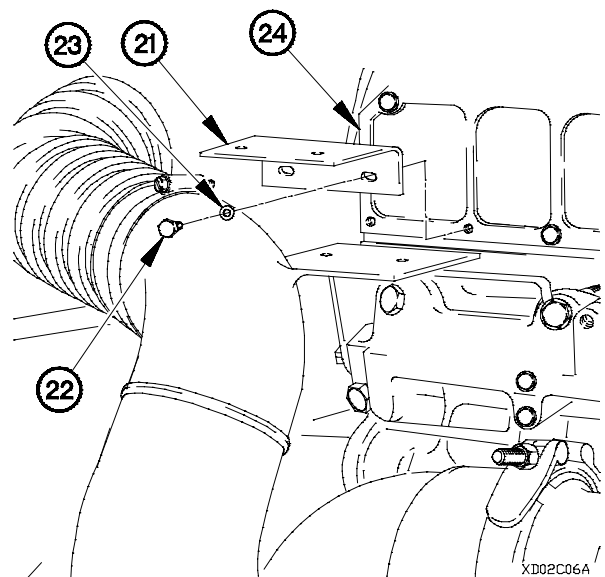
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- (9) Loosen clamp (16) on turbocharger intake hose (17).
- (10) Remove turbocharger intake hose (17) from intake air cleaner boot (15).



- (11) Remove two nuts (18), screws (19), lockwashers (19.1), and washers (20) from bracket (21). Discard lockwashers.

- (12) Remove two screws (22), washers (23), and bracket (21) from engine inlet manifold (24).



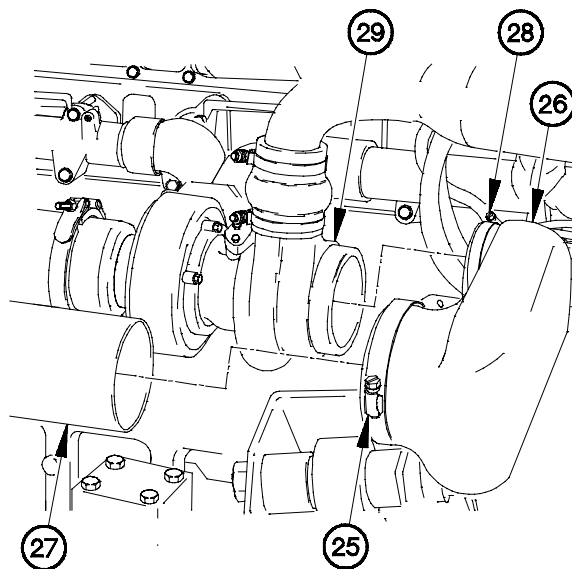
4-2. INTAKE AIR CLEANER FILTER ELEMENT, AIR CLEANER ASSEMBLY, AND PARTICLE EXTRACTION TUBE REPLACEMENT (CONT)

- (13) Loosen clamp (25) on turbocharger inlet coupling (26).
- (14) Remove turbocharger tube (27) from turbocharger inlet coupling (26).
- (15) Loosen clamp (28) on turbocharger inlet coupling (26).

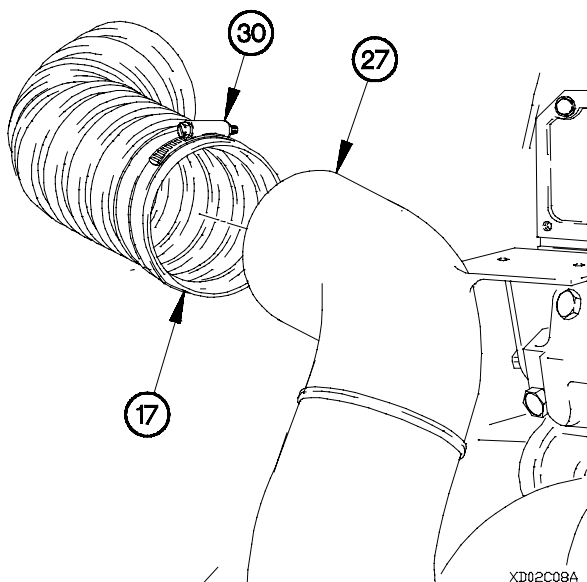
CAUTION

Cover turbocharger inlet with wiping rags after removing turbocharger inlet coupling. Failure to comply may result in damage to equipment.

- (16) Remove turbocharger inlet coupling (26) from turbocharger (29).



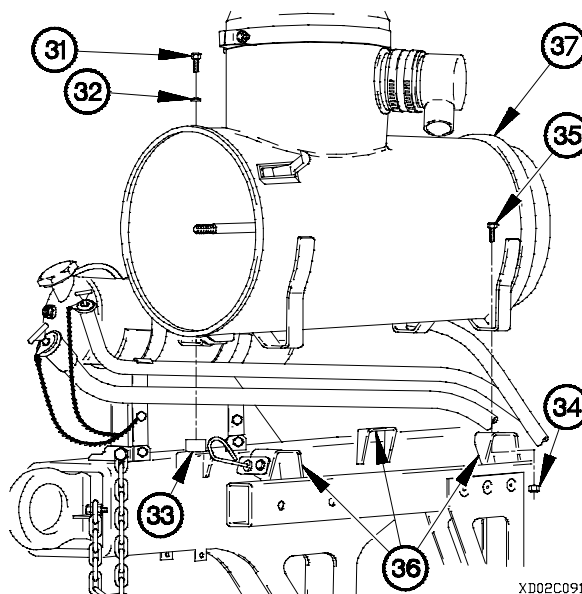
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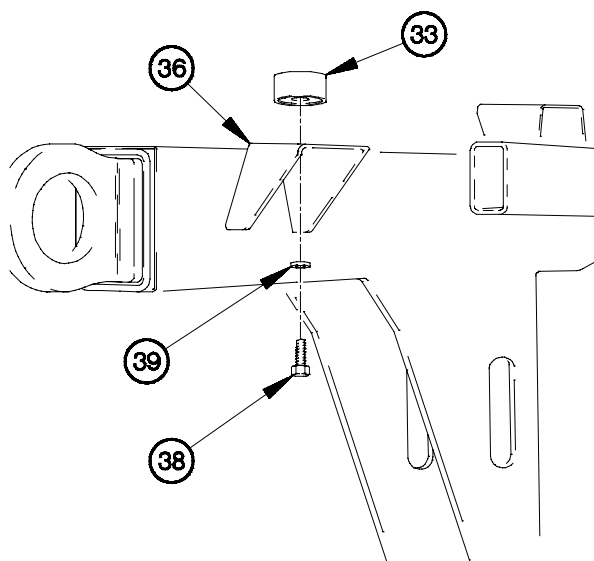
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- (17) Loosen clamp (30) on turbocharger intake hose (17).
- (18) Remove turbocharger intake hose (17) from turbocharger tube (27).

- (19) Remove screw (31) and washer (32) from resilient mount (33).
- (20) Remove three self-locking nuts (34) and screws (35) from mounting brackets (36). Discard self-locking nuts.
- (21) Remove intake air cleaner assembly (37) from three mounting brackets (36) and resilient mount (33).



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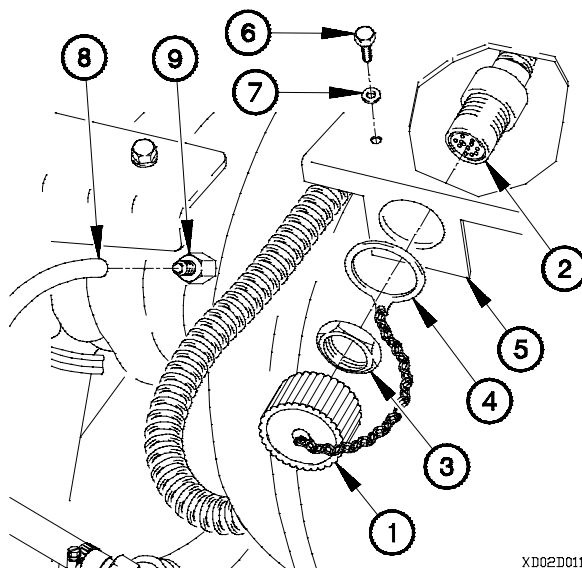


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- (22) Remove screw (38), washer (39), and resilient mount (33) from mounting bracket (36).

d. M1081 Intake Air Cleaner Assembly Removal.

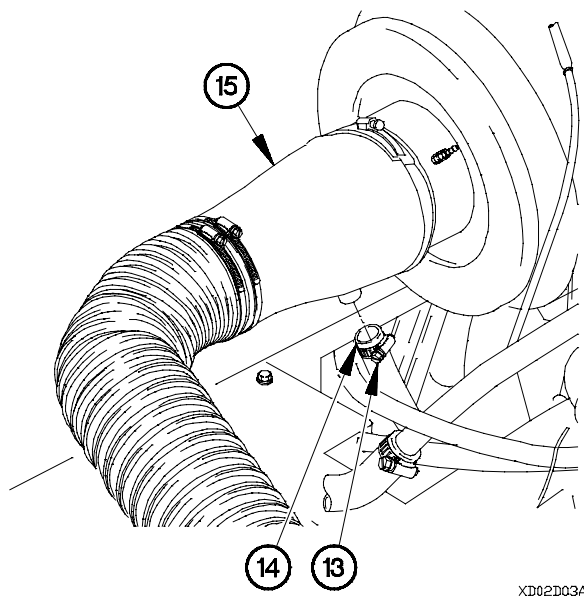
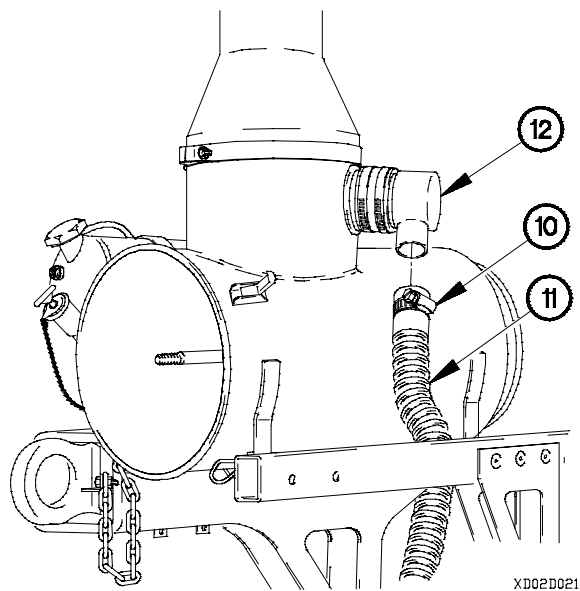
- (1) Remove dust cap (1) from connector J106 (2).
- (2) Remove nut (3), dust cap lanyard (4), and connector J106 (2) from chemical detector mounting bracket (5).
- (3) Remove four screws (6) and washers (7) from chemical detector mounting bracket (5).
- (4) Disconnect air filter restriction gauge hose (8) from air flow sensor (9).



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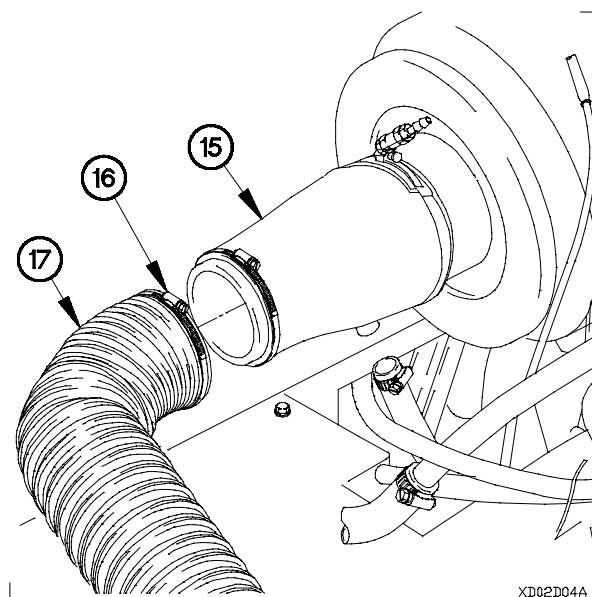
4-2. INTAKE AIR CLEANER FILTER ELEMENT, AIR CLEANER ASSEMBLY, AND PARTICLE EXTRACTION TUBE REPLACEMENT (CONT)

- (5) Loosen clamp (10) on particle extraction hose (11).
- (6) Remove particle extraction hose (11) from adapter (12).

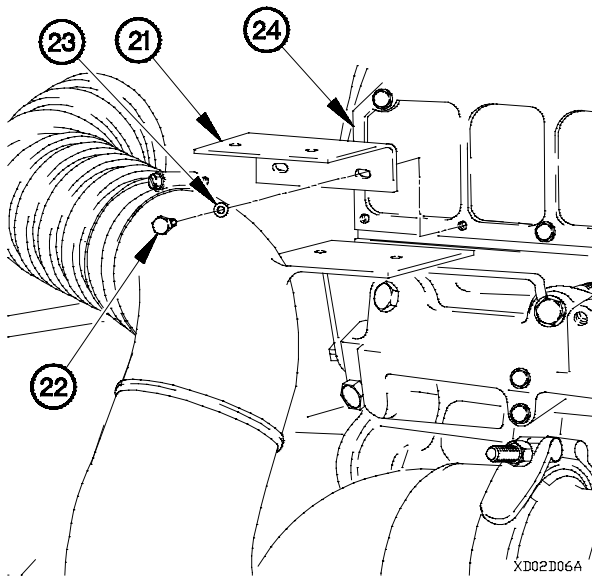
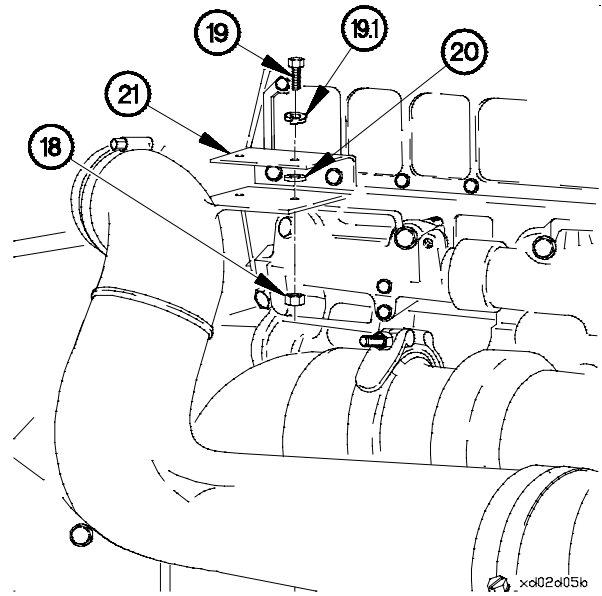


- (7) Loosen clamp (13) on air compressor intake hose (14).
- (8) Remove air compressor intake hose (14) from intake air cleaner boot (15).

- (9) Loosen clamp (16) on turbocharger intake hose (17).
- (10) Remove turbocharger intake hose (17) from intake air cleaner boot (15).



- (11) Remove two nuts (18), screws (19), lockwashers (19.1), and washers (20) from bracket (21). Discard lockwashers.



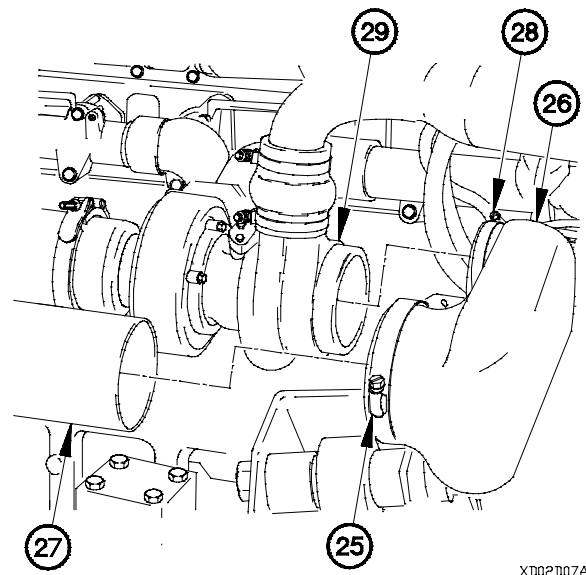
- (12) Remove two screws (22), washers (23), and bracket (21) from engine inlet manifold (24).

- (13) Loosen clamp (25) on turbocharger inlet coupling (26).
 (14) Remove turbocharger tube (27) from turbocharger inlet coupling (26).
 (15) Loosen clamp (28) on turbocharger inlet coupling (26).

CAUTION

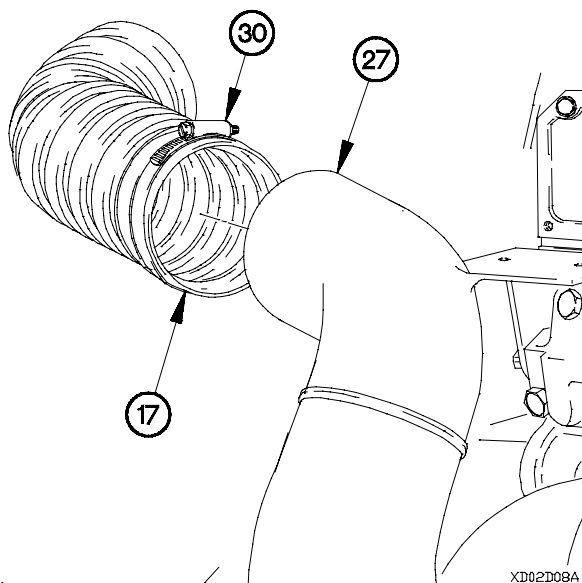
Cover turbocharger inlet with wiping rags after removing turbocharger inlet coupling. Failure to comply may result in damage to equipment.

- (16) Remove turbocharger inlet coupling (26) from turbocharger (29).

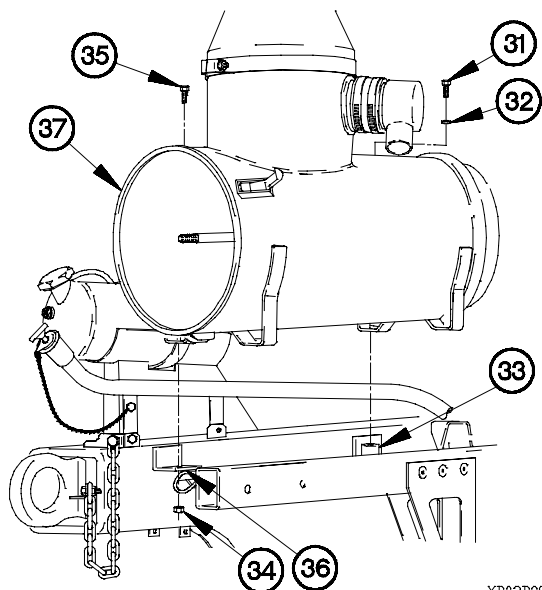


4-2. INTAKE AIR CLEANER FILTER ELEMENT, AIR CLEANER ASSEMBLY, AND PARTICLE EXTRACTION TUBE REPLACEMENT (CONT)

- (17) Loosen clamp (30) on turbocharger intake hose (17).
- (18) Remove turbocharger intake hose (17) from turbocharger tube (27).



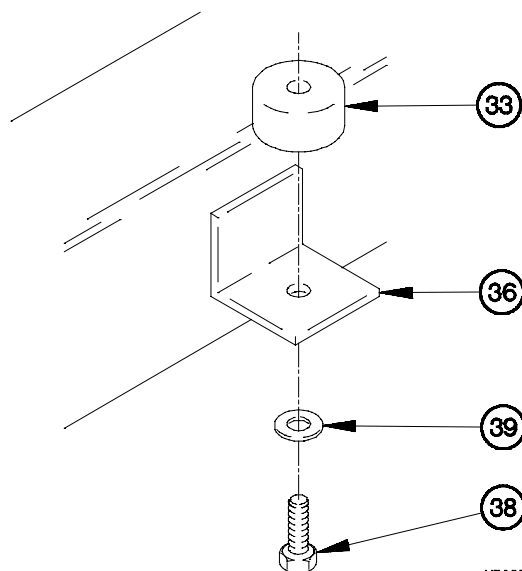
XD02D08A



XD02D09A

- (19) Remove screw (31) and washer (32) from resilient mount (33).
- (20) Remove three self-locking nuts (34) and screws (35) from mounting brackets (36). Discard self-locking nuts.
- (21) Remove intake air cleaner assembly (37) from mounting brackets (36) and resilient mount (33).

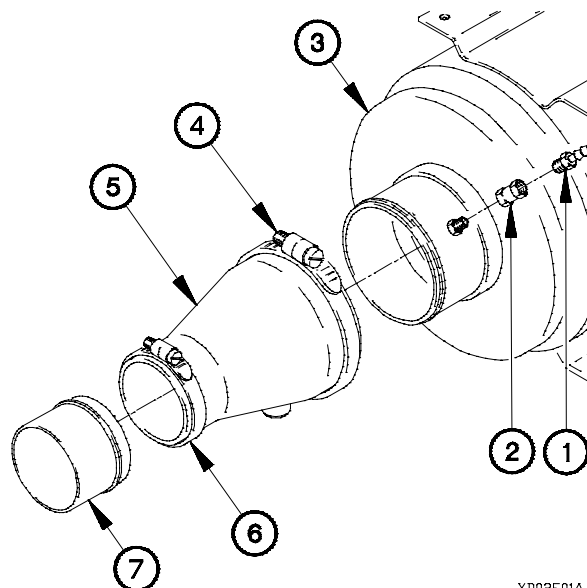
- (22) Remove screw (38), washer (39), and resilient mount (33) from mounting bracket (36).



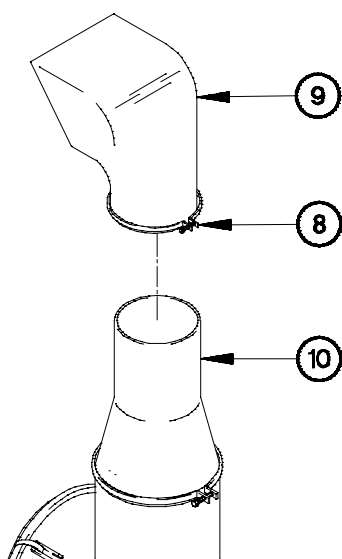
XD02D10A

e. Intake Air Cleaner Disassembly.

- (1) Remove air flow sensor (1) from pipe coupling (2).
- (2) Remove pipe coupling (2) from intake air cleaner housing (3).
- (3) Loosen clamp (4) on intake air cleaner boot (5).
- (4) Remove intake air cleaner boot (5) from intake air cleaner housing (3).
- (5) Loosen clamp (6) on intake air cleaner boot (5).
- (6) Remove adapter (7) from intake air cleaner boot (5).



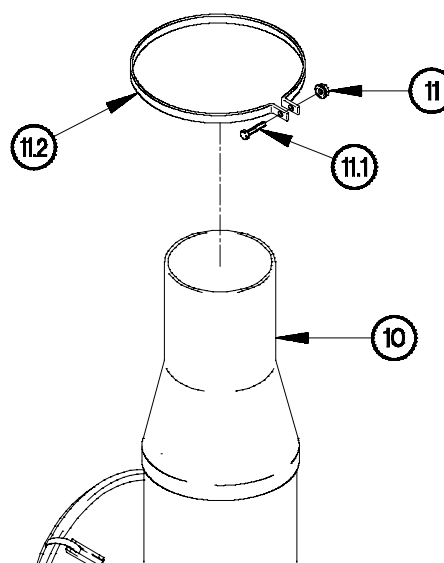
XD02E01A



XD02E02B

NOTE

- Vehicles may be equipped with air intake adapters PN 12420527, PN 12421274, or PN 12421380. If air intake adapter PN 12420527 or PN 12421274 is damaged, replace with intake adapter PN 12421380 and clamp PN 12421379-001.
 - Perform step (9) on vehicles equipped with air intake adapter PN 12420572.
- (9) Remove self-locking nut (11), screw (11.1), and clamp (11.2) from air intake adapter (10). Discard self-locking nut.



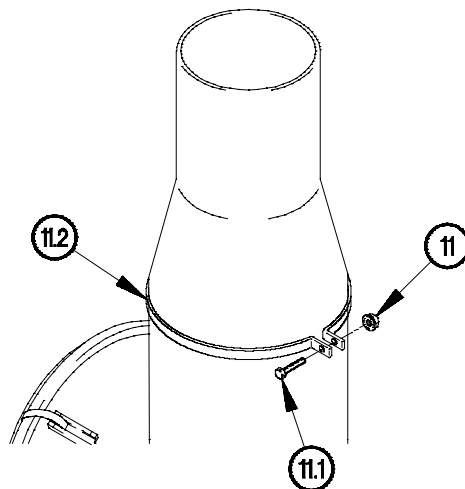
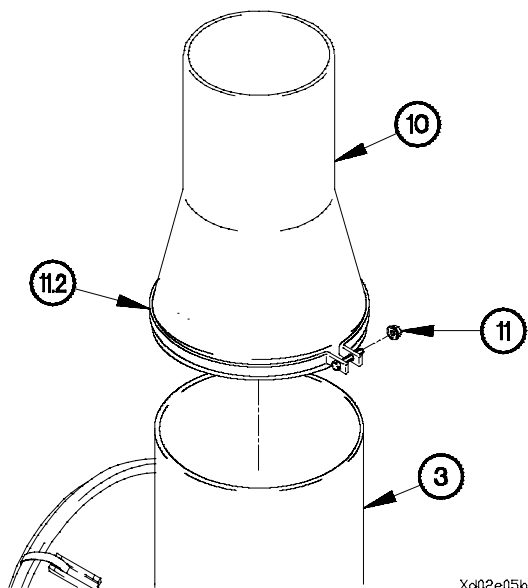
XD02E03B

4-2. INTAKE AIR CLEANER FILTER ELEMENT, AIR CLEANER ASSEMBLY, AND PARTICLE EXTRACTION TUBE REPLACEMENT (CONT)

NOTE

Perform step (10) on vehicles equipped with air intake adapter PN 12421274.

- (10) Remove self-locking nut (11) and screw (11.1) from band (11.2). Discard self-locking nut.

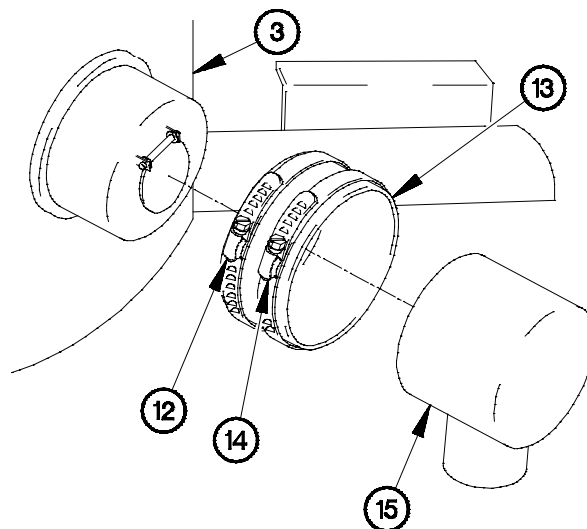


XD02E04B

NOTE

Perform step (10.1) on vehicles equipped with air intake adapter PN 12421380.

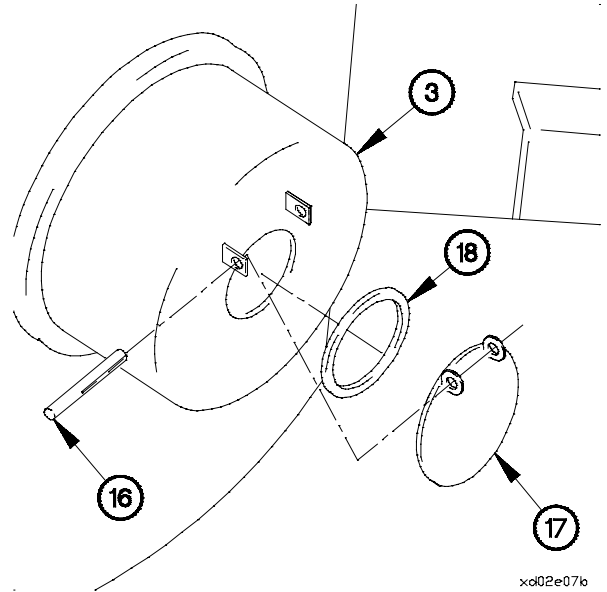
- (10.1) Remove self-locking nut (11) and clamp (11.2) from air intake adapter (10). Discard self-locking nut.
- (10.2) Remove air intake adapter (10) from intake air cleaner housing (3).



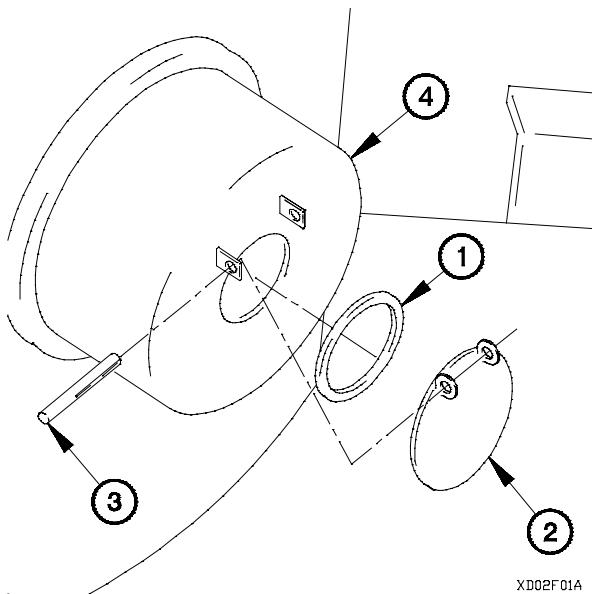
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- (11) Loosen clamp (12) on resilient mount (13).
- (12) Remove resilient mount (13) from intake air cleaner housing (3).
- (13) Loosen clamp (14) on resilient mount (13).
- (14) Remove adapter (15) from resilient mount (13).

- (15) Remove pin (16), air shutter (17), and gasket (18) from intake air cleaner housing (3). Discard gasket.



f. Intake Air Cleaner Assembly.



- (1) Install gasket (1), air shutter (2), and pin (3) in intake air cleaner housing (4).

- (2) Install adapter (5) on resilient mount (6) with clamp (7).
- (3) Install resilient mount (6) on intake air cleaner housing (4) with clamp (8).

