


Title:	SCR Closed Loop Faults on Detroit Diesel Engines			
Number:	SB_654	Release Date:	12/19/23	
Revision Number:	Not Applicable	Revision Date:	Not Applicable	
Chassis Type:	All custom chassis with a 2016 and newer Detroit engines			
Component Description:	Aftertreatment System & Controls			

Subject:

Selective Catalyst Reduction Closed Loop Control at Maximum Limit faults on Pierce apparatus with MY2016 – 2022 Detroit engines.

Purpose/Background:

Detroit recently released an ACM software update v7.61.2.0 to address high occurrences of *Selective Catalyst Reduction Closed Loop Control at Maximum Limit* faults on Pierce apparatus with MY2016 – 2022 Detroit engines.

The updated ACM software includes improvements for the following fault codes:

- SPN 520371 / FMI 16: SCR closed loop control at maximum limit (Multiples Sources)
- SPN 520372 / FMI 14: SCR closed loop control at maximum limit (Timeout)
- SPN 520372 / FMI 16: SCR closed loop control at maximum limit

Detroit Logic:

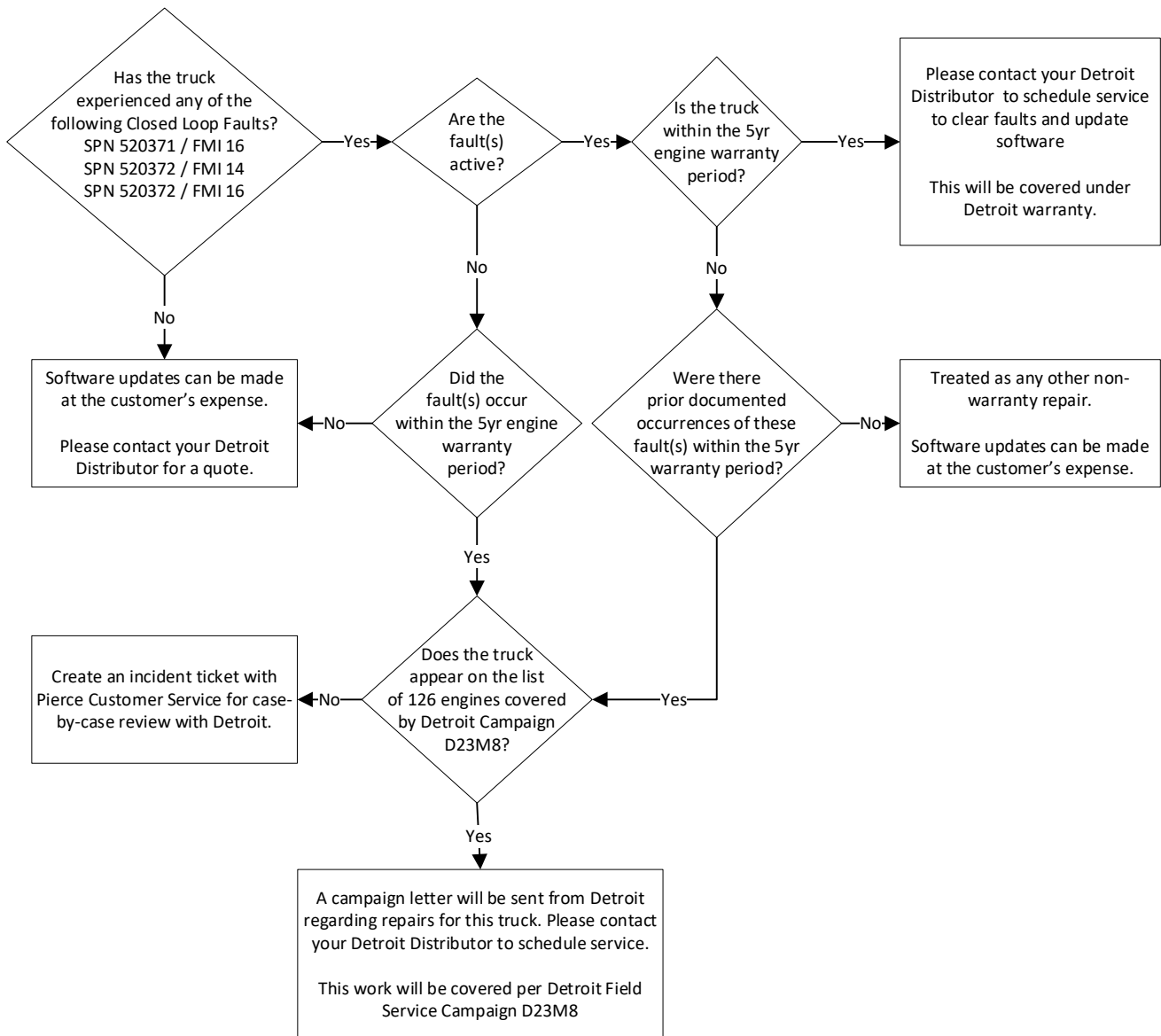
The engine continually monitors NOx conversion efficiency by comparing NOx levels into and out of the SCR canister. As conversion efficiency drops below optimum range, DEF dosing is adjusted (usually increased) to keep NOx conversion efficiency within acceptable limits. If DEF dosing adjustments reach their maximum limit and conversion efficiency is still below threshold, an SCR Closed Loop fault is triggered.

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Repair Process and Warranty Considerations:

The following flowchart outlines the process for requesting the ACM update along with coverage policies for in-warranty and out-of-warranty engines.

MCM and CPC reprogramming may also be required to maintain compatibility with this latest ACM software version. Auto-elevate is not required for this ACM update to work properly.



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Trucks Covered Under D23M8:

Engine Serial Number	VIN	Job #	Dealer	Customer
471940S0431774	4P1BAAGF3HA016910	29624-1	SIDDONS-MARTIN EMERGENCY GROUP, LLC	CITY OF CEDAR HILLS FIRE DEPARTMENT
471940S0431898	4P1BAAGF8HA016854	29677-1	SOUTH COAST FIRE EQUIP INC	CITY OF SAN DIEGO
471940S0434111	4P1BCAGF8HA016833	29424-1	ATLANTIC EMER. SOLUTIONS, INC - MANASS	BAY DISTRICT VFD INC
471940S0434468	4P1BAAGF5HA016987	29654-1	SUPERIOR EQUIPMENT	NORTH VIEW FIRE DISTRICT
471940S0434633	4P1BAAGF9HA016913	29714-1	TEN-8 FIRE EQUIPMENT INC	CITY OF LARGO
471940S0434638	4P1BAAGF4HA016897	29791-1	SIDDONS-MARTIN EMERGENCY GROUP, LLC	BULVERDE SPRING BRANCH FIRE AND EMS
471940S0434643	4P1BCAGF5HA016949	29616-1	ATLANTIC EMER. SOLUTIONS, INC - MANASS	FAIRFAX COUNTY FIRE & RESCUE DEPT
471940S0434859	4P1BAAGF3HA016860	29677-7	SOUTH COAST FIRE EQUIP INC	CITY OF SAN DIEGO
471940S0434867	4P1BAAGF8HA016966	29859-1	SPARTAN FIRE & EMERGENCY APPARATUS	GANTT FD
471940S0435895	4P1BCAGF0HA016941	29782-1	SCHUHMACHER FIRE EQUIPMENT LLC	CENTRAL COUNTY FIRE & RESCUE
471940S0438570	4P1BAAGF0HA017013	29822-2	SIDDONS-MARTIN EMERGENCY GROUP, LLC	CITY OF DENTON
471940S0442411	4P1BCAGF9HA017005	29704-1	SIDDONS-MARTIN EMERGENCY GROUP, LLC	ALLEN FIRE DEPARTMENT
471940S0442423	4P1BAAGF4HA017077	29781-1	SCHUHMACHER FIRE EQUIPMENT LLC	CENTRAL COUNTY FIRE & RESCUE
471940S0442429	4P1BAAGF9HA017057	29752-1	RELIANT FIRE APPARATUS INC	JANESVILLE FIRE DEPARTMENT
471940S0442736	4P1BCAGF2HA017265	29804-2	SUPERIOR EQUIPMENT	SALT LAKE CITY CORPORATION
471940S0442746	4P1BCAGF8HA017030	29749-1	SIDDONS-MARTIN EMERGENCY GROUP, LLC	CITY OF EULESS
471940S0442758	4P1BAAGF0HA017187	30016-1	SIDDONS-MARTIN EMERGENCY GROUP, LLC	COUNTY OF BERNALILLO
471940S0442785	4P1BCAGF9HA017070	29099-1	SIDDONS-MARTIN EMERGENCY GROUP, LLC	ROUND ROCK FIRE DEPARTMENT
471940S0448916	4P1BAAGF8HA017227	29686-1	HUGHES FIRE EQUIPMENT INC	CALDWELL FIRE & RESCUE
471940S0449880	4P1BCAGF1HA017175	29614-1	ATLANTIC EMER. SOLUTIONS, INC - MANASS	FAIRFAX COUNTY FIRE & RESCUE DEPT
471940S0449896	4P1BCAGF6HA017267	29893-1	SIDDONS-MARTIN EMERGENCY GROUP, LLC	LONGVIEW FD
471940S0451149	4P1BCAGF0HA017264	29804-1	SUPERIOR EQUIPMENT	SALT LAKE CITY CORPORATION
471940S0451152	4P1BCAGF3HA017291	29756-1	SIDDONS-MARTIN EMERGENCY GROUP, LLC	SAN ANTONIO FIRE DEPARTMENT
471940S0452322	4P1BAAGF7HA017431	30267-5	SOUTH COAST FIRE EQUIP INC	CITY OF SAN DIEGO
471940S0452326	4P1BAAGF7HA017302	30078-1	GLICK FIRE EQUIPMENT CO. INC. - EAST	BRIGHTON TWP VFD
471940S0453743	4P1BAAGF2HA017319	30000-1	FRONT RANGE FIRE APPARATUS LTD	LONGMONT FD CITY OF
471940S0453751	4P1BAAGF6HA017484	30277-2	HUGHES FIRE EQUIPMENT INC	TOWN OF GILBERT
471940S0457591	4P1BAAGFXHA017391	29957-2	HUGHES FIRE EQUIPMENT INC	CLACKAMAS COUNTY FIRE DIST #1
471940S0457737	4P1BAAGFXHA017441	30310-1	SCHUHMACHER FIRE EQUIPMENT LLC	CEDAR HILL FPD
471940S0457746	4P1BAAGF1HA017392	29957-3	HUGHES FIRE EQUIPMENT INC	CLACKAMAS COUNTY FIRE DIST #1
471940S0460297	4P1BCAGF3HA017551	30150-1	TEN-8 FIRE EQUIPMENT INC	CITY OF MIAMI
471940S0460303	4P1BAAGF6HA017422	30209-1	SIDDONS-MARTIN EMERGENCY GROUP, LLC	BAYTOWN FIRE & RESCUE
471940S0460309	4P1BAAGF4HA017483	30277-1	HUGHES FIRE EQUIPMENT INC	TOWN OF GILBERT
471940S0460315	4P1BAAGF4HA017421	30197-1	ATLANTIC EMER. SOLUTIONS, INC - MANASS	FAIRFAX COUNTY FIRE & RESCUE DEPT
471940S0463284	4P1BCAFF9HA017572	30121-1	FIRE & SAFETY SERVICES LTD	GLOUCESTER TOWNSHIP FIRE DISTRICT #5
471940S0463402	4P1BAAGF3HA017507	30208-1	GOLDEN STATE FIRE APPARATUS INC	GILROY CITY OF

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471940S0463651	4P1BAAGF7HA017512	30311-1	SCHUHMACHER FIRE EQUIPMENT LLC	CENTRAL JACKSON CO FPD
471940S0466809	4P1BAAGF0HA017562	30369-1	FRONT RANGE FIRE APPARATUS LTD	TOWN OF CASTLE ROCK
471940S0467031	4P1BAAGF4HA017788	30655-1	FINLEY FIRE EQUIPMENT CO INC	CITY OF LOGAN
471940S0467911	4P1BAAGF6HA017582	30347-1	HUGHES FIRE EQUIPMENT INC	FORT MCDOWELL YAVAPAI NATION
471940S0467920	4P1BAAGF9HA017432	30267-6	SOUTH COAST FIRE EQUIP INC	CITY OF SAN DIEGO
471940S0469820	4P1BAAGF7HA017655	30285-1	FRONT RANGE FIRE APPARATUS LTD	SOUTH ADAMS CO FPD
471940S0469831	4P1BAAGF9HA017656	30285-2	FRONT RANGE FIRE APPARATUS LTD	SOUTH ADAMS CO FPD
471940S0470249	4P1BAAGF2HA017739	30312-1	FRONT RANGE FIRE APPARATUS LTD	ADAMS COUNTY FIRE PROTECTION DISTRICT
471940S0471324	4P1BAAGF1HA017618	30535-2	HUGHES FIRE EQUIPMENT INC	GRESHAM FIRE & EMERGENCY SERVICES
471940S0471327	4P1BAAGF1HA017666	30646-1	SUPERIOR EQUIPMENT	SALT LAKE CITY CORPORATION
471940S0471345	4P1BCAGF2HA017668	30265-1	FRONT RANGE FIRE APPARATUS LTD	ADAMS COUNTY FIRE PROTECTION DISTRICT
471940S0473639	4P1BAAGF9HA017849	30594-1	SIDDONS-MARTIN EMERGENCY GROUP, LLC	COMMUNITY VFD
471940S0473648	4P1BCAGF1HA017693	30206-1	HUGHES FIRE EQUIPMENT INC	CITY OF MESA
471940S0476645	4P1BAAGFXHA017861	30951-1	SIDDONS-MARTIN EMERGENCY GROUP, LLC	COMMUNITY VFD
471940S0477846	4P1BAAGF2HA017854	30675-1	HUGHES FIRE EQUIPMENT INC	CITY OF SIERRA VISTA
471940S0477849	4P1BCAGF6HA017916	30335-1	SCHUHMACHER FIRE EQUIPMENT LLC	METRO WEST FPD
471940S0479081	4P1BAAGF1HA017859	30784-1	SIDDONS-MARTIN EMERGENCY GROUP, LLC	ANNA FIRE DEPARTMENT
471940S0483171	4P1BBAGFXHA017890	30247-1	FRONT RANGE FIRE APPARATUS LTD	WEST METRO FPD
471940S0483177	4P1BAAGF9HA017981	30772-1	HUGHES FIRE EQUIPMENT INC	CITY OF HENDERSON
471940S0484477	4P1BAAGFXHA018010	30726-1	ATLANTIC EMER. SOLUTIONS, INC - MANASS	FAIRFAX COUNTY FIRE & RESCUE DEPT
471940S0484489	4P1BCAGF8HA017917	30363-1	HUGHES FIRE EQUIPMENT INC	CITY OF NORTH LAS VEGAS FIRE DEPARTMENT
471940S0485901	4P1BAAGF0JA018152	30802-1	ATLANTIC EMER. SOLUTIONS, INC - MANASS	CITY OF MANASSAS
471940S0485907	4P1BAAGFXHA018119	30727-2	ATLANTIC EMER. SOLUTIONS, INC - MANASS	FAIRFAX COUNTY FIRE & RESCUE DEPT
471940S0485919	4P1BAAGF0HA017982	30772-2	HUGHES FIRE EQUIPMENT INC	CITY OF HENDERSON
471940S0487556	4P1BAAGF0HA017819	30501-2	FRONT RANGE FIRE APPARATUS LTD	CITY OF WESTMINSTER
471940S0487562	4P1BAAGF2HA018051	30957-1	SUPERIOR EQUIPMENT	DRAPER CITY CORPORATION
471940S0490392	4P1BAAGF1HA018011	30726-2	ATLANTIC EMER. SOLUTIONS, INC - MANASS	FAIRFAX COUNTY FIRE & RESCUE DEPT
471940S0492082	4P1BAAGF9HA018189	30726-3	ATLANTIC EMER. SOLUTIONS, INC - MANASS	FAIRFAX COUNTY FIRE & RESCUE DEPT
471940S0494158	4P1BAAGF5HA018190	30726-4	ATLANTIC EMER. SOLUTIONS, INC - MANASS	FAIRFAX COUNTY FIRE & RESCUE DEPT
471940S0494170	4P1BAAGF5HA018108	30912-1	ATLANTIC EMER. SOLUTIONS, INC - MANASS	MARYLAND CITY VFD
471940S0495954	4P1BAAGF8HA018118	30727-1	ATLANTIC EMER. SOLUTIONS, INC - MANASS	FAIRFAX COUNTY FIRE & RESCUE DEPT
471940S0495969	4P1BCAGF7JA018224	30958-1	SUPERIOR EQUIPMENT	DRAPER CITY CORPORATION
471940S0496298	4P1BAAGF9JA018182	30889-1	SIDDONS-MARTIN EMERGENCY GROUP, LLC	CITY OF ALLEN
471940S0497865	4P1BAAGF4JA018199	30721-1	ATLANTIC EMER. SOLUTIONS, INC - MANASS	FAIRFAX VOLUNTEER FIRE DEPARTMENT
471940S0504945	4P1BAAGF8JA018268	30871-1	SOUTH COAST FIRE EQUIP INC	CITY OF PALM SPRINGS
471940S0506447	4P1BBAGF3JA018238	30459-1	GLICK FIRE EQUIPMENT CO. INC. - EAST	PITTSBURGH EMERGENCY MEDICAL SERVICES
471940S0508105	4P1BAAGF6JA018270	30871-3	SOUTH COAST FIRE EQUIP INC	CITY OF PALM SPRINGS
471940S0508120	4P1BAAGFXJA018269	30871-2	SOUTH COAST FIRE EQUIP INC	CITY OF PALM SPRINGS

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471940S0510448	4P1BCAGF7JA018448	31093-1	FINLEY FIRE EQUIPMENT CO INC	CITY OF COLUMBUS
471940S0510454	4P1BAAGF7JA018410	31122-1	SIDDONS-MARTIN EMERGENCY GROUP, LLC	COUNTY OF BERNALILLO
471940S0511634	4P1BCAGF4JA018441	30914-1	SIDDONS-MARTIN EMERGENCY GROUP, LLC	DISTRICT 7 FIRE AND RESCUE
471940S0517869	4P1BCAGF8JA018443	30947-1	ALLEGIANCE FIRE AND RESCUE	TOWN OF DERRY
471940S0519709	4P1BCAGF2JA018504	30934-2	FRONT RANGE FIRE APPARATUS LTD	SOUTH ADAMS CO FPD
471940S0519737	4P1BAAGF4JA018543	31290-2	FRONT RANGE FIRE APPARATUS LTD	CITY OF LITTLETON
471940S0519740	4P1BAAGF6JA018494	31185-1	SIDDONS-MARTIN EMERGENCY GROUP, LLC	PFLUGERVILLE TRAVIS COUNTY ESD #2
471940S0519743	4P1BAAGF8JA018545	31309-1	FRONT RANGE FIRE APPARATUS LTD	WEST METRO FIRE RESCUE
471940S0522847	4P1BAAGF2JA018539	31233-3	ATLANTIC EMER. SOLUTIONS, INC - MANASS	PRINCE GEORGE COUNTY FIRE & EMS DEPT
471940S0522859	4P1BAAGF2JA018542	31290-1	FRONT RANGE FIRE APPARATUS LTD	CITY OF LITTLETON
471940S0522862	4P1BCAGF0JA018503	30934-1	FRONT RANGE FIRE APPARATUS LTD	SOUTH ADAMS CO FPD
471940S0537039	4P1BAAGF9JA018716	31387-1	TEN-8 FIRE EQUIPMENT INC	CITY OF TAMPA
471940S0538232	4P1BCAGF2JA018843	31715-1	CONRAD FIRE EQUIPMENT INC	CITY OF WICHITA
471940S0539144	4P1BCAGF0JA018761	31098-2	FRONT RANGE FIRE APPARATUS LTD	TOWN OF CASTLE ROCK
471940S0541384	4P1BCAGF9JA018760	31098-1	FRONT RANGE FIRE APPARATUS LTD	TOWN OF CASTLE ROCK
471940S0562415	4P1BAAGF5JA019152	31843-1	HUGHES FIRE EQUIPMENT INC	CITY OF EUGENE
471940S0567610	4P1BAAGF6JA019130	31416-6	ATLANTIC EMER. SOLUTIONS, INC - MANASS	WASHINGTON DC FIRE & EMS
471940S0572069	4P1BAAGF6JA019256	31873-1	ATLANTIC EMER. SOLUTIONS, INC - MANASS	PRINCE GEORGE COUNTY FIRE & EMS DEPT
471940S0573251	4P1BCAGF0JA019151	31819-1	SCHUHMACHER FIRE EQUIPMENT LLC	CREVE COEUR FPD
471940S0576059	4P1BAHGF9JA018658	31215-1	FRONT RANGE FIRE APPARATUS LTD	EAGLE RIVER FPD
471940S0578542	4P1BAAGF3JA019313	31997-2	HUGHES FIRE EQUIPMENT INC	CITY OF BOISE
471940S0580483	4P1BCAGF7JA019342	32005-1	SCHUHMACHER FIRE EQUIPMENT LLC	ROCK COMMUNITY FIRE PROT DIST
471940S0580534	4P1BAAGF8JA019372	32008-1	HUGHES FIRE EQUIPMENT INC	EAGLE FIRE DEPARTMENT
471940S0587998	4P1BAAGF4KA019466	32175-1	HUGHES FIRE EQUIPMENT INC	GILBERT TOWN OF
471940S0590790	4P1BCAGF8KA019495	32051-1	FRONT RANGE FIRE APPARATUS LTD	FAIRMOUNT FPD
471940S0592821	4P1BAAGF3KA019569	32321-1	SUPERIOR EQUIPMENT	SALT LAKE CITY CORPORATION
471940S0592848	4P1BAAGF4KA019547	32054-1	HUGHES FIRE EQUIPMENT INC	TUALATIN VALLEY FIRE & RESCUE
471940S0593664	4P1BAAGF3KA019572	32321-4	SUPERIOR EQUIPMENT	SALT LAKE CITY CORPORATION
471940S0596260	4P1BAAGF8KA019647	32195-1	ATLANTIC EMER. SOLUTIONS, INC - MANASS	COUNTY OF LOUDOUN
471940S0600426	4P1BAAGF5KA019668	32220-1	SCHUHMACHER FIRE EQUIPMENT LLC	METRO WEST FPD
471940S0600459	4P1BCAGF8KA019688	32237-1	SIDDONS-MARTIN EMERGENCY GROUP, LLC	CITY OF FARMINGTON
471940S0604628	4P1BAAGF1KA019716	32246-1	FRONT RANGE FIRE APPARATUS LTD	THORNTON CITY OF
471940S0606561	4P1BAAGF3KA019748	32331-1	FRONT RANGE FIRE APPARATUS LTD	FORT LUPTON FPD
471940S0606581	4P1BAAGF3KA019717	32246-2	FRONT RANGE FIRE APPARATUS LTD	THORNTON CITY OF
471940S0608925	4P1BAAGF8KA019762	32375-1	FRONT RANGE FIRE APPARATUS LTD	CITY OF LONGMONT
471940S0608952	4P1BCAGF1KA019659	32412-1	TEN-8 FIRE & SAFETY LLC	CITY OF LARGO
471940S0615048	4P1BAAGF2KA019868	32364-1	HUGHES FIRE EQUIPMENT INC	THURSTON COUNTY FIRE DIST NO 3
471940S0617055	4P1BAAGF1KA019845	32374-1	FRONT RANGE FIRE APPARATUS LTD	TOWN OF CASTLE ROCK

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471940S0619129	4P1BAAGF3KA019846	32374-2	FRONT RANGE FIRE APPARATUS LTD	TOWN OF CASTLE ROCK
471940S0622943	4P1BCAGFXKA019983	32510-1	COMMERCIAL EMERGENCY EQUIPMENT	CITY OF MISSISSAUGA
471940S0632499	4P1BAAGFXKA020038	32596-1	SIDDONS-MARTIN EMERGENCY GROUP, LLC	CITY OF DENTON
471940S0635694	4P1BAAGFXKA020198	32871-2	HUGHES FIRE EQUIPMENT INC	CITY OF HENDERSON
471940S0644613	4P1BAAGF2KA020163	32748-1	SIDDONS-MARTIN EMERGENCY GROUP, LLC	LAKE WORTH FIRE DEPARTMENT
471940S0644617	4P1BAAGF8KA020197	32871-1	HUGHES FIRE EQUIPMENT INC	CITY OF HENDERSON
471940S0650659	4P1BAAGF2KA020289	32904-2	ATLANTIC EMER. SOLUTIONS, INC - MANASS	ANNE ARUNDEL COUNTY FIRE DEPARTMENT
471940S0655986	4P1BAAGF2KA020373	32774-1	HUGHES FIRE EQUIPMENT INC	GILBERT TOWN OF
471940S0695102	4P1BCAGFXLA021010	33717-1	FRONT RANGE FIRE APPARATUS LTD	NORTH METRO FIRE RESCUE DISTRICT
471940S0715365	4P1BAAGF1LA021175	33794-2	HUGHES FIRE EQUIPMENT INC	BILLINGS CITY OF
471940S0724538	4P1BAAGF7LA021214	33756-1	FRONT RANGE FIRE APPARATUS LTD	SOUTH ADAMS COUNTY FIRE PROTECTION DISTR
471940S0767811	4P1BAAGF6LA021933	34565-2	SOUTH COAST FIRE EQUIP INC	CITY OF GLENDALE
471940S0769267	4P1BAAGF2LA021699	33849-1	COMMERCIAL EMERGENCY EQUIPMENT	CITY OF MISSISSAUGA
471940S0949681	4P1BCAGF4NA024262	36478-1	SIDDONS-MARTIN EMERGENCY GROUP, LLC	OREM CITY OF