Special Incident Unit Production Specifications

Contents

SPECIAL AIR TRUCK QUALIFICATIONS	5
LIABILITY INSURANCE	5
INTERNET IN-PROCESS SITE	6
ENGINEERING DRAWINGS	6
RESPONSIBILITY OF PURCHASER	7
VEHICLE STABILITY SUPPLIED WITH CAB/CHASSIS	7
ROADABILITY	8
SERVICEABILITY	8
CONSTRUCTION DOCUMENTATION	9
OPERATIONS AND SERVICE DOCUMENTATION	10
NFPA REQUIRED DOCUMENTATION FORMAT - CD-ROM	10
STATEMENTOF EXCEPTIONS	11
CARRYING CAPACITY	11
TESTING	12
ROAD TEST	12
LOW VOLTAGE - ELECTRICAL SYSTEM PERFORMANCE TEST	12
TEST SEQUENCE	13
1. RESERVE CAPACITY TEST	13
2. ALTERNATOR PERFORMANCE TEST	13
TEST AT IDLE	13
TEST AT FULL LOAD	13
3. LOW VOLTAGE ALARM TEST	14
LOW VOLTAGE - ELECTRICAL SYSTEM PERFORMANCE TEST	14
DOCUMENTATION	14
UL 120/240 VAC CERTIFICATION	15
DOCUMENTATION	16
DIELECTRIC VOLTAGE WITHSTAND TEST	16
WARRANTY	16
GENERAL LIMITED WARRANTY - ONE (1) YEAR	17
LOW VOLTAGE ELECTRICAL WARRANTY - FIVE (5) YEARS	17
STRUCTURAL WARRANTY - TEN (10) YEARS	17
PAINT LIMITED WARRANTY - TEN (10) YEARS	17
	17
	17
OVERALL LENGTH	17
	18
DELIVERY AND DEMONSTRATION	18
CAB CHASSIS SPECIFICATIONS	18
FREIGHTLINER SPECIFICATION PROPOSAL	18
CHASSIS MODIFICATIONS	25
LUBRICATION AND TIRE DATA PLATE	25
VEHICLE DATA PLATE	26
OVERALL HEIGHT, LENGTH DATA PLATE (US)	26
ACCIDENT PREVENTION	26
PERSONNEL CAPACITY	26

WEARING HELMET WARNING. 27 FRONT BUMPER. 27 AIR HORNS. 27 AIR HORN ACTIVATION ACTIVA	ACCIDENT PREVENTION	27
FRONT BUMPER27AIR HORNS27AIR HORNS27AIR HORNS27FRONT TOW PROVISIONS27FRADIO/ANTENNA INSTALLATION28IZ VDC ACCESSORY PLUG28SEAT BELT COLOR28SEAT BELT WEB LENGTH - COMMERCIAL CAB28SEAT BELT MONITORING AND VEHICLE DATA RECORDER (VDR) SYSTEMS28SEAT BELT MONITORING29DISPLAY MODITORING29DISPLAY MODITORING29DISPLAY MODITORING29DISPLAY MODITORING29ISATA ACCULEICINC29DATA ACCULSTOR29DATA ACCULSTORAGE29DATA ACCULSTORAGE29SIX (6) - LED TIRE PRESSURE VISUAL INDICATORS.30CAB TESTING CERTIFICATION.30CAB TIERTORAGE30CAB STEP AND FUEL TANK COVER31CAB STEP AND FUEL TANK COVER31CAB STEP AND FUEL TANK COVER31ADAT COVERS31ADAT COVERS31ADAT COVERS31ADAT ESTING32SODY MOUNT OWERS32SODY SUBFRAME33BODY SUBFRAME34GODY MOUNTING32ARAR STEP AND FUEL TANK COVER34HUDFLAPS.31AN BRAKE SYSTEM QUICK BUILD-UP.31RAR STEP BUMPER34RAR TORY SAFETY KIT.35BODY SUBFRAME33BODY SUBFRAME34GODY MOUNTING35SCBA CYLINDER COMPARTMENTS35 <t< td=""><td>WEARING HELMET WARNING</td><td>27</td></t<>	WEARING HELMET WARNING	27
AIR HORN ACTIVATION 27 FRONT TOW PROVISIONS 27 FRONT TOW PROVISIONS 27 EXHAUST 27 RADIO(ANTENNA INSTALLATION 28 12 VDC ACCESSORY PLUG 28 SEAT BELT COLOR 28 SEAT BELT OLOR 28 SEAT BELT MEB LENGTH - COMMERCIAL CAB 28 SEAT BELT MONITORING AND VEHICLE DATA RECORDER (VDR) SYSTEMS 28 SEAT BELT MONITORING AND VEHICLE DATA RECORDER (VDR) SYSTEMS 28 SEAT BELT MONITORING 29 DATA ACQUISITION & STORAGE 29 DATA ACQUISITION & STORAGE 29 DATA ACQUISITION & STORAGE 29 DATA COLLECTOR 29 GATICH DI RE PRESSURE VISUAL INDICATORS 30 KI (a) - LED TRE PRESSURE VISUAL INDICATORS 30 ACAB TESTING CETRIFICATION 30 CAB STEP COVER 30 CAB STEP AND FUEL TANK COVER 30 CAB STEP AND FUEL TANK COVER 31 HUB AND NUT COVERS 31 ACA STEP AND FUEL TANK COVER 31 HUB AND NUT COVERS 31 BATTERY JUMPER STUDS 3	FRONT BUMPER	27
AIR HORN ACTIVATION	AIR HORNS	27
FRONT TOW PROVISIONS27RADIO/ANTENNA INSTALLATION27RADIO/ANTENNA INSTALLATION2812 VDC ACCESSORY PLUG28SEAT BELT COLOR28SEAT BELT COLOR28SEAT BELT WEB LENGTH - COMMERCIAL CAB28SEAT BELT MONITORING AND VEHICLE DATA RECORDER (VDR) SYSTEMS28SEAT BELT MONITORING AND VEHICLE DATA RECORDER (VDR) SYSTEMS28VEHICLE DATA RECORDER (VDR)29DISPLAY MODULE IN CAB29DATA ACQUISITION & STORAGE29DATA ACQUISITION & STORAGE29IGNITION KEY29SIX (6) - LEO TIRE PRESSURE VISUAL INDICATORS30HELMET STORAGE30CAB TESTING CERTIFICATION30CAB STEP COVER30CASSIS PANT WARRANTY30CAB STEP COVER31HUB AND NUT COVERS31BATTERY JUMPER STUDS31MUDFLAPS31ARTERY JUMPER STUDS31ARTERY SYSTEM QUICK BUILD-UP31AR REAKE SYSTEM QUICK BUILD-UP31AR REAKE SYSTEM QUICK BUILD-UP31AR REAKE SYSTEM QUICK BUILD-UP31AR TERP BUMPER34GOOT CONSTRUCTION32ROOT CONSTRUCTION32ROOT CONSTRUCTION32ROOT SUBFRAME34BODY MOUNTING34IO'REAR STEP BUMPER34REAR TOW EYES34GROUND LIGHTS35PAINT WARRANTY35SODY UNDERCOATING35AND REAR STEP BUMPER	AIR HORN ACTIVATION	
EXHAUST27RADIC/ANTENNA INSTALLATION2812 VDC ACCESSORY PLUG28SEAT BELT COLOR28SEAT BELT WEB LENGTH - COMMERCIAL CAB28SEAT BELT MONITORING AND VEHICLE DATA RECORDER (VDR) SYSTEMS28SEAT BELT MONITORING29DISPLAY MODULE IN CAB29DATA ACQUISITION & STORAGE29DATA ACQUISITION & STORAGE29DATA ACQUISITION & STORAGE29SIX (6) - LED TIRE PRESSURE VISUAL INDICATORS30HELMET STORAGE30CAB TESTING CERTIFICATION30CAB STEP AND FUEL TANK COVER31HUB AND NUT COVERS31AND FUEL TANK COVER31HUB AND NUT COVERS31MUDFLAPS31MUDFLAPS31ROAD EMERGENCY SAFETY KIT31ROAD EMERGENCY SAFETY KIT31BODY SUBFRAME34MOPLAPS34MUPLAPS34MUDERAS34MODY DESIGN32ROAD EMERGENCY SAFETY KIT31BODY MOUNTING3410' REAR STEP BUMPER34RAR ATOW EYES35SCBA CYLINDER COLOR35SCBA CYLINDER COMPARTMENTS35SCBA CYLI	FRONT TOW PROVISIONS	27
RADIO/ANTENNA INSTALLATION28RADIO/ANTENNA INSTALLATION28SEAT BELT COLOR28SEAT BELT WEB LENGTH - COMMERCIAL CAB28SEAT BELT MONITORING AND VEHICLE DATA RECORDER (VDR) SYSTEMS28SEAT BELT MONITORING AND VEHICLE DATA RECORDER (VDR) SYSTEMS28DISPLAY MODULE IN CAB29DISPLAY MODULE IN CAB29DATA ACQUISITION & STORAGE29DATA ACQUISITION & STORAGE29DATA COLLECTOR29IGNITION KEY29SIX (6) - LED TIRE PRESSURE VISUAL INDICATORS30HELMET STORAGE30CAB TESTING CERTIFICATION30CAB TESTING CERTIFICATION30CAB STEP COVER31CAB STEP AND FUEL TANK COVER31HUB AND NUT COVERS31MUDFLAPS31MUDFLAPS31MUDFLAPS31BOTY SUSTEM QUICK BUILD-UP31AR BRAKE SYSTEM QUICK BUILD-UP32ROOT CONSTRUCTION32ROOT CONSTRUCTION32BODY SUBFRAME34BODY SUBFRAME34BODY MOUNTING34HEEL EXTERIOR PANEL34MIELE EXTERIOR PANEL34MIELE EXTERIOR PANEL34MIELE EXTERIOR PANEL <td>EXHAUST</td> <td>27</td>	EXHAUST	27
12 VDC ACCESSORY PLUG2812 VDC ACCESSORY PLUG28SEAT BELT COLOR28SEAT BELT WEB LENGTH - COMMERCIAL CAB28SEAT BELT MONITORING AND VEHICLE DATA RECORDER (VDR) SYSTEMS28SEAT BELT MONITORING28VEHICLE DATA RECORDER (VDR)29DISPLAY MODULE IN CAB29DATA ACQUISITION & STORAGE29DATA ACQUISITION & STORAGE29ISN (6) - LED TIRE PRESSURE VISUAL INDICATORS.30GREITEITICATION.30CAB TESTING CERTIFICATION.30CAB MIRRORS, DRIVER ADJUSTABLE30CAB STEP AND FUEL TANK COVER31HUB AND NUT COVERS.31MUDFLAPS31MUDFLAPS31MUDFLAPS31RARE SYSTEM QUICK BUILD-UP.31RARE SYSTEM QUICK BUILD-UP.31RODY DESIGN32EXTERIOR ALUMINUM BODY32EXTERIOR ALUMINUM BODY32EXTERIOR ALUMINUM BODY32ROOF CONSTRUCTION.33BODY MOUNTING34GROUND LIGHTS34GROUND LIGHTS35SCBA CYLINDER COMPARTMENTS35SCBA CYLINDER COMPARTMENTS35SCBA CYLINDER COMPARTMENTS35SCA CYLINDER COMPARTMENTS35SCA CYLINDER COMPARTMENTS35SCBA CYLINDER COMPARTMENTS35SCBA CYLINDER COMPARTMENTS35SCBA CYLINDER COMPARTMENTS35SCBA CYLINDER COMPARTMENTS35SCBA CYLINDER COMPARTMENTS35 <td>RADIO/ANTENNA INSTALLATION</td> <td></td>	RADIO/ANTENNA INSTALLATION	
SEAT BELT COLOR	12 VDC ACCESSORY PLUG	
SEAT BELT WEB LENGTH - COMMERCIAL CAB	SEAT BELT COLOR	28
SEAT BELT MONITORING AND VEHICLE DATA RECORDER (VDR) SYSTEMS 28 SEAT BELT MONITORING 28 VEHICLE DATA RECORDER (VDR) 29 DISPLAY MODULE IN CAB. 29 DATA ACULECTOR 29 DATA ACULECTOR 29 SIX (6) – LED TIRE PRESSURE VISUAL INDICATORS 29 SIX (6) – LED TIRE PRESSURE VISUAL INDICATORS 30 CAB TESTING CERTIFICATION 30 CAB TESTING CERTIFICATION 30 CAB TESTING CERTIFICATION 30 CAB TOR COLOR 30 CAB STEP COVER ADJUSTABLE 30 CAB STEP COVER 30 CAB STEP COVER 30 CAB STEP COVER 31 HUB AND NUT COVERS 31 HUB AND NUT COVERS 31 HUB AND NUT COVERS 31 AR BRAKE SYSTEM QUICK BUILD-UP 31 AIR BRAKE SYSTEM QUICK BUILD-UP 32 EXTERIOR ALUMINUM BODY 32 EXTERIOR ALUMINUM BODY 32 EXTERIOR ALUMINUM BODY 32 EXTERIOR ALUMINUM BODY 33 BODY SUBFRAME 33 BODY SUBFRAME 33 BODY SUBFRAME 34 HEEL WELL LINERS. 34 HEEL WELL LINERS. 35 CBAC YLINDER COMPARTMENTS 35 CBAC YLINDER STRIPE COLOR 35 DONY UNDERCOATING. 35 DO	SEAT BELT WEB LENGTH - COMMERCIAL CAB	28
SEAT BELT MONITORING	SEAT BELT MONITORING AND VEHICLE DATA RECORDER (VDR) SYSTEMS	28
VEHICLE DATA RECORDER (VDR)29DISPLAY MODULE IN CAB.29DATA ACQUISITION & STORAGE29DATA COLLECTOR29SIX (6) - LED TIRE PRESSURE VISUAL INDICATORS30HELMET STORAGE30CAB TESTING CERTIFICATION30CAB TESTING CERTIFICATION30CAB STEP COVER30CHASSIS PAINT WARRANTY30CAB STEP COVER31CAB STEP AND FUEL TANK COVER31MUDFLAPS31AIR BRAKE SYSTEM QUICK BUILD-UP31MUDFLAPS31RODY DESIGN32EXTERIOR ALUMINUM BODY32EXTERIOR ALUMINUM BODY32ROOF CONSTRUCTION33BODY MOUNTING33BODY MOUNTING34HOFLARS34GRAUENTRAME35SCBA CYLINDER34GROUND LIGHTS35SCBA CYLINDER35SCBA CYLINDER35SCBA CYLINDER CONCRATING35SCBA CYLINDER CONCRATING35SCBA CYLINDER CONPARTMENTS35SCBA CYLINDER CONPARTMENTS35SCBA CYLINDER CONPARTMENTS35SCBA CYLINDER COMPARTMENTS35SCBA CYLINDER CONPARTMENTS35SCBA CYLINDER CONPARTMENTS35 <td>SEAT BELT MONITORING</td> <td></td>	SEAT BELT MONITORING	
DISPLAY MODULE IN CAB	VEHICLE DATA RECORDER (VDR)	
DATA ACQUISITION & STORAGE 29 JOATA COLLECTOR 29 JGNITION KEY 29 JGNITION KEY 29 JSX (6) - LED TIRE PRESSURE VISUAL INDICATORS 30 CAB TESTING CERTIFICATION. 30 CAB TESTING CERTIFICATION. 30 CAB TESTING CERTIFICATION. 30 CHASSIS PAINT WARRANTY 30 CHASSIS PAINT WARRANTY 30 CAB STEP COVER 30 CHASSIS PAINT WARRANTY 30 CAB STEP COVER 31 HUB AND NUT COVERS 31 HUB AND NUT COVERS 31 HUB AND NUT COVERS 31 HUB AND NUT COVERS 31 AR BRAKE SYSTEM QUICK BUILD-UP 31 AR BRAKE SYSTEM QUICK BUILD-UP 31 ROAD EMERGENCY SAFETY KIT 31 BOY DESIGN 32 EXTERIOR ALUMINUM BODY 32 ROOF CONSTRUCTION 33 BODY MOUNTING 33 BODY MOUNTING 34 BOY SUBFRAME 34 RCAR TOW EYES 34 GROUND LIGHTS 34 HUFEL WELL EXTERIOR PANEL 34 HUFEL WELL EXTERIOR PANEL 34 HUFEL WELL EXTERIOR PANEL 34 HUFEL WELL LINERS 35 CBA CYLINDER COMPARTMENTS 35 CBA CYLINDER	DISPLAY MODULE IN CAB	29
DATA COLLECTOR	DATA ACQUISITION & STORAGE	29
IGNTION KEY 29 SIX (6) - LED TIRE PRESSURE VISUAL INDICATORS 30 CAB TESTING CERTIFICATION 30 CAB MIRRORS, DRIVER ADJUSTABLE 30 CAB MIRRORS, DRIVER ADJUSTABLE 30 CAB MIRRORS, DRIVER ADJUSTABLE 30 CHASISIS PAINT VARRANTY 30 CAB STEP COVER 30 CAB STEP COVER 31 HUB AND NUT COVERS 31 BATTERY JUMPER STUDS 31 MUDFLAPS 31 AIR BRAKE SYSTEM QUICK BUILD-UP 31 ROAD EMERGENCY SAFETY KIT 31 BODY DESIGN 32 EXTERIOR ALUMINUM BODY 32 ROOF CONSTRUCTION 33 BODY SUBFRAME 33 BODY SUBFRAME 34 MICH REAR STEP BUMPER 34 RAR TOW EYES 34 GOR CONSTRUCTION 35 BODY MOUNTING 34 MO" REAR STEP BUMPER 34 MEL LE XTERIOR PANEL 34 MEL UL EXTERIOR PANEL 34 MEL UL EXTERIOR PANEL 35 PAINT FINISH - SINGLE COLOR <	DATA COLLECTOR	29
SIX (6) - LED TIRE PRESSURE VISUAL INDICATORS		29
HELMET STORAGE 30 CAB TESTING CERTIFICATION. 30 CAB MIRRORS, DRIVER ADJUSTABLE. 30 RE-PAINT CAB - ONE COLOR 30 CHASSIS PAINT WARRANTY 30 CHASSIS PAINT WARRANTY 31 CAB STEP COVER 31 CAB STEP COVER 31 BATTERY JUMPER STUDS 31 MUDFLAPS 31 MUDFLAPS 31 AIR BRAKE SYSTEM QUICK BUILD-UP 31 IR OAD EMERGENCY SAFETY KIT 31 ROAD EMERGENCY SAFETY KIT 31 BODY DESIGN 32 EXTERIOR ALUMINUM BODY 32 ROOF CONSTRUCTION 33 BODY SUBFRAME 33 BODY MOUNTING 33 BODY MOUNTING 34 HOR EAR STEP BUMPER 34 HEEL WELL EXTERIOR PANEL 34 WHEEL WELL EXTERIOR PANEL 35 SCBA CYLINDER COMPARTMENTS 35 DOLY SUBGR 35 DOLY SUBGR 35 DAT WARRANTY 36 COMPARTMENT INTERIOR FINISH 36 REFLECTIVE STRIPE - CAB SIDE 36	SIX (6) – LED TIRE PRESSURE VISUAL INDICATORS	30
CAB LESTING CERTIFICATION	HELMET STORAGE	30
CAB MIRRORS, DRIVER ADJUSTABLE30RE-PAINT CAB - ONE COLOR30CHASSIS PAINT WARRANTY30CAB STEP COVER31CAB STEP COVER31BATTERY JUMPER STUDS31BATTERY JUMPER STUDS31MUDFLAPS31AIR BRAKE SYSTEM QUICK BUILD-UP31ROAD EMERGENCY SAFETY KIT31BODY DESIGN32EXTERIOR ALUMINUM BODY32EXTERIOR ALUMINUM BODY32ROF CONSTRUCTION33BODY SUBFRAME33BODY MOUNTING3410" REAR STEP BUMPER34GROUND LIGHTS34JIEFORMED BEADED EDGE BODY FENDERS34WHEEL WELL EXTERIOR PANEL34WHEEL WELL LINERS35SCBA CYLINDER COMPARTMENTS35PAINT FINISH - SINGLE COLOR35UNDERCOATING35UNDERCOATING35PAINT FINISH - SINGLE COLOR35OMPARTMENTY36COMPARTMENTY36COMPARTMENT NTERIOR FINISH36REFLECTIVE STRIPE36REFLECTIVE STRIPE36REFLECTIVE STRIPE36REFLECTIVE STRIPE36	CAB TESTING CERTIFICATION	30
RE-PAINT CAB - ONE COLOR30CHASSIS PAINT WARRANTY30CAB STEP COVER31CAB STEP AND FUEL TANK COVER31HUB AND NUT COVERS31BATTERY JUMPER STUDS31MUDFLAPS31AIR BRAKE SYSTEM QUICK BUILD-UP31ROAD EMERGENCY SAFETY KIT31BODY DESIGN32EXTERIOR ALUMINUM BODY32ROOF CONSTRUCTION33BODY SUBFRAME33BODY MOUNTING3410" REAR STEP BUMPER3410" REAR STEP BUMPER34QROUND LIGHTS34UEFORMED BEADED EDGE BODY FENDERS34WHEEL WELL EXTERIOR PANEL34UIEFORMED BEADED EDGE BODY FENDERS35SCBA CYLINDER COMPARTMENTS35PAINT FINISH - SINGLE COLOR35DOM DURERCOATING35PAINT FINISH - SINGLE COLOR35OMPARTMENTY36COMPARTMENTY36COMPARTMENT INTERIOR FINISH36REFLECTIVE STRIPE36REFLECTIVE STRIPE36REFLECTIVE STRIPE36REFLECTIVE STRIPE - CAB SIDE36	CAB MIRRORS, DRIVER ADJUSTABLE	30
CHASSIS PAINT WARRANTY30CAB STEP COVER31CAB STEP AND FUEL TANK COVER31HUB AND NUT COVERS31BATTERY JUMPER STUDS31MUDFLAPS31AIR BRAKE SYSTEM QUICK BUILD-UP31ROAD EMERGENCY SAFETY KIT31BODY DESIGN32EXTERIOR ALLUMINUM BODY32ROOF CONSTRUCTION33BODY MOUNTING33BODY MOUNTING3410" REAR STEP BUMPER34QROUND LIGHTS34WHEEL WELL EXTERIOR PANEL34DIEFORMED BEADED EDGE BODY FENDERS34WHEEL WELL LINERS35SCBA CYLINDER COMPARTMENTS35PAINT FINISH - SINGLE COLOR35UNDERCOATING35VARANTY36COMPARTMENTS35PAINT FINISH - SINGLE COLOR35PAINT FINISH - SINGLE COLOR35PAINT FINISH - SINGLE COLOR35COMPARTMENTS36COMPARTMENT SINGLE COLOR35PAINT WARRANTY36COMPARTMENT SINGLE COLOR35PAINT WARRANTY36COMPARTMENT SINGLE COLOR35PAINT WARRANTY36COMPARTMENT SINGLE COLOR36REFLECTIVE STRIPE - CAB SIDE36REFLECTIVE STRIPE36REFLECTIVE STRIPE - CAB SIDE36	RE-PAINT CAB - ONE COLOR	
CAB STEP COVER31CAB STEP AND FUEL TANK COVER31HUB AND NUT COVERS31BATTERY JUMPER STUDS31MUDFLAPS31AIR BRAKE SYSTEM QUICK BUILD-UP31ROAD EMERGENCY SAFETY KIT31BODY DESIGN32EXTERIOR ALUMINUM BODY32ROOF CONSTRUCTION33BODY SUBFRAME33BODY MOUNTING3410" REAR STEP BUMPER3410" REAR STEP BUMPER34QROUND LIGHTS34VHEEL WELL EXTERIOR PANEL34DIEFORMED BEADED EDGE BODY FENDERS35SCBA CYLINDER COMPARTMENTS35SODY UNDERCOATING35UNDERCOATING35OND UNDER COLOR35BODY UNDERCOATING35OND UNDER COARTMENTS35SCBA CYLINDER COLOR35BODY UNDERCOATING35OMPARTMENTS35REFLECTIVE STRIPE36REFLECTIVE STRIPE36REFLECTIVE STRIPE36REFLECTIVE STRIPE36		30
CAB STEP AND FUEL TANK COVER31HUB AND NUT COVERS31BATTERY JUMPER STUDS31MUDFLAPS31AIR BRAKE SYSTEM QUICK BUILD-UP31ROAD EMERGENCY SAFETY KIT31BODY DESIGN32EXTERIOR ALUMINUM BODY32ROOF CONSTRUCTION33BODY SUBFRAME33BODY SUBFRAME3410' REAR STEP BUMPER3410' REAR STEP BUMPER34UFFORMED BEADED EDGE BODY FENDERS34DIEFORMED BEADED EDGE BODY FENDERS34WHEEL WELL EXTERIOR PANEL35SCBA CYLINDER COMPARTMENTS35SODY UNDERCOATING35UNDERCOATING35UNDERCOATING35ONDY UNDERCOATING35BODY UNDERCOATING35BODY UNDERCOATING35PAINT FINISH - SINGLE COLOR35BODY UNDERCOATING35COMPARTMENT NITERIOR FINISH36COMPARTMENT INTERIOR FINISH36REFLECTIVE STRIPE - CAB SIDE36		
HUB AND IN COVERS	CAB STEP AND FUEL TANK COVER	
AITERT JOMPER STUDS		
MODPLAPS31AIR BRAKE SYSTEM QUICK BUILD-UP31ROAD EMERGENCY SAFETY KIT31BODY DESIGN32EXTERIOR ALUMINUM BODY32ROOF CONSTRUCTION33BODY SUBFRAME33BODY MOUNTING3410" REAR STEP BUMPER34REAR TOW EYES34GROUND LIGHTS34WHEEL WELL EXTERIOR PANEL34DIEFORMED BEADED EDGE BODY FENDERS34WHEEL WELL LINERS35SCBA CYLINDER COMPARTMENTS35PAINT FINISH - SINGLE COLOR35BODY UNDERCOATING35VINDERCOATING35ODY UNDERCOATING35REFLECTIVE STRIPE36REFLECTIVE STRIPE36REFLECTIVE STRIPE36	MUDELADS	31 21
AIN BRARE STOTEW GOLONE SIDE OF		
NOAD EMERGENCE FAFETER NT31BODY DESIGN32EXTERIOR ALUMINUM BODY32ROOF CONSTRUCTION33BODY SUBFRAME33BODY MOUNTING3410" REAR STEP BUMPER34REAR TOW EYES34GROUND LIGHTS34DIEFORMED BEADED EDGE BODY FENDERS34WHEEL WELL EXTERIOR PANEL34VHEEL WELL LINERS35SCBA CYLINDER COMPARTMENTS35SCBA CYLINDER COMPARTMENTS35DOT UNDERCOATING35UNDERCOAT WARRANTY36COMPARTMENT INTERIOR FINISH36REFLECTIVE STRIPE36REFLECTIVE STRIPE36		
BODT DESIGN32EXTERIOR ALUMINUM BODY32ROOF CONSTRUCTION33BODY SUBFRAME33BODY MOUNTING3410" REAR STEP BUMPER34REAR TOW EYES34GROUND LIGHTS34WHEEL WELL EXTERIOR PANEL34DIEFORMED BEADED EDGE BODY FENDERS34WHEEL WELL LINERS35SCBA CYLINDER COMPARTMENTS35PAINT FINISH - SINGLE COLOR35BODY UNDERCOATING35PAINT WARRANTY36COMPARTMENT INTERIOR FINISH36REFLECTIVE STRIPE36REFLECTIVE STRIPE36		
Internet and the second structure33BODY SUBFRAME33BODY SUBFRAME3410" REAR STEP BUMPER3410" REAR STEP BUMPER34REAR TOW EYES34GROUND LIGHTS34WHEEL WELL EXTERIOR PANEL34DIEFORMED BEADED EDGE BODY FENDERS34WHEEL WELL LINERS35SCBA CYLINDER COMPARTMENTS35PAINT FINISH - SINGLE COLOR35BODY UNDERCOATING35VINDERCOAT WARRANTY36COMPARTMENT INTERIOR FINISH36REFLECTIVE STRIPE36REFLECTIVE STRIPE36REFLECTIVE STRIPE36		
NOOT OUDTING33BODY SUBFRAME34BODY MOUNTING3410" REAR STEP BUMPER34REAR TOW EYES34GROUND LIGHTS34WHEEL WELL EXTERIOR PANEL34DIEFORMED BEADED EDGE BODY FENDERS34WHEEL WELL LINERS35SCBA CYLINDER COMPARTMENTS35PAINT FINISH - SINGLE COLOR35BODY UNDERCOATING35UNDERCOAT WARRANTY35PAINT WARRANTY36COMPARTMENT INTERIOR FINISH36REFLECTIVE STRIPE36REFLECTIVE STRIPE36		
BODY MOUNTING3410" REAR STEP BUMPER34REAR TOW EYES34GROUND LIGHTS34WHEEL WELL EXTERIOR PANEL34DIEFORMED BEADED EDGE BODY FENDERS34WHEEL WELL LINERS35SCBA CYLINDER COMPARTMENTS35PAINT FINISH - SINGLE COLOR35UNDERCOATING35UNDERCOAT WARRANTY35PAINT WARRANTY36COMPARTMENT INTERIOR FINISH36REFLECTIVE STRIPE36REFLECTIVE STRIPE36	BODY SUBFRAME	
10" REAR STEP BUMPER34REAR TOW EYES34GROUND LIGHTS34WHEEL WELL EXTERIOR PANEL34DIEFORMED BEADED EDGE BODY FENDERS34WHEEL WELL LINERS35SCBA CYLINDER COMPARTMENTS35PAINT FINISH - SINGLE COLOR35BODY UNDERCOATING35UNDERCOAT WARRANTY35PAINT WARRANTY36COMPARTMENT INTERIOR FINISH36REFLECTIVE STRIPE36REFLECTIVE STRIPE36	BODY MOUNTING	
REAR TOW EYES34GROUND LIGHTS34WHEEL WELL EXTERIOR PANEL34DIEFORMED BEADED EDGE BODY FENDERS34WHEEL WELL LINERS35SCBA CYLINDER COMPARTMENTS35PAINT FINISH - SINGLE COLOR35BODY UNDERCOATING35UNDERCOAT WARRANTY35PAINT WARRANTY36COMPARTMENT INTERIOR FINISH36REFLECTIVE STRIPE36REFLECTIVE STRIPE36	10" REAR STEP BUMPER	
GROUND LIGHTS34WHEEL WELL EXTERIOR PANEL34DIEFORMED BEADED EDGE BODY FENDERS34WHEEL WELL LINERS35SCBA CYLINDER COMPARTMENTS35PAINT FINISH - SINGLE COLOR35BODY UNDERCOATING35UNDERCOAT WARRANTY35PAINT WARRANTY36COMPARTMENT INTERIOR FINISH36REFLECTIVE STRIPE36REFLECTIVE STRIPE - CAB SIDE36	REAR TOW FYES	
WHEEL WELL EXTERIOR PANEL34DIEFORMED BEADED EDGE BODY FENDERS34WHEEL WELL LINERS35SCBA CYLINDER COMPARTMENTS35PAINT FINISH - SINGLE COLOR35BODY UNDERCOATING35UNDERCOAT WARRANTY35PAINT WARRANTY36COMPARTMENT INTERIOR FINISH36REFLECTIVE STRIPE36REFLECTIVE STRIPE - CAB SIDE36	GROUND LIGHTS	
DIEFORMED BEADED EDGE BODY FENDERS	WHEEL WELL EXTERIOR PANEL	
WHEEL WELL LINERS.35SCBA CYLINDER COMPARTMENTS35PAINT FINISH - SINGLE COLOR.35BODY UNDERCOATING.35UNDERCOAT WARRANTY.35PAINT WARRANTY36COMPARTMENT INTERIOR FINISH.36REFLECTIVE STRIPE36REFLECTIVE STRIPE - CAB SIDE36	DIEFORMED BEADED EDGE BODY FENDERS	34
SCBA CYLINDER COMPARTMENTS35PAINT FINISH - SINGLE COLOR35BODY UNDERCOATING35UNDERCOAT WARRANTY35PAINT WARRANTY36COMPARTMENT INTERIOR FINISH36REFLECTIVE STRIPE36REFLECTIVE STRIPE - CAB SIDE36	WHEEL WELL LINERS	35
PAINT FINISH - SINGLE COLOR.35BODY UNDERCOATING.35UNDERCOAT WARRANTY.35PAINT WARRANTY36COMPARTMENT INTERIOR FINISH.36REFLECTIVE STRIPE36REFLECTIVE STRIPE - CAB SIDE36	SCBA CYLINDER COMPARTMENTS	35
BODY UNDERCOATING35UNDERCOAT WARRANTY35PAINT WARRANTY36COMPARTMENT INTERIOR FINISH36REFLECTIVE STRIPE36REFLECTIVE STRIPE - CAB SIDE36	PAINT FINISH - SINGLE COLOR	35
UNDERCOAT WARRANTY	BODY UNDERCOATING	35
PAINT WARRANTY 36 COMPARTMENT INTERIOR FINISH 36 REFLECTIVE STRIPE 36 REFLECTIVE STRIPE - CAB SIDE 36	UNDERCOAT WARRANTY	35
COMPARTMENT INTERIOR FINISH 36 REFLECTIVE STRIPE 36 REFLECTIVE STRIPE - CAB SIDE 36	PAINT WARRANTY	36
REFLECTIVE STRIPE	COMPARTMENT INTERIOR FINISH	36
REFLECTIVE STRIPE - CAB SIDE	REFLECTIVE STRIPE	36
	REFLECTIVE STRIPE - CAB SIDE	36

Special Incident Unit

REFLECTIVE STRIPE - CAB FRONT	. 37
REFLECTIVE STRIPE - CAB DOOR INTERIOR	. 37
REFLECTIVE STRIPE - BODY SIDES	. 37
CHEVRON REFLECTIVE STRIPE - REAR SIDES PANELS	. 38
LETTERING	. 38
SIDE CAB DOOR LETTERING	. 38
UPPER BODY SIDE LETTERING	. 38
SUPPLIED DECALS	. 39
EXTERIOR COMPARTMENT DOORS	. 39
ROLL-UP DOOR CONSTRUCTION - ROBINSON (ROM)	. 39
BODY HEIGHT MEASUREMENTS	.40
BODY WIDTH DIMENSIONS	.40
STREETSIDE COMPARTMENT - FRONT (S1)	.41
STREETSIDE COMPARTMENT - AHEAD OF REAR WHEELS (S2)	42
STREETSIDE COMPARTMENT - ABOVE REAR WHEELS (S3)	.43
MOBILE BREATHING AIR COMPRESSOR	44
COMPRESSOR REQUIREMENTS	44
COMPRESSOR STANDARD FEATURES	44
COMPRESSOR DATA	45
PRIME MOVER AND CONTROLS	45
PURIFICATION	46
CARBON MONOXIDE MONITOR	47
TESTING AND PREPARATION FOR SHIPMENT	47
STREETSIDE COMPARTMENT - REAR (S4)	50
CURBSIDE COMPARTMENT - FRONT (C1)	.52
CURBSIDE COMPARTMENT - AHEAD OF REAR WHEEL (C2)	53
CURBSIDE COMPARTMENT - ABOVE REAR WHEEL (C3)	.00
CURBSIDE COMPARTMENT - REAR (C4)	55
REAR COMPARTMENT - CENTER (RC1)	.00
ENGINE MONITORING DISPLAY	59
RADIO SPEAKER PRE-WIRE	59
PLASTIC FLOOR AND SHELE THE	60
ROLL-OUT AWNING STREETSIDE	60
ROLL-OUT AWNING CURBSIDE	61
REAR ROLL-OUT AWNING	61
ROOF ACCESS HATCH COVER	61
I OW VOI TAGE ELECTRICAL SYSTEM. 12 VDC	62
12 VOLT DIAGNOSTIC RELAY CONTROL CENTER	64
ROCKER SWITCH PANEL	65
	65
ELECTRICAL SYSTEM MANAGER	66
LEECTRICAL STOLEM MANAGER	66
	. 00 . 66
	. 00 . 66
RATTERY SYSTEM	67
BATTERY SWITCH	67
	67
	.07
SHORE POWER INI ET	.00.
ENGINE COMPARTMENT LIGHT	.00 69
	. 00

CAB HAZARD WARNING LIGHT	68
BACK-UP ALARM	69
TAIL LIGHTS	69
MIDSHIP MARKER/TURN SIGNAL	69
MARKER LIGHTS	
CAB STEP LIGHTS / GROUND LIGHTS	70
LICENSE PLATE MOUNTING BRACKET	70
ELECTRONIC SIREN	70
SIREN SPEAKER	70
SIDE SCENE LIGHTS	70
REAR SCENE LIGHTS	71
TRAFFIC DIRECTIONAL LIGHT	71
SIGTRONICS INTERCOM SYSTEM	71
SIGTRONICS INTERCOM SYSTEM INSTALLATION	71
WARNING LIGHT PACKAGE	72
UPPER LEVEL OPTICAL WARNING DEVICES	73
LOWER LEVEL OPTICAL WARNING DEVICES	74
LINE VOLTAGE ELECTRICAL SYSTEM	76
LIMA PTO GENERATOR	76
GENERATOR ENGAGEMENT	76
WARRANTY PERIOD	76
GENERATOR MOUNTING	77
POWER-TAKE-OFF GENERATOR DRIVE	77
ENGINE SPEED CONTROL	77
GENERATOR MONITORING PANEL	78
LOADCENTER	78
OUTLETS AND CIRCUITS	78
LINE VOLTAGE ELECTRICAL SYSTEM	79
GENERAL REQUIREMENTS	79
120/240 VAC SCENE LIGHTING	
SIDE UPPER RECESSED SCENE LIGHTS	85
REAR TRIPOD SCENE LIGHTS	
COMMAND LIGHT TOWER WITH METAL HALIDE BULB OPTION AND LOWER BANK BACKLIGHT	
EQUIPMENT PAYLOAD WEIGHT ALLOWANCE	
EQUIPMENT	
REMAINING NFPA MINOR EQUIPMENT BY PURCHASER	

Production Specifications

SPECIAL AIR TRUCK QUALIFICATIONS

In addition to all other requirements herein, each Bidder shall submit with their proposal the following items or subject their entire proposal to immediate rejection, **NO EXCEPTIONS**.

- A complete scaled engineering drawing of the proposed apparatus prepared by the Bidder showing all views of the apparatus including; streetside, curbside, front, rear, and top views. The drawing shall include views of the apparatus showing the doors open and closed and shall show the location of all equipment, accessories and lighting as required in the Vista Fire Department's specifications.
- In addition these drawings shall show the location of the breathing air system components. The drawing shall be signed by the engineering department of the breathing air compressor manufacturer indicating their approval of the proposed installation. The approval signature MUST be from the compressor manufacturer and not from the dealer, truck manufacturer, or sales person. Failure to provide this required drawing shall subject the entire bid submittal to immediate rejection.
- Bidders shall have built within the last five (5) years at least twenty (20) dedicated air/light trucks with a breathing air compressor rated at a minimum of 24 SCFM, with the AC power provided by a PTO direct drive generator of at least 40 KW with light towers providing a minimum of at least 9,000 watts. A listing of these delivered trucks with current contact names, addresses and phone numbers shall be provided at time of bid submittal or subject the entire submittal to immediate rejection.

Failure to provide any of the items listed above shall subject a bid submittal to immediate rejection.

LIABILITY INSURANCE

Bidder shall furnish with the bid a certificate of insurance for;

Workman's Compensation and Employer's Liability Insurance covering all employees.

General Liability each occurrence of \$1,000,000.00, General Aggregate of \$2,000,000.00 including Products Completed / Operations Aggregate.

Personal Injury of \$1,000,000.00, Fire damage of \$50,000.00 and Medical expense of \$10,000.00. Automobile liability of \$1,000,000.00 combined single limit (each accident), including any auto, all owned autos, scheduled autos, hired autos, non-owned autos, and garage liability.

Excess Umbrella Liability coverage of \$2,000,000.00 each occurrence, Aggregate of \$2,000,000.00.

All insurance policies must be;

- Maintained for the life of the contract,
- Must provide ten (10) days notice before cancellation,
- Must cover all operations of the contractor, or anyone employed by them.

Production Specifications

INTERNET IN-PROCESS SITE

The Bidder shall post and maintain a website where the Vista Fire Department will be able to view digital images of their apparatus as its being manufactured. The digital images shall be posted once a week starting when the body begins production or when the cab/chassis arrives and shall continue until the final completion of the apparatus.

ENGINEERING DRAWINGS

The evaluation of bids shall also be based on design, engineering reliability, and completeness of drawings. No bidder's proposal shall be considered unless complete engineering drawings to these specifications are submitted with the request for proposal package. Failure to submit factory prepared blueprints with bid shall result in automatic rejection. Submission of "bid drawings" are in addition to "production drawings" which must be submitted for Vista Fire Department approval prior to construction. Bid drawings shall allow the Vista Fire Department the ability to fully evaluate required product.

The engineering drawings shall be produced on computer aided design (CAD) equipment to assure critical tolerance and detail only available with CAD equipment. The drawings shall be on "B" size paper, $17" \times 11"$ in size, and views must be 1/4" = 1' - 0" scale. This shall allow the Vista Fire Department the ability to compare drawings of all manufacturers on an "equal" basis. The drawings shall be completed only by the body manufacturer, and must be exactly to Vista Fire Department specifications. Submission of "similar to" drawings or "statements referring to later submission of drawings after award of contract" shall be automatically rejected.

Since the request for proposal package will require extensive evaluation by Vista Fire Department, all Bidders must submit exactly the same engineering drawings at the same scale, on the same size paper. For easy comparison of drawings, they must be on a 36" x 24" sheet as follows:

- All bid drawings will be stamped BID DRAWING.
- All items shown on the drawing will be pre-designed with regards to layout and functionality prior to the completion
 of the BID DRAWING.
- Two (2) 17" x 11" color drawings will be supplied with the bid proposal. Black and white or blue line drawings will
 not be accepted.
- There shall be five (5) views of the truck with the doors closed (Top, Left, Right, Front, Rear), four (4) views of the truck with the doors open (Top, Left, Right, Rear) and four (4) views of any walk-in area (Top, Left, Right, Rear)
- All compartment door openings and usable space shall be clearly shown in inches.
- The trucks overall length, height, width, wheelbase and cab-to-axle dimensions shall be clearly shown.
- The angles of approach and departure shall be shown in the maximum loaded condition to the nearest degree.
- All lighting packages will be clearly shown on the drawing and verified accurate per the most current NFPA standards (when applicable).
- The exterior view shall show all scene lights, marker lights, speakers, horns, exhaust, tow points, exterior outlets, windows, winch receivers, tow hitches, exterior ladders and any other item important to the function of the vehicle.
- The open view shall show all trays, shelves, air system components, hydraulic components, tool boards, storage modules and any other items important to the function of the vehicle
- The interior view for all walk-in areas shall show all seating positions, desks, cabinets, windows, tech equipment, radio locations and any other item important to the function of the vehicle
- Any changes to the BID drawing will require a revision which will be clearly annotated in the upper right hand side of the drawing showing the revision number, reason for the revision, date and who made the changes

Special Incident Unit

Production Specifications

Text Block Items;

- Purchaser's name.
- Body size and material type.
- Chassis manufacturer and model number.
- Unit description.
- Wheelbase (WB) , Cab-to-axle (CA) distance.
- Overall length (OAL), Overall width, (OAW), Overall height (OAH).
- Scale, date, drawn by, drawing number and sheet number.

RESPONSIBILITY OF PURCHASER

It shall be the responsibility of the purchaser to specify the following details of the apparatus:

- 1) Its required performance, including where operations at elevations above 2000 ft (600 m) or on grades greater than 6 percent are required
- 2) The maximum number of fire fighters to ride within the apparatus
- 3) Specific electrical loads that are to be part of the minimum continuous electrical load defined in 13.3.3
- 4) Any hose, ground ladders, or equipment to be carried by the apparatus that exceed the minimum requirements of this standard
- 5) If a trailer for the purpose of transporting fire rescue response equipment, whether it is a Type I, Type II, or Type III configuration

After acceptance of the fire apparatus, the purchaser shall be responsible for ongoing training of personnel to develop and maintain proficiency regarding the proper and safe use of the apparatus and the associated equipment.

VEHICLE STABILITY SUPPLIED WITH CAB/CHASSIS

The cab/chassis shall be equipped with a stability control system. The system shall have, at a minimum, a steering wheel position sensor, a vehicle yaw sensor, a lateral accelerometer, and individual wheel brake controls.

Production Specifications

ROADABILITY

The apparatus, when loaded to its estimated in-service weight, shall be capable of the following performance while on dry, paved roads that are in good condition:

- 1) From a standing start, the apparatus shall be able to attain a speed of 35 mph (55 km/hr) within 25 seconds on a level road.
- 2) The apparatus shall be able to attain a minimum top speed of 50 mph (80 km/hr) on a level road.
- The apparatus shall be able to maintain a speed of at least 20 mph (32 km/hr) on any grade up to and including 6 percent.

The maximum top speed of fire apparatus with a GVWR over 26,000 lb (11,800 kg) shall not exceed either 68 mph (105 km/hr) or the manufacturer's maximum fire service speed rating for the tires installed on the apparatus, whichever is lower.

If the combined water tank and foam agent tank capacities on the fire apparatus exceed 1250 gal (4732 L), or the GVWR of the vehicle is over 50,000 lb (22,680 kg), the maximum top speed of the apparatus shall not exceed either 60 mph (85 km/ hr) or the manufacturer's maximum fire service speed rating for the tires installed on the apparatus, whichever is lower.

SERVICEABILITY

The fire apparatus shall be designed to allow the manufacturer's recommended routine maintenance checks of lubricant and fluid levels to be performed by the operator without lifting the cab of a tilt-cab apparatus or without the need for hand tools.

Where special tools are required for routine service on any component of the apparatus, such tools shall be provided with the apparatus.

Apparatus components that interfere with repair or removal of other major components shall be attached with fasteners, such as cap screws and nuts, so that the components can be removed and installed with ordinary hand tools. These components shall not be welded or otherwise permanently secured into place.

Special Incident Unit

Production Specifications

CONSTRUCTION DOCUMENTATION

The contractor shall supply, at the time of delivery, at least one (1) copy of the following documents:

- The manufacturers record of apparatus construction details, including the following information:
- 1) Owner's name and address
- 2) Apparatus manufacturer, model, and serial number
- 3) Chassis make, model, and serial number
 - a) GAWR of front and rear axles and GVWR
 - b) Front tire size and total rated capacity in pounds (kilograms)
 - c) Rear tire size and total rated capacity in pounds (kilograms)
 - d) Chassis weight distribution in pounds (kilograms) with water and manufacturer-mounted equipment (front and rear)
 - e) Engine make, model, serial number, rated horsepower and related speed, and governed speed; and if so equipped, engine transmission PTO(s) make, model, and gear ratio
 - f) Type of fuel and fuel tank capacity
 - g) Electrical system voltage and alternator output in amps
 - h) Battery make, model, and capacity in cold cranking amps (CCA)
 - i) Chassis transmission make, model, and serial number; and if so equipped, chassis transmission PTO(s) make, model, and gear ratio
- 4) Paint manufacturer and paint number(s)
- 5) Company name and signature of responsible company representative
- 6) Certification of compliance of the optical warning system
- 7) Siren manufacturer's certification of the siren
- 8) Written load analysis and results of the electrical system performance tests
- 9) Certification of slip resistance of all stepping, standing, and walking surfacestest
- 10) If the apparatus has a line voltage power source, the certification of the test for the power source
- 11) If the apparatus is equipped with an air system, air tank certificates, the SCBA fill station certification, and the results of the testing of the air system installation
- 12) Any other required manufacturer test data or reports.

Special Incident Unit

Production Specifications

OPERATIONS AND SERVICE DOCUMENTATION

The contractor shall deliver with the fire apparatus at least two (2) sets of complete operation and service documentation covering the completed apparatus as delivered and accepted.

The documentation shall address at least the inspection, service, and operations of the fire apparatus and all major components thereof.

The contractor shall also deliver with the fire apparatus the following documentation for the entire apparatus and each major operating system or major component of the apparatus:

- 1) Manufacturer's name and address
- 2) Country of manufacture
- 3) Source for service and technical information
- 4) Parts replacement information
- 5) Descriptions, specifications, and ratings of the chassis, pump (if applicable), and aerial device (if applicable)
- 6) Wiring diagrams for low voltage and line voltage systems to include the following information:
 - a) Pictorial representations of circuit logic for all electrical components and wiring
 - b) Circuit identification
 - c) Connector pin identification
 - d) Zone location of electrical components
 - e) Safety interlocks
 - f) Alternator-battery power distribution circuits
 - g) Input/output assignment sheets or equivalent circuit logic implemented in multiplexing systems
- 7) Lubrication charts
- 8) Operating instructions for the chassis, any major components such as a pump or aerial device, and any auxiliary systems
- 9) Precautions related to multiple configurations of aerial devices, if applicable
- 10) Instructions regarding the frequency and procedure for recommended maintenance
- 11) Overall apparatus operating instructions
- 12) Safety considerations
- 13) Limitations of use
- 14) Inspection procedures
- 15) Recommended service procedures
- 16) Troubleshooting guide
- 17) Apparatus body, chassis, and other component manufacturer's warranties
- 18) Special data required by this standard
- 19) A material safety data sheet (MSDS) for any fluid that is specified for use on the apparatus

The contractor shall deliver with the apparatus all manufacturers' operations and service documents supplied with components and equipment that are installed or supplied by the contractor.

NFPA REQUIRED DOCUMENTATION FORMAT - CD-ROM

The vehicle construction details and the operations and service documentation as required per NFPA 1901 latest edition shall be provided on a CD-ROM. These manuals shall be divided into sections for ease of reference. There shall be two (2) copies of the CD-ROM provided with the completed vehicle.

November 9, 2010

Special Incident Unit

Production Specifications

STATEMENTOF EXCEPTIONS

The contractor shall deliver with the fire apparatus either a certification that the apparatus fully complies with all requirements of this standard or, alternatively, a Statement of Exceptions specifically describing each aspect of the completed apparatus that is not fully compliant with the requirements of this standard at the time of delivery.

The Statement of Exceptions shall contain, for each noncompliant aspect of the apparatus or missing required item, the following information:

- 1) A separate specification of the section of the applicable standard for which compliance is lacking
- 2) A description of the particular aspect of the apparatus that is not in compliance therewith or required equipment that is missing
- 3) A description of the further changes or modifications to the delivered apparatus that must be completed to achieve full compliance
- 4) Identification of the entity that will be responsible for making the necessary post delivery changes or modifications or for supplying and installing any missing required equipment to the apparatus to achieve full compliance with this standard

Prior to, or at the time of, delivery of the apparatus, the Statement of Exceptions shall be signed by an authorized agent of the entity responsible for final assembly of the apparatus and by an authorized agent of the purchasing entity, indicating mutual understanding and agreement between the parties regarding the substance thereof.

An apparatus that is delivered subject to a Statement of Exceptions other than a certification of full compliance shall not be placed in emergency service until the apparatus has been modified as necessary to accomplish full compliance with this standard.

CARRYING CAPACITY

The GAWR and the GCWR or GVWR of the chassis shall be adequate to carry the weight of the completed vehicle when loaded to its estimated in-service weight. The Body Manufacturer shall establish the estimated in service weight during the design of the vehicle

The estimated in-service weight shall include the following:

- 1) The chassis, body, and tank(s)
- 2) Full fuel, lubricant, and other chassis or component fluid tanks or reservoirs
- 3) Full water and other agent tanks
- 4) *250 lb (114 kg) in each seating position
- 5) Fixed equipment such as pumps, aerial devices, generators, reels, and air systems as installed
- 6) Ground ladders, suction hose, designed hose load in their hose beds and on their reels
- 7) An allowance for miscellaneous equipment that is the greatest of the values for type of vehicle per NFPA 1901, a Purchaser provided list of equipment to be carried with weights, or a Purchaser specified miscellaneous equipment allowance.

The Body Manufacturer shall engineer and design the vehicle such that the completed unit, when loaded to its estimated in-service weight, with all movable weights distributed as close as is practical to their intended in-service configuration, does not exceed the GVWR.

Production Specifications

A final Body Manufacturer's certification of the GVWR or GCWR, along with a certification of each GAWR, shall be supplied on a label affixed to the vehicle.

Equipment Allowa		t Allowance		
Apparatus Type	Equip. Storage Area	Apparatus Size	lb.	kg.
Special Service Fire	Minimum of 120 cu ft	30,001 lb to 40,000 lb	4,000	1,800
Apparatus	(3.4 cu mt) of enclosed	(14,001 kg to 18,000 kg)		
	compartmentation.	GVWR		

<u>TESTING</u>

ROAD TEST

Road test shall be conducted in accordance with this section to verify that the completed apparatus is capable of compliance with Roadability Section.

The tests shall be conducted at a location and in a manner that does not violate local, state or provincial, or federal traffic laws.

The tests shall be conducted on dry, level, paved roads that are in good condition. The apparatus shall be loaded to its estimated in service weight.

The engine shall not operate in excess of the maximum governed speed. Acceleration tests shall consist of two runs in opposite directions over the same route. The fire apparatus shall attain a speed of 35 mph (55 km/hr) from a standing start within 25 seconds. The fire apparatus shall attain a minimum top speed of 50 mph (80 km/hr).

If the apparatus is equipped with an auxiliary braking system, the manufacturer shall road test the system to confirm that the system is functioning as intended by the auxiliary braking system manufacturer.

If the apparatus is equipped with an air brake system, the service brakes shall bring the apparatus, when loaded to it's GVWR, to a complete stop from an initial speed of 20 mph (32.2 km/hr) in a distance not exceeding 35 ft (10.7 m) by actual measurement on a paved, level, dry surface road that is free of loose material, oil, or grease.

If the apparatus is equipped with a hydraulic brake system, the service brakes shall bring the apparatus, when loaded to its GVWR, to a complete stop from an initial speed of 30 mph (48.2 km/hr) in a distance not exceeding 88 ft (26.8 m) by actual measurement on a paved, level, dry surface road that is free of loose material, oil, or grease.

LOW VOLTAGE - ELECTRICAL SYSTEM PERFORMANCE TEST

The vehicles low voltage electrical system shall be tested and certified by the manufacturer. The certified test results shall be delivered with the completed vehicle. Tests shall be performed when the air temperature is between 0°F and 110°F (–18°C and 43°C).

Production Specifications

TEST SEQUENCE

The following three (3) tests shall be performed in the order in which they appear below. Before each test, the batteries shall be fully charged until the voltage stabilizes at the voltage regulator set point and the lowest charge current is maintained for 10 minutes. Failure of any of these tests shall require a repeat of the sequence.

1. RESERVE CAPACITY TEST

The engine shall be started and kept running until the engine and engine compartment temperatures are stabilized at normal operating temperatures and the battery system is fully charged. The engine shall be shut off, and the minimum continuous electrical load shall be activated for 10 minutes.

All electrical loads shall be turned off prior to attempting to restart the engine. The battery system shall then be capable of restarting the engine. Failure to restart the engine shall be considered a test failure of the battery system.

2. ALTERNATOR PERFORMANCE TEST

TEST AT IDLE

The minimum continuous electrical load shall be activated with the engine running at idle speed. The engine temperature shall be stabilized at normal operating temperature. The battery system shall be tested to detect the presence of battery discharge current. The detection of battery discharge current shall be considered a test failure.

TEST AT FULL LOAD

The total continuous electrical load shall be activated with the engine running up to the engine manufacturer's governed speed. The test duration shall be a minimum of 2 hours. Activation of the load management system shall be permitted during this test.

An alarm sounded by excessive battery discharge, as detected by the warning system required in 13.3.4, or a system voltage of less than 11.8 V dc for a 12 V nominal system, 23.6 V dc for a 24 V nominal system, or 35.4 V dc for a 42 V nominal system for more than 120 seconds shall be considered a test failure.

Special Incident Unit

Production Specifications

3. LOW VOLTAGE ALARM TEST

The following test shall be started with the engine off and the battery voltage at or above 12 V for a 12 V nominal system, 24 V for a 24 V nominal system, or 36 V for a 42 V nominal system.

With the engine shut off, the total continuous electrical load shall be activated and shall continue to be applied until the excessive battery discharge alarm activates. The battery voltage shall be measured at the battery terminals.

The test shall be considered a failure if the alarm does not sound in less than 140 seconds after the voltage drops to 11.70 V for a 12 V nominal system, 23.4 V dc for a 24 V nominal system, or 35.1 V for a 42 V nominal system.

The battery system shall then be able to restart the engine. Failure to restart the engine shall be considered a test failure.

LOW VOLTAGE - ELECTRICAL SYSTEM PERFORMANCE TEST

DOCUMENTATION

The manufacturer shall deliver the following with the fire apparatus:

- 1) Documentation of the electrical system performance tests
- 2) A written electrical load analysis, including the following:
 - a) The nameplate rating of the alternator
 - b) The alternator rating
 - c) Each of the component loads specified that make up the minimum continuous electrical load
 - d) Additional electrical loads that, when added to the minimum continuous electrical load, determine the total continuous electrical load
 - e) Each individual intermittent electrical load.

Production Specifications

Production Specificati

UL 120/240 VAC CERTIFICATION

The 120/240 volt electrical system shall be tested and certified by Underwriters Laboratories, to perform as listed below;

The prime mover shall be started from a cold start condition, and the unloaded voltage and frequency shall be recorded.

The line voltage electrical system shall be loaded to at least 100 % of the continuous rated wattage stated on the power source specification label. Testing with a resistive load bank shall be permitted.

The power source shall be operated in the manner specified by the apparatus manufacturer as documented on instruction plates or in operation manuals. The power source shall be operated at a minimum of 100 % of the continuous rated wattage as stated on the power source specification label for a minimum of 2 hours.

The load shall be adjusted to maintain the output wattage at or above the continuous rated wattage during the entire 2-hour test.

The following conditions shall be recorded at least every 1/2 hour during the test:

- 1) The power source output voltage, frequency, and amperes
- 2) The prime mover's oil pressure, water temperature, and transmission temperature, if applicable
- 3) The power source hydraulic fluid temperature, if applicable
- 4) The ambient temperature and power source air inlet temperature

The following conditions shall be recorded once during the test for power sources driven by dedicated auxiliary internal combustion engines:

- 1) Altitude
- 2) Barometric pressure
- 3) Relative humidity

If the generator is driven by the chassis engine and the generator allows for operation at variable speeds, the chassis engine speed shall be reduced to the lowest rpm allowed for generator operation and the voltage and frequency shall be recorded.

The load shall be removed, and the unloaded voltage and frequency shall be recorded.

Voltage shall be maintained within ± 10 % of the voltage stated on the power source specification label during the entire test. Frequency shall be maintained within ± 3 Hz of the frequency stated on the power source specification label during the entire test.

The total continuous electrical loads, excluding those loads associated with the equipment defined in NFPA 22.15.7.3.11.2, shall be applied during the testing unless an auxiliary engine drives the power source.

If the apparatus is equipped with a fire pump, the 2-hour certification test of the power source shall be completed with the fire pump pumping at 100 % capacity at 150 psi (1000 kPa) net pump pressure. The test shall be permitted to be run concurrently with the pump certification test.

Special Incident Unit

Production Specifications

DOCUMENTATION

The manufacturer shall deliver the following with the fire apparatus:

The results of each test shall be recorded on an appropriate form and provided with the delivery of the fire apparatus.

DIELECTRIC VOLTAGE WITHSTAND TEST

The line voltage wiring and permanently connected devices and equipment shall be subjected to a dielectric voltage withstand test of 900 volts for 1 minute. The testing shall be performed after all body work has been completed.

The test shall be conducted as follows:

- 1) Isolate the power source from the panel board and disconnect any solid state low voltage components
- 2) Connect one lead of the dielectric tester to all the hot and neutral buses tied together
- 3) Connect the other lead to the fire apparatus frame or body
- 4) Close any switches and circuit breakers in the circuit(s)
- 5) Apply the dielectric voltage for 1 minute in accordance with the testing equipment manufacturer's instructions

The electrical polarity of all permanently wired equipment, cord reels, and receptacles shall be tested to verify that wiring connections have been properly made.

Electrical continuity shall be verified from the chassis or body to all line voltage electrical enclosures, light housings, motor housings, light poles, switch boxes, and receptacle ground connections that are accessible to fire fighters in normal operations.

If the apparatus is equipped with a transfer switch, it shall be tested to verify operation and that all non grounded conductors are switched.

Electrical light towers, floodlights, motors, fixed appliances, and portable generators shall be operated at their full rating or capacity for 30 minutes to ensure proper operation.

WARRANTY

A full statement shall be provided of the warranties for the vehicle(s) being bid. Warranties should clearly describe the terms under which the vehicle manufacturer accepts responsibility for the cost to repair defects caused by faulty design, quality of work or material, and for the applicable period of time after delivery.

Cost of repairs refers to all costs related thereto including, but not limited to, the cost of materials, and the cost of labor.

The Body Manufacturer shall warrant all materials and accessories used on the vehicle(s), whether fabricated by manufacturer or purchased from an outside source, and will deal directly with the Vista Fire Department on all warranty work.

Special Incident Unit

Production Specifications

GENERAL LIMITED WARRANTY - ONE (1) YEAR

The vehicle shall be free of defects in material and workmanship for a period of one (1) year or 12,000 miles, whichever occurs first starting thirty (30) days after the original invoice date.

The contractor must be the "single source" coordinator of all warranties on the vehicle.

LOW VOLTAGE ELECTRICAL WARRANTY - FIVE (5) YEARS

The vehicle low voltage electrical system shall be free of defects in material and workmanship for a period of five (5) years or 60,000 miles, whichever occurs first, starting thirty (30) days after the original invoice date.

STRUCTURAL WARRANTY - TEN (10) YEARS

The body shall be free of structural or design failure or workmanship for a period of ten (10) years, or 100,000 miles whichever occurs first, starting thirty (30) days after the original invoice date.

PAINT LIMITED WARRANTY - TEN (10) YEARS

The body shall be free of bubbling, or peeling as a result of a defect in the method of manufacture for a period of ten (10) years, or 100,000 miles whichever occurs first, starting thirty (30) days after the original invoice date.

CONSTRUCTION PERIOD

The completed vehicle shall be delivered within one hundred twenty (120) days after receipt of a purchase order, or contract.

Contractor shall not be held liable for delays of chassis delivery due to accidents, strikes, floods or other events not subject to their control. Contractor shall provide immediate written notice to Vista Fire Department as to delays and to what extent these delays have in completing vehicle within the stated construction time period.

OVERALL HEIGHT

The overall height (OAH) of the vehicle shall be approximately 135"(11' - 03") from the ground. This measurement shall be taken on flat ground with the tires properly inflated, in the unloaded condition, at that highest point of the vehicle.

OVERALL LENGTH

The overall length (OAL) of the vehicle shall be approximately 362"(30' - 02").

Production Specifications

FINAL INSPECTION CONFERENCE

A final inspection conference shall be required, at the contractor's factory for two (2) personnel from the Vista Fire Department to inspect the vehicle and construction details prior to shipment of the completed vehicle. This inspection shall take place after any specified striping and lettering is installed.

The contractor shall at his/her expense, provide transportation, lodging, rental car and meal expenses during the final inspection conference. Any travel distance greater than 250 miles shall be by non-stop commercial air travel.

DELIVERY AND DEMONSTRATION

The contractor shall be responsible for the delivery of the completed unit to the Vista Fire Departments location. On initial delivery of the apparatus, the contractor shall supply a qualified representative to demonstrate the apparatus and provide initial instruction to representatives of the Vista Fire Department regarding the operation, care, and maintenance of the apparatus and equipment supplied at Vista Fire Department location.

The delivery engineer shall set delivery and instruction schedule with the person appointed by Vista Fire Department.

After delivery of the apparatus, the Vista Fire Department shall be responsible for ongoing training of its personnel to proficiency regarding the proper and safe use of the apparatus and associated equipment.

CAB CHASSIS SPECIFICATIONS

FREIGHTLINER SPECIFICATION PROPOSAL

Vehicle Configuration		
	M2 106 CONVENTIONAL CHASSIS 2011 MODEL YEAR SPECIFIED SET BACK AXLE - TRUCK	
General Service		
	FIRE/RESCUE SERVICE EMERGENCY VEHICLES BUSINESS SEGMENT MEDIUM TRUCK 2 YEAR WARRANTY EXPECTED FRONT AXLE LOAD: 14000 lbs EXPECTED REAR DRIVE AXLE LOAD: 24000 lbs EXPECTED GROSS VEHICLE WEIGHT CAPACITY : 38000 lbs	
Engine		
	CUM ISC-350 350 HP @ 2000 RPM; 2200 GOV, 1000 LB/FT @ 1400 RPM	
Engine Equipment		
	2010 EPA/CARB EMISSION CERTIFICATION	

Vista Fire Department Special Incident Unit Production Specifications

	2008 CARB EMISSION CERTIFICATION - EXEMPTED VEHICLE; NO CLEAN IDLE LABEL REQUIRED NFPA COMPLIANT EMBER SCREEN AND FIRE RETARDANT DONALDSON AIR CLEANER DR 12V 275 AMP 40-SI QUADRAMOUNT PAD ALTERNATOR WITH REMOTE BATTERY VOLTAGE SENSE (3) ALLIANCE MODEL 1031, GROUP 31, 12 VOLT MAINTENANCE FREE 2280 CCA THREADED STUD BATTERIES WITH POSITIVE JUMPSTART POST BATTERY BOX FRAME MOUNTED WIRE GROUND RETURN FOR BATTERY CABLES WITH ADDITIONAL FRAME GROUND RETURN POSITIVE LOAD DISCONNECT WITH CAB MOUNTED CONTROL SWITCH MOUNTED OUTBOARD DRIVER SEAT CUMMINS 18.7 CFM AIR COMPRESSOR WITH INTERNAL SAFETY VALVE CUMMINS EXHAUST BRAKE INTEGRAL WITH VARIABLE GEOMETRY TURBO RH MTD HORIZONTAL AFTERTREATMENT WITH RH VERTICAL TAILPIPE HORTON DRIVEMASTER ON/OFF FAN
	PRE-CHARGED SCA HEAVY DUTY COOLANT
	GATES BLUE STRIPE COOLANT HOSES OR EQUIVALENT CONSTANT TENSION HOSE CLAMPS FOR
	COOLANT HOSES ELECTRIC GRID AIR INTAKE WARMER DELCO 12V 38MT HD STARTER WITH
Transmission	INTEGRATED MAGNETIC SWITCH
Transmission	
	ALLISON 3000 EVS 5 SPD AUTOMATIC TRANSMISSION WITH PTO PROVISION
Transmission Equip	ment
	TRANSMISSION PROGNOSTICS - ENABLED MAGNETIC PLUGS, ENGINE DRAIN, TRANSMISSION DRAIN, AXLE(S) FILL AND DRAIN

	Vista Fire Department
	Special Incident Unit
	Production Specifications
	PUSH BUTTON ELECTRONIC SHIFT CONTROL, DASH MOUNTED WATER TO OIL TRANSMISSION COOLER TRANSMISSION OIL CHECK AND FILL WITH ELECTRONIC OIL LEVEL CHECK SYNTHETIC TRANSMISSION FLUID (TES- 295 COMPLIANT)
Front Axle and Equi	pment
	MFS-14-143A 14,700# FF1 SINGLE FRONT AXLE
	MERITOR 16.5X5 Q+ CAST SPIDER CAM FRONT BRAKES, DOUBLE ANCHOR, FABRICATED SHOES
	FIRE AND EMERGENCY SEVERE SERVICE,
	MERITOR AUTOMATIC FRONT SLACK
	ADJUSTERS TRW TAS-85 POWER STEERING
Front Suspension	
	14,600# TAPERLEAF FRONT SUSPENSION GRAPHITE BRONZE BUSHINGS WITH SEALS - FRONT SUSPENSION FRONT SHOCK ABSORBERS
Rear Axle and Equip	oment
	24,000 LB FIRE/EMERGENCY SERVICE SINGLE REAR AXLE IRON REAR AXLE CARRIER WITH STANDARD AXLE HOUSING 17T MERITOR EXTENDED LUBE MAIN DRIVELINE WITH HALF ROUND YOKES MERITOR 16.5X7 Q+ CAST SPIDER CAM REAR BRAKES, DOUBLE ANCHOR, FABRICATED SHOES FIRE AND EMERGENCY SEVERE SERVICE NON-ASBESTOS REAR BRAKE LINING GUNITE AUTOMATIC REAR SLACK ADJUSTERS
Rear Suspension	
	HENDRICKSON FIREMAAX EX 24,000# REAR AIR SUSPENSION FOR FIRE/EMERGENCY SERVICE HENDRICKSON PRIMAAX 10.00" RIDE HEIGHT DUAL AIR REAR SUSPENSION LEVELING VALVES TRANSVERSE CONTROL RODS REAR SHOCK ABSORBERS - ONE AXLE (AIR RIDE SUSPENSION)

Special Incident Unit Production Specifications

Brake System	
Electrical Connectio	AIR BRAKE PACKAGE WABCO 4S/4M ABS WITH TRACTION CONTROL NFPA COMPLIANT ENHANCED STABILITY CONTROL BW AD-9 BRAKE LINE AIR DRYER WITH HEATER CUSTOM STEEL AIR BRAKE RESERVOIRS STANDARD AIR SYSTEM PRESSURE PROTECTION SYSTEM BW DV-2 AUTO DRAIN VALVE WITHOUT HEATER - WET TANK
	UPGRADED CHASSIS MULTIPLEXING UNIT
	UPGRADED BULKHEAD MULTIPLEXING
Wheelbase & Frame	
	(247 INCH) WHEELBASE
	11/32X3-1/2X10-15/16 INCH STEEL FRAME 120KSI (63 INCH) REAR FRAME OVERHANG
Chassis Equipment	
	THREE-PIECE 14 INCH CHROME STEEL BUMPER WITH COLLAPSIBLE ENDS AND LH WING CUTOUT FOR SPEAKER FRONT TOW HOOKS - FRAME MOUNTED FENDER AND FRONT OF HOOD MOUNTED FRONT MUDFLAPS GRADE 8 THREADED HEX HEADED FRAME FASTENERS
Fuel Tanks	
	50 GALLON RECTANGULAR ALUMINUM FUEL TANK 6 GALLON DIESEL EXHAUST FLUID TANK ALLIANCE FUEL FILTER/WATER SEPARATOR
Tires	
	CONTINENTAL HSC 12R22.5 16 PLY RADIAL FRONT TIRES CONTINENTAL HDR1 11R22.5 16 PLY RADIAL REAR TIRES
Hubs	
	CONMET PRE-SET BEARING IRON FRONT HUBS

Special Incident Unit

	CONMET PRE-SET BEARING IRON REAR HUBS
Wheels	
	22.5X8.25 10-HUB PILOT POLISHED ALUMINUM DISC FRONT WHEELS 22.5X8.25 10-HUB PILOT POLISHED ALUMINUM DISC REAR OUTER WHEELS
Cab Exterior	
	154 INCH BBC HIGH-ROOF ALUMINUM CONVENTIONAL CREW CAB AIR CAB MOUNTS NFPA COMPLIANT EXTERIOR GRAB HANDLES HOOD MOUNTED CHROMED PLASTIC GRILLE CHROMED HOOD MOUNTED AIR INTAKE GRILLE TUNNEL/FIREWALL LINER SINGLE ELECTRIC HORN DOOR LOCKS AND IGNITION SWITCH KEYED THE SAME INTEGRAL HEADLIGHT/MARKER ASSEMBLY WITH CHROME BEZEL LED AERODYNAMIC MARKER LIGHTS DAYTIME RUNNING LIGHTS DUAL 102" WEST COAST BRIGHT FINISH HEATED MIRRORS WITH LH AND RH REMOTE LH AND RH 8" BRIGHT FINISH CONVEX MIRRORS MOUNTED UNDER PRIMARY MIRRORS 63X14 INCH TINTED REAR WINDOW TINTED DOOR GLASS LH AND RH WITH TINTED NON-OPERATING WING WINDOWS TINTED WINDSHIELD 2 GALLON WINDSHIELD WASHER RESERVOIR WITHOUT FLUID LEVEL INDICATOR FRAME MOUNTED
Cab Interior	
	OPAL GRAY VINYL INTERIOR MOLDED PLASTIC DOOR PANELS WITH ALUMINUM KICKPLATE LOWER DOORS BLACK MATS WITH SINGLE INSULATION FORWARD ROOF MOUNTED CONSOLE WITH UPPER STORAGE COMPARTMENTS WITHOUT NETTING IN DASH STORAGE BIN (2) CUP HOLDERS LH AND RH DASH

Special Incident Unit Production Specifications

HEATER, DEFROSTER AND AIR CONDITIONER MAIN HVAC CONTROLS WITH **RECIRCULATION SWITCH** CAB INSULATION SOLID-STATE CIRCUIT PROTECTION AND FUSES 12V NEGATIVE GROUND ELECTRICAL SYSTEM DOOR ACTIVATED DOME/RED MAP LIGHTS, FORWARD LH AND RH AND REAR LH, RH AND CENTER CAB DOOR LATCHES WITH MANUAL DOOR LOCKS (1) 12 VOLT POWER SUPPLY IN DASH SEATS INC 911 UNIVERSAL SERIES HIGH BACK AIR SUSPENSION DRIVER SEAT NFPA COMPLIANT SEATS INC 911 UNIVERSAL SERIES HIGH BACK NON SUSPENSION PASSENGER SEAT WITH UNDERSEAT STORAGE NFPA COMPLIANT SEATS INC 911 UNIVERSAL SERIES SCBA NON SUSPENSION LH, RH AND CENTER REAR PASSENGER SEATS WITH UNDERSEAT STORAGE NFPA COMPLIANT LH AND RH INTEGRAL DOOR PANEL ARMRESTS GRAY VINYL DRIVER SEAT COVER WITH GRAY CORDURA CLOTH BOLSTER AND HEADREST GRAY VINYL FRONT PASSENGER SEAT COVER WITH GRAY CORDURA CLOTH BOLSTER AND HEADREST GRAY VINYL REAR PASSENGER SEAT COVER WITH GRAY CORDURA CLOTH BOLSTER AND HEADREST NFPA COMPLIANT HIGH VISIBILITY SEAT BELTS W/ SENSOR(S) AND DASH HARNESS ADJUSTABLE TILT AND TELESCOPING STEERING COLUMN **4-SPOKE 18 INCH STEERING WHEEL** DRIVER AND PASSENGER INTERIOR SUN VISORS

Instruments & Controls

BLACK GAUGE BEZELS LOW AIR PRESSURE LIGHT AND BUZZER

Special Incident Unit Production Specifications

2	INCH PRIMARY AND SECONDARY AIR
Ρ	RESSURE GAUGES
E	NGINE COMPARTMENT MOUNTED AIR
R	ESTRICTION INDICATOR WITH
G	RADUATIONS, WITH WARNING LIGHT IN
D	ASH
E	LECTRONIC CRUISE CONTROL WITH
S	WITCHES IN LH SWITCH PANEL
IC	SNITION SWITCH WITH NON REMOVABLE
K	
0 0	DOMETER/TRIP/HOUR/DIAGNOSTIC/VOLT
A	GE DISPLAY: 1X7 CHARACTER, 26
	ARNING LAMPS, DATA LINKED, ICU3
2	
2	
G	
F	NGINE AND TRIP HOUR METERS
E	LECTRIC ENGINE OIL PRESSURE GAUGE
Ō	VERHEAD INSTRUMENT PANEL
Ē	LECTRONIC MPH SPEEDOMETER WITH
S	ECONDARY KPH SCALE
E	LECTRONIC 3000 RPM TACHOMETER
D	IGITAL VOLTAGE DISPLAY INTEGRAL
W	ITH DRIVER DISPLAY
S	INGLE ELECTRIC WINDSHIELD WIPER
Μ	OTOR WITH DELAY
Μ	ARKER LIGHT SWITCH INTEGRAL WITH
Н	EADLIGHT SWITCH
0	NE VALVE PARK BRAKE SYSTEM WITH
D	
S	ELF CANCELING TURN SIGNAL SWITCH
VV	
H	
	LAOREN WITH HALAND LAWING VERRINING STOPT AMPS
0	

Color

Design

PAINT: ONE SOLID COLOR

CAB COLOR A: RED ELITE BLACK, HIGH SOLIDS POLYURETHANE CHASSIS PAINT

Special Incident Unit Production Specifications

Weight Summary

Factory Weight⁺

Weight Front 7738 LBS Weight Rear 3898 LBS Total Weight 11636 LBS

(+) Weights shown are estimates only.

CHASSIS MODIFICATIONS

LUBRICATION AND TIRE DATA PLATE

A permanent label in the driving compartment shall specify the quantity and type of the following fluids used in the vehicle and tire information:

- Engine oil
- Engine coolant
- Chassis transmission fluid
- Pump transmission lubrication fluid . . (if applicable)
- Pump priming system fluid, if applicable . . (if applicable)
- Drive axle(s) lubrication fluid
- Air conditioning refrigerant . . (if applicable)
- Air conditioning lubrication oil . . (if applicable)
- Power steering fluid
- Cab tilt mechanism fluid . . (if applicable)
- Transfer case fluid . . (if applicable)
- Equipment rack fluid (if applicable)
- CAFS air compressor system lubricant . . (if applicable)
- Generator system lubricant . . (if applicable)
- Front tire cold pressure
- Rear tire cold pressure
- Maximum tire speed ratings

Special Incident Unit Production Specifications

VEHICLE DATA PLATE

A permanent label in the driving compartment which indicates the following:

- Filter part numbers for the;
 - Engine
 - Transmission
 - Air
 - Fuel
- Serial numbers for the;
 - Engine
 - Transmission
- Delivered Weights of the Front and Rear Axles
- Paint Brand and Code(s)
- Sales Order Number

OVERALL HEIGHT, LENGTH DATA PLATE (US)

The fire apparatus manufacturer shall permanently affix a high-visibility label in a location visible to the driver while seated.

The label shall show the height of the completed fire apparatus in feet and inches, the length of the completed fire apparatus in feet and inches, and the GVWR in pounds.

Wording on the label shall indicate that the information shown was current when the apparatus was manufactured and that, if the overall height changes while the vehicle is in service, the fire department must revise that dimension on the plate.

ACCIDENT PREVENTION

There shall be a placard in the cab seating area which reads, "ALL OCCUPANTS MUST BE SEATED AND BELTED WHEN THE APPARATUS IS IN MOTION".

PERSONNEL CAPACITY

A label that states the number of personnel the vehicle is designed to carry shall be located in an area visible to the driver.

Special Incident Unit Production Specifications

ACCIDENT PREVENTION

If the rear bumper is 8" deep or more, there shall be a placard on the rear face of the body, in clear sight from the ground, which reads, "WARNING - DO NOT RIDE ON STEPS OR DECK AREAS WHILE THE APPARATUS IS IN MOTION. DEATH OR SERIOUS INJURY MAY RESULT".

WEARING HELMET WARNING

A label stating "DO NOT WEAR HELMET WHILE SEATED" shall be visible from each seating location.

FRONT BUMPER

The front bumper shall be as provided by the cab/chassis manufacturer. No other alternation or modifications are required.

AIR HORNS

Two (2) Grover 24" Stuttertone chrome plated air horns shall be mounted, one (1) each side of the cab hood. An emergency air shut off valve shall be provided in cab.

AIR HORN ACTIVATION

The air horn(s) shall be operated by a foot switch on the cab floor located at both the driver and officer positions.

FRONT TOW PROVISIONS

The front tow provisions shall be supplied and installed by the cab/chassis manufacturer.

<u>EXHAUST</u>

The exhaust system shall be as provided by cab/chassis manufacturer. The tailpipe may require some modifications for proper ground clearances and fit with body.

The exhaust piping and discharge outlet shall be located or shielded so as not to expose any portion of the vehicle or equipment to excessive heating.

Exhaust pipe discharge shall be directed away from any operator's position or entry doors on body.

Where parts of the exhaust system are exposed so that they are likely to cause injury to operating personnel, protective guards shall be provided.

SVI #799

November 9, 2010

Page 27 of 88

Special Incident Unit

Production Specifications

RADIO/ANTENNA INSTALLATION

There shall be three (3) Vista Fire Department supplied radio(s) with antenna installed in the cab within easy reach of driver. The location of radio shall be determined by the Vista Fire Department at the pre-construction meeting.

Radio shall be installed per manufacturers requirements and wired for proper 12 volt power and ground.

12 VDC ACCESSORY PLUG

There shall be one (1) 12 volt accessory plug(s) furnished and installed in the cab area. The location of accessory plugs shall be determined by the Vista Fire Department at the pre-construction meeting.

SEAT BELT COLOR

Section 14.1.3.4 of the NFPA 1901 Standards, 2009 edition, requires all seat belt webbing in cab to be bright red or bright orange in color, and the buckle portion of the seat belt shall be mounted on a rigid or semi rigid stalk such that the buckle remains positioned in an accessible location.

SEAT BELT WEB LENGTH - COMMERCIAL CAB

Sections 14.1.3.2 and 14.1.3.3 of the NFPA 1901 standards, 2009 edition, require the effective seat belt web length for a Type 1 lap belt for pelvic restraint to be a minimum of 60", and a Type 2 pelvic and upper torso restraint-style seat belt assembly to be a minimum of 110".

The chassis seat belt web length as supplied by the commercial chassis manufacturer shall be compliant to NFPA Standards 14.1.3.2 and 14.1.3.3.

SEAT BELT MONITORING AND VEHICLE DATA RECORDER (VDR) SYSTEMS

SEAT BELT MONITORING

A Fire Research SBA200 series system shall be provided and installed to allow the driver and officer to know if all persons seated in the vehicle are secured with seat belts before moving the vehicle. Built-in smart seating logic shall detect if the correct sit and buckle sequence is not followed for all seats. System shall also provide an output for an external alarm. System shall include following features;

Special Incident Unit

Production Specifications

VEHICLE DATA RECORDER (VDR)

- All data collected is stored with a date and time stamp
- Data collected includes vehicle speed, vehicle acceleration and deceleration, engine RPM and throttle position, ABS event, seat occupied with seat belt status, and master optical warning device switch
- The VDR data is sampled once per second in a 48 hour loop
- The VDR summary data is sampled minute by minute for 100 engine hours
- All data stored in the VDR can be uploaded and saved on a computer
- All data is secured and can only be accessed with the correct password

DISPLAY MODULE IN CAB

The display mounted in cab shall include the following;

- Green fasten seat belt icon indicates person is properly seated and buckled
- Red icon indicates person seated is not buckled
- Message display will show vehicle speed and other system data for the officer to monitor
- Modify system parameters
- Mounting brackets provided for either pedestal and surface mount

DATA ACQUISITION & STORAGE

All data collected by the system is stored with a date and time stamp. Data collected includes:

- Vehicle speed
- Engine RPM and throttle position
- ABS event
- Seat occupied with seat belt status

Data is capable of being uploaded from memory via wireless technology to portable, handheld data collector or laptop computer for viewing, sorting, and printing.

DATA COLLECTOR

There shall be NO data collector provided with the completed vehicle.

IGNITION KEY

The ignition key will be attached to steering column or dash with vinyl covered steel cable.

Special Incident Unit

Production Specifications

SIX (6) – LED TIRE PRESSURE VISUAL INDICATORS

Each tire shall be equipped with a VECSAFE heavy duty valve cap (or equal) LED indicator that indicates proper tire pressure.

HELMET STORAGE

No helmet storage is required in the in the cab driving or crew area.

CAB TESTING CERTIFICATION

As per NFPA 14.3.2, cabs on apparatus with a GVWR greater than 26,000 lb. (11,800 kg) shall meet the requirements of one of the following sets of standards:

- 1) European Occupant Protection Standard ECE Regulation No. 29.
- 2) SAE J2422 Cab Roof Strength Evaluation Quasi-Static Loading Heavy Trucks.

A copy of this certification shall be included with the bid.

NOTE: There shall be no exception to any portion of the cab integrity certification requirements. Nonconformance shall lead to immediate rejection of bid.

CAB MIRRORS, DRIVER ADJUSTABLE

Section 14.3.5 of the NFPA 1901 Standards, 2009 edition, requires all primary rear view mirrors used by the driver to be adjustable from the driver's position.

RE-PAINT CAB - ONE COLOR

The cab exterior (door jambs not painted unless specified otherwise) shall be re-painted with PPG Delfleet Evolution paint.

Exterior Upper Color:

Exterior Upper Paint Number:

CHASSIS PAINT WARRANTY

The portion of the cab re-painted shall be provided with a ten (10) year, non-prorated paint warranty to the original owner. The warranty shall be provided by PPG Inc. A warranty sheet with all conditions and maintenance procedures shall be provided with the delivered vehicle.

Special Incident Unit Production Specifications

CAB STEP COVER

There shall be three (3) cab step cover(s) fabricated of 1/8" aluminum treadplate and using aluminum diamondback material as the stepping surface.

CAB STEP AND FUEL TANK COVER

The chassis fuel tank shall be overlaid with 1/8" aluminum treadplate. The fuel tank shall be labeled "DIESEL FUEL" with a permanent type label. There shall be cab access steps using aluminum diamondback material as the stepping surface.

HUB AND NUT COVERS

Front and rear wheels shall be provided with stainless steel hub caps and wheel nut covers.

BATTERY JUMPER STUDS

Battery jumper studs shall be provided in the driver's step area. The studs allow the vehicle to be jump started in an emergency due to battery failure.

MUDFLAPS

There shall be rubber mudflaps furnished and installed behind each set of tires.

AIR BRAKE SYSTEM QUICK BUILD-UP

There shall be one (1) Milton male quick connector type air shoreline inlet to provide air to the chassis air tanks from an external source compressed air shoreline hookup in order to maintain full operating air pressure while the vehicle is not running. Air inlet shall be located near driver's door. The female end of the connector shall be supplied by the Vista Fire Department.

The quick buildup system shall provide sufficient air pressure so that the apparatus has no brake drag and is able to stop under the intended operating conditions following the 60-second buildup time.

ROAD EMERGENCY SAFETY KIT

One (1) set of three (3) dual faced triangular warning flares with fold away base complete with storage case per DOT requirements shall be provided with the completed apparatus.

One (1) 2.5 lb. ABC type vehicle fire extinguisher with bracket shall be provided and mounted in the cab or the front streetside compartment.

SVI #799

November 9, 2010

Production Specifications

BODY DESIGN

The importance of public safety associated with emergency vehicles requires that the construction of this vehicle meet the following specifications. These specifications are written to establish the minimum level of quality and design. All Bidders shall be required to meet these minimum requirements.

It is the intent of these specifications to fully describe the requirements for a custom built emergency type vehicle. In order to extend the expected service life of this vehicle, the body module shall be removable from the chassis frame and be capable of being installed on a new chassis.

The sheet metal material requirements, including alloy and material thickness, throughout the specifications are considered to be a minimum. Since such materials are available to all Manufacturers, the material specifications shall be strictly adhered to.

The fabrication of the body shall be formed sheet metal. Formed components shall allow the Vista Fire Department to have the body repaired locally in the case where any object has struck the body and caused damage. The use of proprietary extrusions will prevent the Vista Fire Department from such repair and shall NOT be used.

Following construction of the subframe, which supports the apparatus body, the sheet metal portion of the body shall be built directly on the subframe. The joining of the subframe and body shall be of a welded integral construction.

The sheet metal fabrication of the body shall be performed using inert gas continuous feed welders only. The entire body shall be welded construction. The use of pop rivets in any portion of structural construction may allow premature failure of the body structure. Therefore, pop rivets shall NOT be used in the construction of the structural portions of the body. This includes side body sheets, inner panels of compartment doors, and any other structural portions of the body.

EXTERIOR ALUMINUM BODY

The fabrication of the body shall be constructed from aluminum 3003H-14 alloy smooth plate. This shall include compartment front panel, vertical side sheets, side upper rollover panels, rear panels and compartment door frames.

The body compartment floors and exterior panels shall be constructed with not less than 3/16" (.187) aluminum 3003H-14 smooth plate. Interior compartment dividing walls shall be constructed with not less than 1/8" (.125) aluminum 3003H-14 smooth plate. Lighter gauge sheet metal will not be acceptable in these areas.

The door side frame openings shall be formed "C" channel design. An electrical wiring conduit raceway running the full length of exterior compartments shall be provided. This raceway shall contain all 12 volt wiring running to the rear of the apparatus, permitting easy accessibility to wiring.

Individual compartment modules, with dead air space voids between compartments, will not be an acceptable method of compartment construction.

The compartments shall be an integral part of the body construction. Compartment floors from front of body to ahead of rear axle, also from rear axle to rear of body shall be single one-piece sections. Compartment floors shall be preformed, then positioned in body and welded into final position.

SVI #799

November 9, 2010

Vista Fire Department Special Incident Unit Production Specifications

Compartment floors shall have a "sweep-out" design with door opening threshold positioned lower than compartment floor, permitting easy cleaning of compartments. Angles, lips, or door moldings are not acceptable in the base of compartment door opening. One-way rubber drain valves shall be provided in compartment floors so that a water hose may be used to flush-out compartment area.

All exterior seams in sheet metal below frame, and around the rear wheel well area shall be welded continuous to prevent moisture from entering compartments. All other interior seams and corners shall be sealed with silicone based caulk prior to painting.

Only stainless steel bolts, nuts, and sheet metal screws shall be used in mounting exterior trim, hardware and equipment.

Exterior compartments shall have louvers in lower back wall of compartment for ventilation.

ROOF CONSTRUCTION

The roof shall be integral with the body and shall be all welded construction. The roof of the body shall not be less than 3/16" aluminum 3003H-14 alloy tread plate, fully and continuously welded. The roof shall be reinforced with 2" x 2" x 1/4" aluminum tubing running the full width of the body. A 2" rounded radius shall be provided along the body sides.

BODY SUBFRAME

To assure proper body alignment and clearance, the body subframe shall be constructed directly on the chassis.

The chassis frame rails shall be fitted with 1/4" custom extruded UHMW polyethylene rail cap to isolate the body frame members from direct contact with chassis frame rails.

The body subframe shall be constructed from 6061T6 aluminum alloy tubing. Subframe shall consist of two (2) 2" x 6" x 1/4" aluminum tubes, the same width as the chassis frame rails, NO EXCEPTION. Welded to this tubing shall be cross members of 2" x 6" x 1/4" aluminum. These cross members shall extend the full width of the body to support the compartments. Cross members shall be located at front and rear of the body, below compartment divider walls, and in front and rear of wheel well opening. Additional aluminum cross members shall be located as necessary to support walkway or heavy equipment.

To form the frame, the tubing shall be beveled and welded at each joint using 5356 aluminum alloy welding wire.

Production Specifications

BODY MOUNTING

The body subframe shall be fastened to the chassis frame with a minimum of six (6) spring loaded body mounts. Each mount shall be configured using a two-piece encapsulated slide bracket. The two (2) brackets shall be fabricated of heavy duty 1/4" thick steel and shall have a powder coat finish to prevent any corrosion. Each mounting assembly shall utilizing two (2) 3/4" diameter x 6" long grade 8 bolts and two (2) heavy duty springs. The assembly design shall allow the body and subframe to act as one (1) component, separate from the chassis. As the chassis frame twists under driving conditions, the spring mounting system shall eliminate any stress from being transferred into the body. The spring loaded body mounts shall also prevent frame side rail or body damage caused by unevenly distributed stress and strains due to load and chassis movement.

Body mountings that do not allow relief from chassis movement will not be acceptable.

10" REAR STEP BUMPER

The full width rear bumper shall be constructed from 2" x 2" x 1/4" aluminum tubing frame and covered with 3/16" NFPA compliant aluminum tread plate. The bumper shall extend from the rear vertical body panel 10" and provide a rear step with a minimum of 1/2" space at body for water drainage.

REAR TOW EYES

There shall be two (2) heavy duty rear mounted tow eyes securely attached to the body subframe, below the apparatus body. The tow eyes shall be fabricated from 3/4" thick steel plate and shall have a black powder coat finish.

GROUND LIGHTS

Two (2) OnScene Solutions 9" LED Nightstik ground lights shall be mounted below the bumper.

WHEEL WELL EXTERIOR PANEL

The exterior panel of the body wheel well enclosure shall be constructed from 3/16" smooth aluminum panels.

DIEFORMED BEADED EDGE BODY FENDERS

A die formed beaded edge shall be provided along the radius of the wheel well opening for a finished appearance.

Production Specifications

WHEEL WELL LINERS

The wheel wells shall be provided with an easily removable polymer, circular inner fender liner. The inner liner shall be bolted to the wheel well with stainless steel bolts and spaced away from the wheel well so the liner will not accumulate dirt or water.

SCBA CYLINDER COMPARTMENTS

There shall be four (4) SCBA cylinder storage compartments located, two (2) on each side of body in the rear wheel well area. Each compartment shall be capable of storing three (3) SCBA cylinders (30 min cylinders). Each compartment shall have a vertically hinged door with a positive catch latch installed and painted primary lower body color. Each compartment shall allow the storage of an SCBA cylinder up to 5-3/4" in diameter. The door shall activate the "Hazard Warning Light" in the cab when not in the closed position.

PAINT FINISH - SINGLE COLOR

The body shall be painted with a single color of PPG Delfleet® Evolution paint per approved customer sprayout.

Prior to the assembly and reinstallation of exterior components; i.e. warning and DOT lights, handrails, steps, door hardware, and miscellaneous items, an isolation tape, or gasket shall be used to prevent damage to the finish painted surfaces. These components shall be fastened to body using either a plastic insert into body metal with stainless steel screws or zinc coated nutserts into body surface using stainless steel bolts to prevent corrosion from dissimilar metals.

Touch-up paint shall be provided with completed vehicle.

- Paint Color: RED
- Paint Number: PPG-911659

BODY UNDERCOATING

The entire underside of body shall be sprayed with black automotive undercoating. Undercoating shall cover all areas underside of body and wheel well area to help prevent corrosion under the vehicle.

UNDERCOAT WARRANTY

The body undercoating shall have a warranty provided by the manufacturer for the lifetime of the vehicle or twenty (20) years, whichever occurs first. The warranty shall be transferable between vehicle owners. Should the undercoating material applied to the underside of the body and wheel wells of the vehicle ever flake off, peel, chip or crack due to drying out, the damaged area shall be re-sprayed without charge to the vehicle owner.

November 9, 2010

Production Specifications

PAINT WARRANTY

The vehicle shall be provided with a ten (10) year non-prorated warranty to the original owner. Warranty is provided by PPG Inc. A warranty sheet with all conditions and maintenance procedures shall be provided with the delivered vehicle.

COMPARTMENT INTERIOR FINISH

The compartment interiors shall be treated with phosphoric acid and then sprayed with an epoxy primer applied 1.0 mil thick. All body seams will be caulked with urethane seam sealer and painted with two (2) coats of textured Zolatone paint. Zolatone catalysts will be added to the Zolatone to help in resisting moisture and provide a more durable finish. Paint color shall be gray.

REFLECTIVE STRIPE

All retroreflective materials shall conform to the requirements of ASTM D 4956, *Standard Specification for Retroreflective Sheeting for Traffic Control*, Section 6.1.1 for Type I Sheeting.

All retroreflective materials used that are colors not listed in ASTM D 4956, Section 6.1.1, shall have a minimum coefficient of retroreflection of 10 with observation angle of 0.2 degrees and entrance angle of -4 degrees.

Any printed or processed retroreflective film construction used shall conform to the standards required of an integral colored film as specified in ASTM D 4956, Section 6.1.1.

REFLECTIVE STRIPE - CAB SIDE

A retroreflective stripe(s) shall be affixed to at least 50 percent of the cab and body length on each side.

The stripe or combination of stripes shall be a minimum of 4 in. (100 mm) in total width.

The 4 in. (100 mm) wide stripe or combination of stripes shall be permitted to be interrupted by objects (i.e., receptacles, cracks between slats in roll up doors) provided the full stripe is seen as conspicuous when approaching the apparatus.

- The stripe material shall be 3M Scotchcal 680.
- This reflective stripe shall be white in color.
Special Incident Unit

Production Specifications

REFLECTIVE STRIPE - CAB FRONT

A reflective stripe shall be affixed to the front of cab. The stripe or combination of stripes shall be a minimum of 4 in. (100 mm) in total width.

A retroreflective stripe(s) shall be affixed to at least 25 percent of the width of the front of the apparatus.

- The stripe material shall be 3M Scotchcal 680.
- This reflective stripe shall be white in color.

REFLECTIVE STRIPE - CAB DOOR INTERIOR

Any door of the apparatus designed to allow persons to enter or exit the apparatus shall have at least 96 in.2 (62,000 mm2) of retroreflective material affixed to the inside of the door.

The stripe material shall be 3M Scotchlite 680.

• This reflective stripe shall be white in color.

REFLECTIVE STRIPE - BODY SIDES

A 4" minimum reflective stripe shall be affixed to the sides of the body.

- The stripe material shall be 3M Scotchcal 680.
- This reflective stripe shall be white in color.

The stripe shall remain in a straight line from the front of the vehicle to the rear.

Special Incident Unit

Production Specifications

CHEVRON REFLECTIVE STRIPE - REAR SIDES PANELS

At least 50 percent of the rear-facing vertical surfaces, visible from the rear of the apparatus, excluding any pump panel areas not covered by a door, shall be equipped with retroreflective striping in a chevron pattern sloping downward and away from the centerline of the vehicle at an angle of 45 degrees. Each stripe shall be 6" width.

The rear side panels only of the body shall have a Chevron style reflective stripe layout, and cover as much of the rear side panels as possible. Chevron panels shall have a 3M UV over laminate to protect from UV rays, scene damage, and everyday use. Chevron panels shall have a minimum 10 year warranty for material failure, and colorfastness.

• The stripe material shall be 3M Diamond Grade.

All retroreflective materials required shall conform to the requirements of ASTM D 4956, *Standard Specification for Retroreflective Sheeting for Traffic Control*, Section 6.1.1 for Type I Sheeting.

• This reflective chevron stripe shall alternate red and fluorescent yellow-green in color.

LETTERING

The following lettering shall be furnished and installed on the completed unit:

SIDE CAB DOOR LETTERING

There shall be thirty eight (38) 3" high SuperGold letters furnished and installed on the vehicle. Lettering shall have a clear 3M UV Protective Over Laminate applied before installation.

The lettering will read as follows: Vista Fire Department

Final design and layout shall be determined prior to construction.

UPPER BODY SIDE LETTERING

There shall be thirty eight (38) 8" high reflective letters furnished and installed on the vehicle.

The lettering shall read as follows: INCIDENT SUPPORT UNIT

• This reflective lettering shall be blue in color.

Special Incident Unit

Production Specifications

SUPPLIED DECALS

The bidder shall install two (2) Vista Fire Department supplied decal(s) on the vehicle, located on the.

EXTERIOR COMPARTMENT DOORS

ROLL-UP DOOR CONSTRUCTION - ROBINSON (ROM)

The apparatus shall be equipped with Robinson ROM Series III roll-up exterior compartment doors. Robinson roll-up doors shall be complete with the following features;

- Doors shall be front roll with drum positioned at upper front portion of compartment to afford maximum clearances and head room for mounting equipment to ceiling of compartment
- There shall be a non-abrasive side brush seals
- Magnetic door ajar system must be integrated in lift bar handle and the retainer block to signal open door. No
 mechanical switches or switches interior to the compartment shall be used
- Every slat must have interlocking end shoes to prevent slat from moving side-to-side and binding the door
- Between each slat must be a co-extruded PVC inner seal to prevent metal-to-metal contact and to repel moisture. This inner seal is not visible to detract from appearance of door
- Slats are to have interlocking joints with a folding locking flange to provide security and prevent penetration by sharp objects
- Slats to be double-wall extrusion 1.366" high by .315" thick. Exterior surface to be flat and interior surface to be concave to prevent loose equipment from interfering with door operation
- Latch system to be a full width one piece lift bar operable by one (1) hand
- A 2" wide finger pull integrated into the bottom rail extrusion for easy one (1) hand opening and closing
- Clip system that connects the curtain slats to the operator drum which allows for easy tension adjustment without tools
- Each roll-up door shall have a 4" diameter counterbalance operator drum to assist in lifting the door.
- Track shall be one-piece aluminum that has an attaching flange and finishing flange incorporated into its design
- Drip rail will have specially designed seal that prevents the seal from scratching the door
- Bottom rail extrusion must have smooth back to prevent loose equipment from jamming the door
- Bottom rail to have "V" shaped double seal to prevent water and debris from entering the compartment
- Standard replacement parts to be shipped from the United States and available in as little as 48 hours

Each shutter door shall decrease the compartment door frame opening approximately 2.00" in width and approximately 4.50" in height for the bottom section of door assembly.

The specified retroreflective stripe material shall be applied on the roll-up compartment doors. The stripe shall be precision machine cut for each door slat of the roll-up doors. Under no circumstance will the stripe material be cut on roll-up door surface.

Special Incident Unit

Production Specifications

BODY HEIGHT MEASUREMENTS

The vertical body dimensions shall be as follows:

AHE/	AD OF REAR AXLE	
	Description	Dimension
А	Bottom of Subframe to Top of Body	84.0"
В	Bottom of Subframe to Bottom of Body	25.0"
С	Vertical Door Opening	
	-with roll-up door	67.5"
	-with hinged door	71.5"
ABO	VE REAR AXLE	
	Description	Dimension
D	Vertical Door Opening - Above Rear Wheel	
	-with roll-up door	34.0"
	-with hinged door	37.0"
<u>BEHI</u>	ND REAR AXLE	
	Description	Dimension
Е	Bottom of Subframe to Bottom of Body	20.0"
F	Vertical Door Opening	
	-with roll-up door	62.0"
	-with hinged door	66.0"
GEN	ERAL	
	Description	Dimension
G	Bottom of Drip Rail to Top of Body	23.5"

(Dimensions are generic and subject to change during the actual design process)

BODY WIDTH DIMENSIONS

The body shall be 100.0" wide, not including drip rail or non-permanent fixtures. Interior compartment depth dimensions shall be:

Area Description	Dimension
Transverse Area:	95.5"
- Above Top of Subframe	
Compartment Depth:	24.5"
- Below Top of Subframe	
- Ahead of Rear Axle	
Compartment Depth:	23.5"
- Below Top of Subframe	(Eng. Note)
- Behind the Rear Axle	

(Dimensions are generic and subject to change during the actual design process)

Special Incident Unit

Production Specifications

STREETSIDE COMPARTMENT - FRONT (S1)

The interior useable compartment width shall be approximately 35.0" wide.

The compartment door opening shall be approximately 28.0" wide.

This compartment shall have a ROM roll-up door.

- The roll-up door slats and the door trim components shall be painted to match the single tone exterior color.
- The door shall be equipped with a CPI harsh environment mechanical type door ajar switch located inside compartment interior lower door track.
- A keyed cylinder lock shall be provided in the bottom portion of the roll-up door.
- One (1) nylon strap shall be provided to assist in closing the door. The strap shall be fastened to the left side of the lower inside door sill. The strap shall extend from the left side of the lower inside door sill to a footman loop attached to the center of the left side of the door frame.
- One (1) aluminum drip pan/door finish guard shall be provided with the rollup door.

A compartment threshold protection plate shall be installed on the bottom edge of the compartment door opening. The threshold protection shall be fabricated from an aluminum extrusion with an anodized exterior finish.

COMPARTMENT LAYOUT

- There shall be vertically mounted aluminum shelf-trac for specified component installation.
- There shall be one (1) 1,000 lbs. slide-out tray(s) with a SlideMaster base approximately 70" deep and as wide as the compartment layout or door opening permits located above the level of the chassis frame rails.
- There shall be one (1) storage module located on the slide-out tray to hold four (4) folding tables (72" x 30" x 2.5").
 There will be one (1) OnScene strap to prevent the tables from sliding into the door. There will be a vertical wall to allow for storage of a minimum of twenty (20) folding chairs. Each chair is 44" x 20" x 4".
- The floor of the compartment above the frame rails shall be extended to the interior edge of the door. The floor shall have a 2" vertical lip and a 1" return to increase strength.

SVI #799

November 9, 2010

Production Specifications

- Two (2) vertically mounted OnScene Solutions LED Nightstiks.
- The 12 volt electrical distribution panel shall be located in the streetside front lower compartment.

STREETSIDE COMPARTMENT - AHEAD OF REAR WHEELS (S2)

The interior useable compartment width shall be approximately 35.0" wide.

The compartment door opening shall be approximately 28.0" wide.

This compartment shall have a ROM roll-up door.

- The roll-up door slats and the door trim components shall be painted to match the single tone exterior color.
- The door shall be equipped with a CPI harsh environment mechanical type door ajar switch located inside compartment interior lower door track.
- A keyed cylinder lock shall be provided in the bottom portion of the roll-up door.
- One (1) nylon strap shall be provided to assist in closing the door. The strap shall be fastened to the left side of the lower inside door sill. The strap shall extend from the left side of the lower inside door sill to a footman loop attached to the center of the left side of the door frame.
- One (1) aluminum drip pan/door finish guard shall be provided with the rollup door.

A compartment threshold protection plate shall be installed on the bottom edge of the compartment door opening. The threshold protection shall be fabricated from an aluminum extrusion with an anodized exterior finish.

COMPARTMENT LAYOUT

- There shall be vertically mounted aluminum shelf-trac for specified component installation.
- There shall be one (1) 1,000 lbs. slide-out tray(s) with a SlideMaster base approximately 94" deep and as wide as the compartment layout or door opening permits, capable of extending out either side of the body located above the level of the chassis frame rails.

Special Incident Unit Production Specifications

- The floor of the compartment above the frame rails shall be extended to the interior edge of the door. The floor shall have a 2" vertical lip and a 1" return to increase strength.
- Two (2) vertically mounted OnScene Solutions LED Nightstiks.
- Two (2) 3-1/2" x 3-1/2" black plastic louvered vents shall be provided in the lower compartment.

STREETSIDE COMPARTMENT - ABOVE REAR WHEELS (S3)

The interior useable compartment width shall be approximately 64.0" wide.

The compartment door opening shall be approximately 57.0" wide.

This compartment shall have a ROM roll-up door.

- The roll-up door slats and the door trim components shall be painted to match the single tone exterior color.
- The door shall be equipped with a CPI harsh environment mechanical type door ajar switch located inside compartment interior lower door track.
- A keyed cylinder lock shall be provided in the bottom portion of the roll-up door.
- One (1) nylon strap shall be provided to assist in closing the door. The strap shall be fastened to the left side of the lower inside door sill. The strap shall extend from the left side of the lower inside door sill to a footman loop attached to the center of the left side of the door frame.
- One (1) aluminum drip pan/door finish guard shall be provided with the rollup door.

A compartment threshold protection plate shall be installed on the bottom edge of the compartment door opening. The threshold protection shall be fabricated from an aluminum extrusion with an anodized exterior finish.

- Two (2) vertically mounted OnScene Solutions LED Nightstiks.
- A Bauer model K-18.1-20-E3 air compressor with a recharging rate of 25.2 SCFM @ 6,000 PSI shall be provided, .

Special Incident Unit

Production Specifications

MOBILE BREATHING AIR COMPRESSOR

It is the intent of this specification to describe a modular, mobile breathing air system designed so that major components are built in individual modules. This concept shall allow for the greatest flexibility when installing the system in a truck body. All modules shall interconnect by means of a factory built wiring harness for ease of electrical installation. All pneumatic interconnections shall be clearly marked and coded for high pressure hose interconnection.

The unit shall be designed and built specifically for truck installations. The use of a standard stationary unit shall not be acceptable. The main compressor frame shall contain the compressor, electric motor, electric controls, gauges and monitors pertaining to the compressor operation, and four (4) air storage receivers. This skid must be designed for mounting across the body. The total skid must not exceed 88" L X 51" W X 43" H.

The system shall consist of a Bauer Model K-18.1-20-E3 air compressor constructed to the K-18.1 specification and shall be equipped with automatic priority filling, and an automatic cascade, thereby eliminating the need for manual selector valves on control panel. There shall be **NO EXCEPTION** to the air section of this bid.

COMPRESSOR REQUIREMENTS

The compressor shall be an air-cooled, oil lubricated, single acting, five stage reciprocating piston compressor. The cylinders shall be arranged in a dynamically balanced, diametrically opposed "X" configuration and located directly in the cooling fan's blast. The compressor's final stage shall incorporate a solid carbon steel, ringless, free floating piston which, by design, provides extended life over compressor's that use conventional ringed pistons in the final high pressure stage of compression. The crankcase shall be made of high strength, aluminum alloy casting for superior heat dissipating characteristics. The interstage coolers and aftercoolers shall be sized to maximize cooling efficiency. This precludes the use of energy wasting cool-down cycles. The compressor shall have an automatic condensate drain (A.C.D.) to purge the interstage separators and the final oil and moisture separator approximately every 15 minutes for approximately 3 seconds. The A.C.D. system shall also serve to unload the compressor on shutdown, providing for unloaded restarting. An external compressor oil drain shall be provided.

COMPRESSOR STANDARD FEATURES

- 5-micron inlet particulate filter
- Air-cooled intercoolers between each stage
- Air-cooled aftercooler
- Safety relief valve for each stage of compression
- Final oil and moisture separators
- V-belt driven fan wheel for cooling air
- Automatic condensate drain with combination velocity tank and separator muffler, drain solenoid, and timer.

The compressor module shall have the ability to compress ambient air to a final pressure of 6,000 PSI. System shall be designed, built and tested by a recognized breathing air compressor manufacture. Not a compressor packager or distributor.

Special Incident Unit Production Specifications

COMPRESSOR DATA

Maximum Operating Pressure	6,000 PSIG
Charging Rate	25.2 SCFM
Free Air	21.0 SCFM
Running Speed	1300 RPM
Number of Stages	5
Number of Cylinders	4
Cylinder Bore	
 1st Stage 	130 MM
2nd Stage	88/60 MM
 3rd Stage 	32 MM
 4th Stage 	18 MM
 5th Stage 	10 MM
Length of Stroke	50 MM
Crankcase Material	Aluminum Alloy
Crankcase Oil Capacity	1 Gallon
Lubrication	Pressure / Splash
Ambient Operating Range	32 ⁰ F to 105 ⁰ F

PRIME MOVER AND CONTROLS

The electric motor shall be of open drip-proof design (ODP), 20 Hp, 208/230/480 VAC, three (3) phase, 60 hertz, code G or better. The electric motor shall be mounted on a common vibration isolated inner frame. All electric controls and automatic shutdowns shall be controlled and monitored by a solid state CPU control unit. Motor starting shall be accomplished using a solid-state motor starter allowing for a Soft Start effect on the generator. The entire electrical control panel shall be UL approved (no exception). The electric motor shall get its power from the trucks on-board generator system. Compressor shall be supplied with an automatic condensate drain system, which will automatically drain the interstage and final oil/moisture separators at 15 minute intervals. All condensation shall be plumbed to a collection system for safe disposal.

Compressor unloading at shutdown shall be provided by the automatic drain system. Compressor intercoolers and aftercooler shall be of such a size that a cool down cycle will not be necessary.

Standard supply shall include:

- Open drip proof electric motor
- Solid-state Motor starter in NEMA 122 enclosure
- Inlet particulate filter
- Hi temp shutdown
- Lo oil pressure shutdown
- Final pressure switch
- Gauge panel
- Pressure maintaining valve

SVI #799

Production Specifications

- Discharge check valve
- Final oil/moisture separator
- Automatic cascade controls
- Automatic priority filling of storage

The compressor system shall be base mounted, frame enclosed, complete with belt guard. The frame shall also contain the air storage receivers, electrical control box, purification system, all compressor controls, and compressor gauges along with fault lamps. The compressor skid shall contain everything necessary with the exception of the filling station and remote compressor control panel.

PURIFICATION

Installed after the compressor and the final oil and water separator shall be a Bauer P5 air purification system with the patented Securus electronic purification monitor. The system shall be capable of processing 150,000 cu. ft. of breathing air between cartridge changes, based on a 70-degree inlet temperature, **NO EXCEPTION**. The purification system shall utilize vacuum packed, aluminum, replaceable filter elements with a minimum 3-year shelf life, **NO EXCEPTION**. The high pressure cartridge chambers shall have a working pressure of 6,000 PSIG with a 4 to 1 safety factor. They shall be designed to ASME code, tested and certified. A nametag shall be attached to each chamber giving the serial number, year of manufacture, volume of cylinder and test date, **NO EXCEPTION**. The design of the cartridge pressure chamber shall eliminate the possibility of operating the system without purification cartridges installed or with improperly installed cartridges. Thus, there shall be no means of filling the SCBA or storage vessels with impure air.

The Securus electronic purification monitor shall constantly monitor the quality of the air and visually indicate to the operator the status of the Securus cartridge. The Securus electronic sensor shall be built into the purification cartridge itself, **NO EXCEPTION**. Securus shall warn the operator, in advance of the impending expiration of the Securus purification cartridge. Securus shall automatically shut down the compressor if the operator fails to change the cartridge within the warning period. The electronic display monitor shall indicate compressor shut down by the Securus. The compressor shall not be able to restart until the used cartridge is replaced with a new one. Securus shall also discern an electrical contact failure or a printed circuit board failure and advise the operator of the type failure (Cartridge saturation or electrical failure). For absolute safety, no manual override shall be provided for the Securus electronic purification monitor.

A check valve shall be installed after the oil and moisture separator and before the purification system. A pressure maintaining valve (PMV) and check valve shall be installed after the purification system. The pressure-maintaining valve, set to open a 4,000 PSIG, shall serve two functions. One function of the PMV, in conjunction with the check valve, shall be to maintain a positive pressure in the purification system when the compressor shuts down. This shall prevent in leakage of unprocessed air into the purification system, which in turn, shall assist in maintaining purification efficiency. The second function of the PMV shall be to provide a means to quickly build system pressure. A bleed valve shall be provided to facilitate venting the purification system for cartridge maintenance.

The final processed air delivered by the purification system shall meet or surpass the standards for grade E as detailed in compressed gas association, Inc. pamphlets G-7-1976 compressed air for human respiration and G-7.1-1989 commodity specification for air.

Special Incident Unit

Production Specifications

The purification system shall be mounted directly on the compressor skid and in the path of the compressor cooling air. The purification shall be attached to the compressor skid and be able to swing, pull or tilt out of compartment to allow for change out of cartridges when installed with limited overhead space.

CARBON MONOXIDE MONITOR

The unit shall be equipped with an electronic carbon monoxide monitoring system. The system shall be designed to provide continuous monitoring of the carbon monoxide levels in the processed breathing air and shall shut the compressor system down if the monitor detects trace elements of carbon monoxide in excess of 10 ppm. Along with the system shutdown, the panel mounted fault indicator shall illuminate upon high CO. The instruments electronics shall be encased within a NEMA 4X polycarbonate enclosure. The case is corrosion resistant, positively pressurized by the compressor air supply line, and sealed except for a bleed hole to exhaust the compressor's processed air. The unit shall operate on system voltage. Along with a built-in flow meter, the system shall include an illuminated display and internal switches to check the system circuitry.

There shall be no calibration adjustments or controls as the system functions are managed by the system microprocessor. The chemical cell shall have a life expectancy of approximately two to three years with a calibration period recommendation of every 30 days. The system shall include two cylinders of test gas; 20 ppm carbon monoxide and zero test gas. Additional, a regulator shall be provided. Recalibration shall only require the following:

- Shut-off the compressor supply line. If the operator fails to close the valve a prompt on the monitor display shall indicate "Supply Off"
- Connect the test gas to the cal port connector on the instrument panel
- The monitor display will read "Cal Gas" and shall automatically initiate a 60-second countdown.

After the unit has automatically calibrated itself, a message shall appear "CO G Set" indicating that the CO adjustment has been set for 20 ppm.

TESTING AND PREPARATION FOR SHIPMENT

Prior to shipment, the manufacture shall test the complete system including the filling station as an assembled unit. A copy of the manufactures test report shall accompany the units shipment. An operators instruction and maintenance manual shall be supplied with the unit. The manuals shall be as detailed as possible, outlining all operation and maintenance instructions. The manual shall include detailed illustrated drawings along with a complete parts listing for all illustrated components. Warning and safety precautions shall be included in the manual. A manufactures nameplate shall be securely affixed to all major modules in a conspicuous location.

All equipment shall be new and of current tested design and manufacture. Used and/or refurbished equipment is unacceptable. The manufacturer of the high pressure compressor shall also be the manufacturer of the breathing air purification system and the cartridge monitoring system.

All standard features shall be factory installed and tested as a complete unit, and a copy of the factory test report shall accompany the unit at shipment. The compressor, purification system and storage system shall be rated for 6,000-PSI service, **NO EXCEPTION.**

Special Incident Unit Production Specifications

Air system shall be supplied with interconnecting wiring harness, manufactured by Bauer Compressors for ease of operation by truck builder.

All interconnecting lines from one module to the other shall be clearly marked and tagged for ease of installation by the truck builder.

- No boost system shall be provided with compressor skid.
- An Appleton inlet and base for providing shore power shall be provided for operating compressor system from in-house electrical building system. The matching Appleton plug shall be provided loose with delivered unit. Any building wiring shall be responsibility of Vista Fire Department.

Breathing air system shall be provided with a air storage module consisting of:

Four (4) 6,000 psi, ASME air storage cylinders shall be provided which comply with 49 CFR 178.37, "Specification 3AA and 3AAX seamless steel cylinders," or 29 CFR 1910.169, "Air receivers". Each cylinder shall be permanently stamped or identified in accordance with DOT or ASME regulations.

Each cylinder shall have a working pressure of 6,000 psi with a 3:1 safety factor and nominal capacity of 491 cu. ft. at 6,000 psi.

If the air storage was cascaded the system would be capable of filling approximately forty five (45) 45 cu.ft. 2,216 psi, or twenty nine (29) 45 cu.ft. 4,500 psi SCBA bottles (based on residual pressure of 500 Psig).

There shall be a label which reads, "HIGH PRESSURE - 6,000 psi BREATHING AIR".

The air tank manufacturer shall provide a copy of either the U.S. Department of Transportation (DOT) certificate Report of Inspection of Gas Cylinders or the ASME certificate Manufacturers Data Report for Pressure Vessels, and the certificate shall be delivered with the fire apparatus.

Relief values on transportable air tanks shall be of the ASME type on ASME cylinders and of the DOT type on DOT cylinders or equal for the rated pressure.

Valves installed on air tanks shall meet the requirements of the Compressed Gas Association regarding pressure and usage with compressed air.

If the installation utilizes cylinders that require periodic testing, a label shall be placed on or near the operators panel that provides the following:

- (1) The original cylinder test date stamped on the cylinders
- (2) The recommended testing interval
- (3) Five additional open spaces, appropriately labeled, for the user to enter actual retesting dates

The manufacturers test date (month and year) on each air tank shall be current within 12 months of the apparatus delivery date.

November 9, 2010

Production Specifications

 The NFPA required air quality test shall be completed by manufacturer prior to delivery. Complete results of test shall be provided to Vista Fire Department upon delivery.

Additionally the complete air system shall be tested by the final system installer after its installation on the fire apparatus is complete, using the testing procedure prescribed by the system manufacturer.

The following items shall be tested or verified on all air systems:

- Pressure test the system to its maximum operational pressure and check all connections made as a part of the installation for leaks with a leak detection device, which could include bubble fluid or electronic means.
- Verify that any leaks detected during the testing are repaired.
- Visually verify the relief valve set points and working pressure of the air tank.
- Verify the accuracy of all pressure gauges.
- Fully test the operational capabilities of the fill station as established by the manufacturer of the fill station.
- Seal all fill adapter connections to eliminate the introduction of contaminants prior to shipment.

If the system's air supply includes a compressor/ purification system, the following additional items shall be tested or verified:

- Confirm that the fluid levels are at the manufacturer's recommended levels, including the lubricant and coolant if the system is liquid cooled.
- Verify the expiration date of the purification filters and cartridges and that they have been installed as required by the manufacturer of the system.
- Operate the air compressor for a minimum of 2 hours or the period required to completely fill the onboard air tanks, whichever is longer.
- Confirm that all compressor interstage pressures are within guidelines as established by the compressor manufacturer.

Special Incident Unit

Production Specifications

STREETSIDE COMPARTMENT - REAR (S4)

The interior useable compartment width shall be approximately 56.0" wide.

The compartment door opening shall be approximately 49.0" wide.

This compartment shall have a ROM roll-up door.

- The roll-up door slats and the door trim components shall be painted to match the single tone exterior color.
- The door shall be equipped with a CPI harsh environment mechanical type door ajar switch located inside compartment interior lower door track.
- A keyed cylinder lock shall be provided in the bottom portion of the roll-up door.
- One (1) nylon strap shall be provided to assist in closing the door. The strap shall be fastened to the left side of the lower inside door sill. The strap shall extend from the left side of the lower inside door sill to a footman loop attached to the center of the left side of the door frame.
- One (1) aluminum drip pan/door finish guard shall be provided with the rollup door.

A compartment threshold protection plate shall be installed on the bottom edge of the compartment door opening. The threshold protection shall be fabricated from an aluminum extrusion with an anodized exterior finish.

COMPARTMENT LAYOUT

- There shall be vertically mounted aluminum shelf-trac for specified component installation.
- There shall be one (1) SCBA cylinder storage module for 6" OD (maximum) SCBA bottles. Each PVC tube shall be capable of storing two (2) cylinders, end-to-end. The module shall have an exterior shell fabricated from 1/8" (.125) 3003H-14 aluminum alloy sheet. The module shall have a 2" slope, front to back to prevent cylinders from sliding out. The SCBA cylinder storage tubing shall be fabricated from PVC pipe to prevent damage or abrasion to cylinders. In addition there shall be rubber matting provided in the base of each storage tube for bottle protection and to prevent slipping.



The SCBA cylinder module shall hold forty (40) individual 6" diameter PVC tubes with a capacity of (2) SCBA cylinders per tube.

 The floor of the compartment above the frame rails shall be extended to the interior edge of the door. The floor shall have a 2" vertical lip and a 1" return to increase strength.

SVI #799

November 9, 2010

Page 50 of 88

Vista Fire Department Special Incident Unit Production Specifications

- One (1) Hannay ECR1618-17-18 electric cable reel(s) capable of storing 200' of 10/3 electric cable. Reel(s) shall be designed to hold 110% of the capacity of cord length, with fully enclosed 45 amp, three (3) conductor collector rings. Reel(s) shall be mounted to channel structure that allows for side-to-side adjustment of reel position.
 - Power rewind control(s) shall be in a position where the operator can observe the rewinding operation and not be more than 72 in. (1830 mm) above the operator's standing position, and shall be marked with a label indicating its function.
 - A label shall be provided in a visible location adjacent to reel with following information: Current rating, Current type, Phase, Voltage, and Total cord length.
 - The cable reel shall equipped with 200' of 10/3 SEOW yellow cable, a molded plastic ball clamp, and a single heavy duty L5-30 twist-lock female plug at the end.
- One (1) Akron model EJB, cast aluminum electrical power distribution box with yellow powder coat painted finish shall be provided. The power distribution box shall meet all requirements described in NFPA 1901. The power distribution box shall include:
 - A 12" pigtail that terminates in an L5-30 configuration to match the cable on the cord reel. The outlet configuration shall include:
 - One (1) L5-15 single twist lock receptacle
 - One (1) L5-15 single twist lock receptacle
 - One (1) L5-15 single twist lock receptacle
 - One (1) L5-15 single twist lock receptacle
- One (1) Akron EJB treadplate vertical apparatus mounting bracket shall be provided.
- The fairlead roller shall be mounted directly to the reel.
- Two (2) vertically mounted OnScene Solutions LED Nightstiks.
- Two (2) 3-1/2" x 3-1/2" black plastic louvered vents shall be provided in the lower compartment.

Special Incident Unit

Production Specifications

CURBSIDE COMPARTMENT - FRONT (C1)

The interior useable compartment width shall be approximately 35.0" wide.

The compartment door opening shall be approximately 28.0" wide.

This compartment shall have a ROM roll-up door.

- The roll-up door slats and the door trim components shall be painted to match the single tone exterior color.
- The door shall be equipped with a CPI harsh environment mechanical type door ajar switch located inside compartment interior lower door track.
- A keyed cylinder lock shall be provided in the bottom portion of the roll-up door.
- One (1) nylon strap shall be provided to assist in closing the door. The strap shall be fastened to the left side of the lower inside door sill. The strap shall extend from the left side of the lower inside door sill to a footman loop attached to the center of the left side of the door frame.
- One (1) aluminum drip pan/door finish guard shall be provided with the rollup door.

A compartment threshold protection plate shall be installed on the bottom edge of the compartment door opening. The threshold protection shall be fabricated from an aluminum extrusion with an anodized exterior finish.

COMPARTMENT LAYOUT

- There shall be vertically mounted aluminum shelf-trac for specified component installation.
- There shall be two (2) adjustable shelf/shelves approximately 24" deep. Each shelf shall be fabricated from 3/16"
 (.188) aluminum 3003H-14 alloy smooth plate with a 2" vertical flange along the front and rear edges
- The floor of the compartment above the frame rails shall be extended to the interior edge of the door. The floor shall have a 2" vertical lip and a 1" return to increase strength.
- Two (2) vertically mounted OnScene Solutions LED Nightstiks.

Special Incident Unit

Production Specifications

CURBSIDE COMPARTMENT - AHEAD OF REAR WHEEL (C2)

The interior useable compartment width shall be approximately 35.0" wide.

The compartment door opening shall be approximately 28.0" wide.

This compartment shall have a ROM roll-up door.

- The roll-up door slats and the door trim components shall be painted to match the single tone exterior color.
- The door shall be equipped with a CPI harsh environment mechanical type door ajar switch located inside compartment interior lower door track.
- A keyed cylinder lock shall be provided in the bottom portion of the roll-up door.
- One (1) nylon strap shall be provided to assist in closing the door. The strap shall be fastened to the left side of the lower inside door sill. The strap shall extend from the left side of the lower inside door sill to a footman loop attached to the center of the left side of the door frame.
- One (1) aluminum drip pan/door finish guard shall be provided with the rollup door.

A compartment threshold protection plate shall be installed on the bottom edge of the compartment door opening. The threshold protection shall be fabricated from an aluminum extrusion with an anodized exterior finish.

COMPARTMENT LAYOUT

- There shall be vertically mounted aluminum shelf-trac for specified component installation.
- There shall be one (1) 1,000 lbs. slide-out tray(s) with a SlideMaster base approximately 94" deep, capable of
 extending out either side of the body located above the level of the chassis frame rails.
- The floor of the compartment above the frame rails shall be extended to the interior edge of the door. The floor shall have a 2" vertical lip and a 1" return to increase strength.
- Two (2) vertically mounted OnScene Solutions LED Nightstiks.
- There shall be one (1) 120 volt outlet(s) located in this compartment on the forward wall unless noted otherwise.

SVI #799

November 9, 2010

Page 53 of 88

Special Incident Unit

- **Production Specifications**
- The outlet receptacle(s) shall be 15 amp, straight-blade (NEMA 5-15R).
 - Outlet(s) shall be powered through the on-board generator system.
- Two (2) 3-1/2" x 3-1/2" black plastic louvered vents shall be provided in the lower compartment.

CURBSIDE COMPARTMENT - ABOVE REAR WHEEL (C3)

The interior useable compartment width shall be approximately 64.0" wide.

The compartment door opening shall be approximately 57.0" wide.

This compartment shall have a ROM roll-up door.

- The roll-up door slats and the door trim components shall be painted to match the single tone exterior color.
- The door shall be equipped with a CPI harsh environment mechanical type door ajar switch located inside compartment interior lower door track.
- A keyed cylinder lock shall be provided in the bottom portion of the roll-up door.
- One (1) nylon strap shall be provided to assist in closing the door. The strap shall be fastened to the left side of the lower inside door sill. The strap shall extend from the left side of the lower inside door sill to a footman loop attached to the center of the left side of the door frame.
- One (1) aluminum drip pan/door finish guard shall be provided with the rollup door.

A compartment threshold protection plate shall be installed on the bottom edge of the compartment door opening. The threshold protection shall be fabricated from an aluminum extrusion with an anodized exterior finish.

- Two (2) vertically mounted OnScene Solutions LED Nightstiks.
- One (1) 120/240 VAC load center.
- The generator gauge panel.

Special Incident Unit Production Specifications

- A 100 ampere, 240 VAC, single phase shore power receptacle shall be located in this compartment.
 - Bauer air compressor with air storage module.

CURBSIDE COMPARTMENT - REAR (C4)

The interior useable compartment width shall be approximately 56.0" wide.

The compartment door opening shall be approximately 49.0" wide.

This compartment shall have a ROM roll-up door.

- The roll-up door slats and the door trim components shall be painted to match the single tone exterior color.
- The door shall be equipped with a CPI harsh environment mechanical type door ajar switch located inside compartment interior lower door track.
- A keyed cylinder lock shall be provided in the bottom portion of the roll-up door.
- One (1) nylon strap shall be provided to assist in closing the door. The strap shall be fastened to the left side of the lower inside door sill. The strap shall extend from the left side of the lower inside door sill to a footman loop attached to the center of the left side of the door frame.
- One (1) aluminum drip pan/door finish guard shall be provided with the rollup door.

A compartment threshold protection plate shall be installed on the bottom edge of the compartment door opening. The threshold protection shall be fabricated from an aluminum extrusion with an anodized exterior finish.

COMPARTMENT LAYOUT

- There shall be vertically mounted aluminum shelf-trac for specified component installation.
- There shall be one (1) adjustable shelf/shelves approximately 16" deep. Each shelf shall be fabricated from 3/16"
 (.188) aluminum 3003H-14 alloy smooth plate with a 2" vertical flange along the front and rear edges
- There shall be one (1) adjustable shelf/shelves approximately 46" deep. Each shelf shall be fabricated from 3/16"
 (.188) aluminum 3003H-14 alloy smooth plate with a 2" vertical flange along the front and rear edges

Production Specifications

- There shall be one (1) 400 lbs. slide-out tray(s) approximately 24" deep and as wide as the compartment layout or door opening permits. The tray top shall be fabricated from 3/16" 3003 aluminum sheet with a 3" vertical lip and welded corners to form a box type tray surface. The sliding tracks shall extend 100% of the slide length. The tray assembly shall utilize a pneumatic cylinder mounted on underside to hold the tray in both the extended and closed positions.
- There shall be one (1) vertical compartment partition dividing the compartment into left and right sides.
- The floor of the compartment above the frame rails shall cover the area directly above the frame rails ONLY (nonextended floor).
- One (1) Hannay ECR1618-17-18 electric cable reel(s) capable of storing 200' of 10/3 electric cable. Reel(s) shall be designed to hold 110% of the capacity of cord length, with fully enclosed 45 amp, three (3) conductor collector rings. Reel(s) shall be mounted to channel structure that allows for side-to-side adjustment of reel position.
 - Power rewind control(s) shall be in a position where the operator can observe the rewinding operation and not be more than 72 in. (1830 mm) above the operator's standing position, and shall be marked with a label indicating its function.
 - A label shall be provided in a visible location adjacent to reel with following information: Current rating, Current type, Phase, Voltage, and Total cord length.
 - The cable reel shall equipped with 200' of 10/3 SEOW yellow cable, a molded plastic ball clamp, and a single heavy duty L5-30 twist-lock female plug at the end.
- One (1) Akron model EJB, cast aluminum electrical power distribution box with yellow powder coat painted finish shall be provided. The power distribution box shall meet all requirements described in NFPA 1901. The power distribution box shall include:
 - A 12" pigtail that terminates in an L5-30 configuration to match the cable on the cord reel. The outlet configuration shall include:
 - One (1) L5-15 single twist lock receptacle
 - One (1) L5-15 single twist lock receptacle
 - One (1) L5-15 single twist lock receptacle
 - One (1) L5-15 single twist lock receptacle
- One (1) Akron EJB treadplate vertical apparatus mounting bracket shall be provided.

November 9, 2010

Production Specifications

- The fairlead roller shall be mounted directly to the reel.
- Two (2) vertically mounted OnScene Solutions LED Nightstiks.
- One (1) 12 volt terminal block(s) installed to provide 12 VDC power for equipment supplied by the Vista Fire Department. Exact location shall be determined at the pre-construction meeting.
- The controls for the specified light tower(s).
- There shall be one (1) 120 volt outlet(s) located in this compartment on the forward wall unless noted otherwise.
- The outlet receptacle(s) shall be 20 amp, straight-blade (NEMA 5-20R).
 - Outlet(s) shall be powered through the on-board shore power system.
- Two (2) 3-1/2" x 3-1/2" black plastic louvered vents shall be provided in the lower compartment.

REAR COMPARTMENT - CENTER (RC1)

The rear center compartment shall be closed to both side rear compartments.

The rear center compartment shall start at the bottom of the body and shall be as high as the body permits. The frame shall extend at least 20" into the Rear Center Compartment to allow for the spring mounts.

The interior useable compartment width shall be approximately 56.0" wide.

The compartment door opening shall be approximately 49.0" wide.

This compartment shall have a ROM roll-up door.

- The roll-up door slats and the door trim components shall be painted to match the single tone exterior color.
- The door shall be equipped with a CPI harsh environment mechanical type door ajar switch located inside compartment interior lower door track.

Production Specifications

- A keyed cylinder lock shall be provided in the bottom portion of the roll-up door.
- One (1) nylon strap shall be provided to assist in closing the door. The strap shall be fastened to the left side of the lower inside door sill. The strap shall extend from the left side of the lower inside door sill to a footman loop attached to the center of the left side of the door frame.
- One (1) aluminum drip pan/door finish guard shall be provided with the rollup door.

A compartment threshold protection plate shall be installed on the bottom edge of the compartment door opening. The threshold protection shall be fabricated from an aluminum extrusion with an anodized exterior finish.

COMPARTMENT LAYOUT

- There shall be vertically mounted aluminum shelf-trac for specified component installation.
 - One (1) Hannay EFH1516-17-18 high pressure air hose reel(s) capable of storing 300' of high pressure air hose. The rewind button for each reel shall be located adjacent to the reel it controls.
 - The hose reel shall be equipped with 300' of 3/16", 6,000 psi, high pressure air hose. Molded plastic ball clamp shall be provided on the hose to stop it at the 4-way roller. The hose shall be Gray in color with a red color coded end.
 - The fitting on the end of the high pressure air hose reel shall be a CGA-347 high pressure fitting.
 - The air supply shall be from the mobile breathing air system. A reel shut-off valve, pressure regulator, and 0-6,000 psi gauge shall be provided at the air control panel.
 - The air supply shall be from the mobile breathing air system.
 - The fairlead roller shall be mounted directly to the reel.

Special Incident Unit

Production Specifications

ENGINE MONITORING DISPLAY

Fire Research TachPro model TPA300-A00 engine monitoring display kit shall be installed. The kit shall include a display module, audible alarm buzzer, memory module, and cables. The display module shall consolidate five (5) instruments into one device. The case shall be waterproof and have dimensions not to exceed 5" high by 5" wide by 3 1/4" deep. Inputs for engine information shall be from a SAE J1587 datalink, other inputs shall be 12 volts DC.

The following continuous displays shall be provided:

- Engine RPM; shown with four daylight bright LED digits more than 1/2" high, updated in 10 RPM increments
- Oil pressure; shown on an LED bar graph display in 10 psi increments
- Battery voltage; shown on an LED bar graph display
- Engine coolant temperature; shown on an LED bar graph display in 10 degree increments

The program shall have self-diagnostic capabilities. It shall monitor inputs and support audible and visual warning alarms for the following conditions:

- Low oil pressure alarms when engine oil pressure is less than 8 psi
- Low battery voltage alarms at 11.5 volts if engine is off or 11.8 volts if engine is running
- High battery voltage alarms at 15.6 volts
- High engine coolant temperature visual alarm at 220 °F and audio alarm at 230 °F

The display will be located within easy view and access near the fill stations.

RADIO SPEAKER PRE-WIRE

There will be a speaker wire run form the center cab dash console and terminate in the upper curbside side of the compartment. The will be a 6' service loop provided inside the compartment for the Fire Department to use for a future speaker installation.

- Two (2) vertically mounted OnScene Solutions LED Nightstiks.
 - One (1) Bauer model CFSII-3S (Containment Type), three (3) position filling station with compressor controls shall be provided with proper reinforcement for weight of fill station.
 - Filling operation shall be controlled with panel mounted on front of fill station. Electronic auto cascade manifold shalllocated on air compressor skid.
 - An air storage refill port shall be provided on the fill station.
 - One (1) high pressure air hose reel gauge(s), adjustable regulator(s), and fill control(s) shall be provided on front panel with outlet port located on the rear of the fill station.
 - The fill station fill whip(s) shall terminate in a high pressure 4,500 PSI, CGA-347 threaded SCBA connectors.

Special Incident Unit Production Specifications

PLASTIC FLOOR AND SHELF TILE

All compartment floors, shelves, and trays shall be covered with Dri-Dek plastic interlocking grating.

- The plastic floor tile shall be black.
- The plastic edge trim shall be black.

ROLL-OUT AWNING STREETSIDE

A heavy duty canopy awning shall be installed on the apparatus body. The awning shall be approximately 16' long with approximately 8' of extension length.

The awning shall be manufactured with satin finish extruded aluminum arms and braces. The arm channels shall utilize nylon bearings for a smooth operation. Awning shall lock while in stored position to prevent any rattling during travel. Awning shall lock and unlock with a remote brake control located on awning arm, not requiring the use of a wand.

The awning shall activate the door ajar warning system in the cab when not in the stowed position.

Features of the awning are:

- Awning hangers
- Built-in awning tie downs to hold awning steady in a breeze
- Alumaguard metal wrap cover
 - The awning fabric shall be red.

Production Specifications

ROLL-OUT AWNING CURBSIDE

A heavy duty canopy awning shall be installed on the apparatus body. The awning shall be approximately 16' long with approximately 8' of extension length.

The awning shall be manufactured with satin finish extruded aluminum arms and braces. The arm channels shall utilize nylon bearings for a smooth operation. Awning shall lock while in stored position to prevent any rattling during travel. Awning shall lock and unlock with a remote brake control located on awning arm, not requiring the use of a wand.

The awning shall activate the door ajar warning system in the cab when not in the stowed position.

Features of the awning are:

- Awning hangers
- Built-in awning tie downs to hold awning steady in a breeze
- Alumaguard metal wrap cover
 - The awning fabric shall be red.

REAR ROLL-OUT AWNING

The upper rear of truck shall be equipped with a Carefree Ltd Freedom III box awning. The box the awning is stored in is approximately 8' wide x 5-3/8" high x 3-3/8" deep and white in color. The awning shall be 8' wide with an extension length of 6-1/2'. The awning support arms are hidden inside the contour styled box.

The awning shall activate the door ajar warning system in the cab when not in the stowed position.

There are no latches or knobs to unlock. To extend awning, simply engage and turn the hand crank. Awning arms foldout of the lead bar once it's eye level and within easy reach. Arms adjust easily with flip lock controls. To close, just crank the opposite direction; the awning case locks shut automatically.

• The awning fabric shall be red.

ROOF ACCESS HATCH COVER

One (1) roof access hatch cover(s) shall be provided in the roof structure to allow for installation or removal of large equipment into the compartment area. The roof around the hatch opening shall be reinforced as necessary to prevent deflection in the roof area. The hatch cover shall overlap a 2" vertical lip on the body roof to prevent entry of moisture. It shall be sealed with automotive type rubber molding to provide a weather resistant seal.

The hatch cover shall have a lift-up type door hinged on the front side. The door shall be fabricated from 3/16" aluminum treadplate with a pair of pneumatic type cylinders mounted to hold the door in the open position. The door shall be mounted using a full length 14 gauge stainless steel hinge, with 1/4" stainless steel pin. A polyester barrier film gasket shall be placed between the stainless steel hinge and any dissimilar metals as necessary to prevent corrosion.

SVI #799

November 9, 2010

Special Incident Unit

Production Specifications

LOW VOLTAGE ELECTRICAL SYSTEM- 12 VDC

General

Any low voltage electrical systems or warning devices installed on the fire apparatus shall be appropriate for the mounting location and intended electrical load.

Where wire passes through sheet metal, grommets shall be used to protect wire and wire looms. Electrical connections shall be with double crimp water-tight heat shrink connectors.

All 12 VDC wiring running from front to back of vehicle body shall be run in full length electrical wiring raceway down each side of body.

Wiring

All electrical circuit feeder wiring supplied and installed by the fire apparatus manufacturer shall meet the requirements of NFPA Chapter 13.

The circuit feeder wire shall be stranded copper or copper alloy conductors of a gauge rated to carry 125 % of the maximum current for which the circuit is protected. Voltage drops in all wiring from the power source to the using device shall not exceed 10 %. The use of star washers for circuit ground connections shall not be permitted.

All circuits shall otherwise be wired in conformance with SAE J1292, Automobile, Truck, Truck-Tractor, Trailer, and Motor Coach Wiring.

Wiring and Wire Harness Construction

All insulated wire and cable shall conform to SAE J1127, Low Voltage Battery Cable, or SAE J1128, Low Voltage Primary Cable, type SXL, GXL, or TXL.

All conductors shall be constructed in accordance with SAE J1127 or SAE J1128, except where good engineering practice dictates special strand construction. Conductor materials and stranding, other than copper, shall be permitted if all applicable requirements for physical, electrical, and environmental conditions are met as dictated by the end application. Physical and dimensional values of conductor insulation shall be in conformance with the requirements of SAE J1127 or SAE J1128, except where good engineering practice dictates special conductor insulation. The overall covering of conductors shall be moisture-resistant loom or braid that has a minimum continuous rating of 194°F (90°C) except where good engineering practice dictates special consideration for loom installations exposed to higher temperature rating of 194°F (90°C), except where good engineering practice dictates special consideration for cable installations exposed to higher temperatures.

All wiring connections and terminations shall use a method that provides a positive mechanical and electrical connection. The wiring connections and terminations shall be installed in accordance with the device manufacturer's instructions. All ungrounded electrical terminals shall have protective covers or be in enclosures. Wire nut, insulation displacement, and insulation piercing connections shall not be used.

Wiring shall be restrained to prevent damage caused by chafing or ice buildup and protected against heat, liquid contaminants, or other environmental factors.

SVI #799

November 9, 2010

Special Incident Unit

Production Specifications

Wiring shall be uniquely identified at least every 2 ft (0.6 m) by color coding or permanent marking with a circuit function code. The identification shall reference a wiring diagram.

Circuits shall be provided with properly rated low voltage overcurrent protective devices. Such devices shall be readily accessible and protected against heat in excess of the overcurrent device's design range, mechanical damage, and water spray. Circuit protection shall be accomplished by utilizing fuses, circuit breakers, fusible links, or solid state equivalent devices.

If a mechanical-type device is used, it shall conform to one of the following SAE standards:

- 1) SAE J156, Fusible Links
- 2) SAE J553, Circuit Breakers
- 3) SAE J554, Electric Fuses (Cartridge Type)
- 4) SAE J1888, High Current Time Lag Electric Fuses
- 5) SAE J2077, Miniature Blade Type Electrical Fuses

Switches, relays, terminals, and connectors shall have a direct current (dc) rating of 125 % of maximum current for which the circuit is protected.

Power Supply

A 12 V or greater electrical alternator shall be provided. The alternator shall have a minimum output at idle to meet the minimum continuous electrical load of the vehicle, at 200°F (93°C) ambient temperature within the engine compartment, and shall be provided with full automatic regulation.

Minimum Continuous Electrical Load

The minimum continuous electrical load shall consist of the total amperage required to simultaneously operate the following in a stationary mode during emergency operations:

- 1) The propulsion engine and transmission
- 2) All legally required clearance and marker lights, headlights, and other electrical devices except windshield wipers and four-way hazard flashers
- 3) The radio(s) at a duty cycle of 10 percent transmit and 90 % receive (for calculation and testing purposes, a default value of 5 A continuous)
- 4) The lighting necessary to produce 2 fc (20 lx) of illumination on all walking surfaces on the apparatus and on the ground at all egress points onto and off the apparatus, 5 fc (50 lx) of illumination on all control and instrument panels, and 50 percent of the total compartment lighting loads
- 5) The minimum optical warning system, where the apparatus is blocking the right-of way
- 6) The continuous electrical current required to simultaneously operate any fire pumps, aerial devices, and hydraulic pumps
- 7) Other warning devices and electrical loads defined by the purchaser as critical to the mission of the apparatus

If the apparatus is equipped to tow a trailer, an additional 45 A shall be added to the minimum continuous electrical load to provide electrical power for the federally required clearance and marker lighting and the optical warning devices mounted on the trailer.

Vista Fire Department Special Incident Unit Production Specifications

The condition of the low voltage electrical system shall be monitored by a warning system that provides both an audible and a visual signal to persons on, in, or near the apparatus of an impending electrical system failure caused by the excessive discharge of the battery set.

The charge status of the battery shall be determined either by direct measurement of the battery charge or indirectly by monitoring the electrical system voltage.

If electrical system voltage is monitored, the alarm shall sound if the system voltage at the battery or at the master load disconnect switch drops below 11.8 V for 12 V nominal systems, 23.6 V for 24 V nominal systems, or 35.4 V for 42 V nominal systems for more than 120 seconds.

A voltmeter shall be mounted on the driver's instrument panel to allow direct observation of the system voltage.

Electromagnetic Interference

Electromagnetic interference suppression shall be provided, as required, to satisfy the radiation limits specified in SAE J551/1, *Performance Levels and Methods of Measurement of Electromagnetic Compatibility of Vehicles, Boats (up to 15 m), and Machines (16.6 Hz to 18 GHz).*

Wiring Diagram

A complete electrical wiring schematic of actual system shall be provided with finished apparatus. Similar or generic type electrical schematics shall NOT BE ACCEPTABLE.

Low Voltage Electrical System Performance Test

A low voltage electrical system test certification shall be provided with delivered apparatus.

12 VOLT DIAGNOSTIC RELAY CONTROL CENTER

The 12 volt power distribution shall be conveniently located with easy access for service. All relays and circuit breakers shall be plug-in type allowing for removal for repairs without necessitating soldering or tools. The sockets mounts for both the relays and circuit breakers shall be of a design that permits the use of standard automotive type components.

The 12 volt distribution panel shall utilize printed circuit boards mounted in high strength enclosure. Each printed circuit board shall be provided with twelve (12) heavy duty independent switching relays. Each relay shall have the ability to be configured either normally open or normally closed and be protected by a 20 amp automatic reset breaker. Each circuit will be provided with a LED for visual diagnostic.

Power distribution panel shall be located in apparatus body within a protected enclosure with removable or hinged cover.

Production Specifications

ROCKER SWITCH PANEL

The control of the 12 volt equipment installed on chassis and body shall be centrally located in the cab. The individual rocker style switches shall be located on a separate electrical panel, complete with backlit name tags describing function of each individual switch. The back lighting shall have two (2) levels of intensity, low level lights activated when the vehicle lights or ignition switch is turned "On", and high level lights activated when individual switch is turned "On". An internally lighted rocker switch shall be furnished to the left of specified emergency lighting switches, and identified as "MASTER EMERGENCY SWITCH".

Switch circuitry shall be on a printed circuit board. The lights shall be solid state type and have a 100,000 hour life span.

The rocker switch panel shall be located in the cab center console for all master switches and emergency light switches.

CAB CONSOLE

A center cab console shall be provided between the Driver's and Officer's seats. Console shall be as large as possible and fabricated of 1/8" smooth aluminum. A textured powder coat paint finish shall be provided for durability and finished appearance.

The rear portion of the console shall be provided with open top storage for notebooks or maps. Two (2) adjustable dividers shall be provided in the storage area. The forward portion of console shall be slanted for mounting of siren head, radio or 12 volt control panel, and etc, with easy access to both Driver and Officer.

The final design of console shall be determined by the Vista Fire Department at the pre-construction meeting.

Special Incident Unit Production Specifications

ELECTRICAL SYSTEM MANAGER

LOAD MANAGEMENT

If the total continuous electrical load exceeds the minimum continuous electrical output rating of the installed alternator(s), an automatic electrical load management system shall be required. The minimum continuous electrical loads shall not be subject to automatic load management.

The apparatus 12 volt electrical system shall be provided with a system manager for:

- Monitoring chassis battery voltage
- Shedding pre-determined electrical circuits
- Sequencing pre-determined electrical circuits
- Automatically controlling chassis engine fast-idle
- Monitor master switch and parking brake applications
- Automatically control warning light modes ("Calling-For" and "Blocking Right of Way")
- Provide low voltage alarm
- Programmable control circuits
- Remote system status indicator panel

System manager shall perform all electrical functions required by current NFPA 1901 Standards.

BATTERY MONITORING

The system manager shall monitor the vehicle battery voltage. When electrical loads exceed the alternator output and the voltage drops, the load manager shall start shutting down electrical outputs. The system shall shut down only as many outputs required to maintain the system voltage. A special indicator to show different states of the electrical system by flashing at rate proportional to the battery discharge.

LOAD SEQUENCING AND SHEDDING

The system shall be capable of sequentially switching and shedding 12 volt loads. The Master light switch starts the sequential switch when it is turned "On". Likewise turning the Master Switch "Off" will sequentially de-energize the loads.

Production Specifications

BATTERY SYSTEM

The battery connectors shall be heavy duty type with cables terminating in heat shrink loom. Heavy duty battery cables shall provide maximum power to the electrical system. Where required, the cables shall be shielded from exhaust tubing and the muffler. Large rubber grommets shall be provided where cables enter the battery compartment.

Batteries shall be of the high-cycle type. With the engine off, the battery system shall be able to provide the minimum continuous electrical load for 10 minutes without discharging more than 50 percent of the reserve capacity and then to restart the engine. The battery system cold cranking amps (CCA) rating shall meet or exceed the minimum CCA recommendations of the engine manufacturer. The batteries shall be mounted to prevent movement during fire apparatus operation and shall be protected against accumulations of road spray, snow, and road debris. The batteries shall be readily accessible for examination, testing, and maintenance.

A means shall be provided for jump-starting the engine if the batteries are not accessible without lifting the cab of a tiltcab apparatus.

Where an enclosed battery compartment is provided, it shall be ventilated to the exterior to prevent the buildup of heat and explosive fumes. The batteries shall be protected against vibration and temperatures that exceed the battery manufacturer's recommendation.

A master load disconnect switch shall be provided between the starter solenoid(s) and the remainder of the electrical loads on the apparatus. The starter solenoids shall be connected directly to the batteries.

Electronic control systems and similar devices shall be permitted to be otherwise connected if so specified by their manufacturer.

The alternator shall be wired directly to the batteries through the ammeter shunt(s), if one is provided, and not through the master load disconnect switch.

A green "battery on" pilot light that is visible from the driver's position shall be provided.

A sequential switching device shall be permitted to energize the optical warning devices and other high current devices required in minimum continuous electrical load, provided the switching device shall first energize the electrical devices required in minimum continuous electrical load within 5 seconds.

BATTERY SWITCH

One (1) battery "On/Off" switch in cab located within easy reach of Driver with green "BATTERY ON" pilot light that is visible from the driver's position shall be provided.

BATTERY SOLENOID

Battery switch shall consist of a minimum 200 ampere, constant duty solenoid to feed from positive side of battery.

Production Specifications

BATTERY CONDITIONER

One (1) Kussmaul (model 091-9-1000) "Pump-Plus 1000" single battery charger/air compressor, with 120 VAC input and 12 VDC, 15 amp output battery conditioner and a 12 volt, 80 psi air compressor shall be provided. This system shall monitor the condition of battery(s) and provide an electrical current at variable rates to overcome battery failure. The air compressor shall maintain air pressure in the chassis air brake system. A Kussmaul bar graph type indicator panel shall be provided for showing status of battery conditioner.

SHORE POWER INLET

One (1) Kussmaul 120 VAC, 20 amp Super Auto-Eject shore power inlet(s) shall be provided. The shore power connection shall automatically disengage from vehicle when chassis ignition is engaged.

The protective ground from the shoreline inlet shall be bonded to the vehicle frame.

• The outlet cover shall be yellow.

The shore power inlet shall be located on the streetside front of body, outboard of the cab.

ENGINE COMPARTMENT LIGHT

There shall be one (1) light(s) mounted in the engine compartment with integral switch with a light output of at least 20 candlepower (250 lumens). The engine compartment light(s) shall operate only when the master battery switch is turned "On".

CAB HAZARD WARNING LIGHT

A red flashing or rotating light, located in the driving compartment, shall be illuminated automatically whenever the vehicles parking brake is not fully engaged and any of the following conditions exist:

- Any passenger or equipment compartment door is not closed.
- Any ladder or equipment rack is not in the stowed position.
- Stabilizer system is not in its stowed position.
- Powered light tower is not stowed.
- Any other device permanently attached to the apparatus is open, extended, or deployed in a manner that is likely to cause damage to the apparatus if the apparatus is moved.

Special Incident Unit

Production Specifications

Compartments and equipment meeting all of the following conditions shall be permitted to be exempt from being wired to the hazard light:

- The volume is less than or equal to 4 ft3 (0.1 m3).
- The compartment has an opening less than or equal to 144 in.2 (92,900 mm2).
- The open door does not extend sideways beyond the mirrors or up above the top of the fire apparatus.
- All equipment in the compartment is restrained so that nothing can fall out if the door is open while the apparatus is moving.
- Manually raised pole lights with an extension of less than 5 ft (1.5 m).

The hazard light shall be labeled "DO NOT MOVE APPARATUS WHEN LIGHT IS ON".

An audible alarm shall be provided for the door ajar light.

BACK-UP ALARM

The body manufacturer shall furnish and install one (1) 107 dB(A) electronic back-up alarm. Back-up alarm to actuate automatically when the transmission gear selector is placed in reverse.

TAIL LIGHTS

Rear body tail lights shall be vertically mounted per Federal Motor Vehicle Safety Standards. The following lights shall be furnished:

- Two (2) Whelen amber LED 600 Series 60A00TAR turn signal lights
- Two (2) Whelen red LED 600 Series 60R00XRR stop/tail lights
- Two (2) Whelen Halogen 600 Series 60J000CR back-up lights with clear lens

Each of the lights above shall be mounted in a 6EFLANGE, chrome finish bezel.

MIDSHIP MARKER/TURN SIGNAL

Two (2) Whelen LED midship body clearance marker/turn signal lights (T0A00MAR) shall be installed. There shall be one (1) light on each side of the body, in the wheel well, ahead of the rear axle. Both lights shall have an amber lens and operate with the chassis clearance marker and turn signals.

MARKER LIGHTS

The apparatus body shall be equipped with all necessary clearance lights and reflectors in accordance with Federal Motor Vehicle Safety Standards (FMVSS) regulations. All body clearance lights shall be LED to reduce the need for maintenance and lower the amp draw. Clearance lights shall be wired to the headlight circuit of the chassis.

Special Incident Unit

Production Specifications

CAB STEP LIGHTS / GROUND LIGHTS

There shall be two (2) OnScene Solutions 9" LED Nightstik light(s) installed on the vehicle capable of providing illumination at a minimum level of 2 fc (20 lx) on ground areas within 30 in. (800 mm) of the edge of the vehicle in areas designed for personnel to climb onto or descend from the vehicle to the ground level.

Lighting designed to provide illumination on areas under the driver and crew riding area exits shall be switchable but activated automatically when the exit doors are opened.

LICENSE PLATE MOUNTING BRACKET

There shall be one (1) Cast Products aluminum license plate mounting with chrome shielded license plate light mounted on the rear of the body.

ELECTRONIC SIREN

One (1) Whelen model 295SLSA1 electronic siren control with standard hard wired microphone and user programmable siren tones shall be provided in cab. Siren to be installed in cab within easy access of Driver.

SIREN SPEAKER

Two (2) Cast Products Inc. model SA4311, 100 watt siren speaker shall be provided recessed in the front bumper, one (1) on the streetside and one (1) on the curbside.

SIDE SCENE LIGHTS

There shall be four (4) Whelen 810 series (10" x 8") surface mounted Opti-Scene halogen lights (810CA0ZR) provided on the upper body. Light quantity shall be divided equally per side. Each light will have an 8-32 degree lens and chrome flange.

Two (2) switches shall be provided, one (1) for the streetside scene lights, and one (1) for the curbside scene lights.

The lights shall be switched at the 12 volt control panel in the cab.

Special Incident Unit

Production Specifications

REAR SCENE LIGHTS

Two (2) Whelen 810 series (10" x 8") surface mounted Opti-Scene halogen lights (810CA0ZR) shall be provided on the upper rear body to light the work area immediately behind the vehicle to a level of at least 3 fc (30 lx) within a 10 ft \times 10 ft (3 m \times 3 m) square. Each light will have a 8-32 degree lens and chrome flange.

The lights shall be switched at the 12 volt control panel in the cab.

The rear scene lights shall also be activated when the apparatus is in reverse.

TRAFFIC DIRECTIONAL LIGHT

One (1) Whelen TAM85, 47" eight (8) Super LED light, traffic directional warning device with 30' control cable shall be located on upper rear body. The control head shall be located in the cab within easy reach of Driver.

• The traffic directional light shall be surface mounted on upper rear body.

SIGTRONICS INTERCOM SYSTEM

The following Sigtronics intercom system shall be provided and installed to improve the safety of firefighters and rescue professionals through enhanced communication and hearing protection. System shall have the following major components as minimum;

SIGTRONICS INTERCOM SYSTEM INSTALLATION

A Sigtronics US-45D intercom system will be installed on the apparatus. The system will include four (4) SE-48 headsets located at the following positions.

The above listed intercom system shall be installed in the following locations in the cab:

- Driver's Mounted above the left shoulder position on the outside wall.
- Officer's Mounted above the right shoulder position on the outside wall.
- Driver's side forward facing above the left shoulder on the rear wall or ceiling..
- Officer's side forward facing above the right shoulder on the rear wall or ceiling.

The driver and officer positions will have individual PTT radio transmit buttons located on the center console.

There will be two (2) radio interface module provided to connect to the Fire Department supplied mobile radio. The model number will be provided by the Department.

Production Specifications

WARNING LIGHT PACKAGE

Each apparatus shall have a system of optical warning devices that meets or exceeds the requirements of this section.

The optical warning system shall consist of an upper and a lower warning level. The requirements for each level shall be met by the warning devices in that particular level without consideration of the warning devices in the other level.

For the purposes of defining and measuring the required optical performance, the upper and lower warning levels shall be divided into four warning zones. The four zones shall be determined by lines drawn through the geometric center of the apparatus at 45 degrees to a line drawn lengthwise through the geometric center of the apparatus. The four zones shall be designated A, B, C, and D in a clockwise direction, with zone A to the front of the apparatus.

Each optical warning device shall be installed on the apparatus and connected to the apparatus's electrical system in accordance with the requirements of this standard and the requirements of the manufacturer of the device.

A master optical warning system switch that energizes all the optical warning devices shall be provided.

The optical warning system on the fire apparatus shall be capable of two separate signaling modes during emergency operations. One mode shall signal to drivers and pedestrians that the apparatus is responding to an emergency and is calling for the right-of-way. One mode shall signal that the apparatus is stopped and is blocking the right-of-way. The use of some or all of the same warning lights shall be permitted for both modes provided the other requirements of this chapter are met.

A switching system shall be provided that senses the position of the parking brake or the park position of an automatic transmission. When the master optical warning system switch is closed and the parking brake is released or the automatic transmission is not in park, the warning devices signaling the call for the right-of-way shall be energized. When the master optical warning system switch is closed and the parking brake is on or the automatic transmission is in park, the blockage of the right-of-way shall be energized. The system shall be permitted to have a method of modifying the two signaling modes.

The optical warning devices shall be constructed or arranged so as to avoid the projection of light, either directly or through mirrors, into any driving or crew compartment(s). The front optical warning devices shall be placed so as to maintain the maximum possible separation from the headlights.
Special Incident Unit

Production Specifications

UPPER LEVEL OPTICAL WARNING DEVICES

The upper-level optical warning devices shall be mounted as high and as close to the corner points of the apparatus as is practical to define the clearance lines of the apparatus. The upper-level optical warning devices shall not be mounted above the maximum height, specified by the device manufacturer.

ZONE A - FRONT WARNING LIGHT

There shall be one (1) Code 3 Defender Tricor model DF52ABYO long lightbar permanently mounted on cab roof.

The lightbar will include a Jtt-E795LP LED traffic emitter.

All clear lights shall shut down when the parking brake is set to comply with "Blocking" mode requirements as outlined in NFPA 1901.

The lightbar shall be separately switched at the 12 volt control panel in the cab.

The lightbar shall be supplied with one (1) steady burn red halogen light on drivers side to comply with California DOT requirements.

ZONES B AND D - SIDE WARNING LIGHTS

UPPER REAR CORNER WARNING LIGHTS

There shall be two (2) Code 3 model 85BZR (9" x 7") surface mount LED lights provided, one (1) each side. Each light shall have a red lens and chrome flange.

The lights shall be switched at the 12 volt control panel in the cab.

UPPER FORWARD CORNER WARNING LIGHTS

There shall be two (2) Code 3 model 85BZR (9" x 7") surface mount LED lights provided, one (1) each side. Each light shall have a red lens and chrome flange.

The lights shall be switched at the 12 volt control panel in the cab.

Special Incident Unit Production Specifications

ZONE C - REAR WARNING LIGHTS

Two (2) Code 3 model 85BZR (9" x 7") surface mount LED lights shall be provided in the rear upper zone of the body. There shall be one (1) light mounted on each side, near the corners of the body. Each light shall have a red lens and a chrome finished flange.

The lights shall be switched at the 12 volt control panel in the cab.

LOWER LEVEL OPTICAL WARNING DEVICES

To define the clearance lines of the apparatus, the optical center of the lower-level optical warning devices in the front of the vehicle shall be mounted on or forward of the front axle centerline and as close to the front corner points of the apparatus as is practical.

The optical center of the lower-level optical warning devices at the rear of the vehicle shall be mounted on or behind the rear axle centerline and as close to the rear corners of the apparatus as is practical. The optical center of any lower-level device shall be between 18 in. and 62 in. (460 mm and 1600 mm) above level ground for large apparatus, and 18 in. and 48 in. (460 mm and 1220 mm) above level ground for small apparatus.

A midship optical warning device shall be mounted right and the left sides of the apparatus if the distance between the front and rear lower-level optical devices exceeds 25 ft (7.6 m) at the optical center. Additional midship optical warning devices shall be required, where necessary, to maintain a horizontal distance between the centers of adjacent lower-level optical warning devices of 25 ft (7.6 m) or less. The optical center of any midship mounted optical warning device shall be between 18 in. and 62 in. (460 mm and 1600 mm) above level ground.

ZONE A - FRONT WARNING LIGHTS

There shall be two (2) Code 3 model 65BZR (6" x 4") surface mount LED lights provided, one (1) each side. Each light shall have a red lens and a chrome finished flange.

The lights shall be switched at the 12 volt control panel in the cab.

ZONES B AND D - CAB INTERSECTOR LIGHT (CAB FRONT CORNERS)

There shall be two (2) Code 3 model LXEX2F-RR surface mount LED lights provided, one (1) each side. Each light shall have a red lens and a chrome finished flange.

The lights shall be switched at the 12 volt control panel in the cab.

Special Incident Unit

Production Specifications

ZONES B AND D - BODY INTERSECTOR LIGHT (BODY WHEELWELL AREA)

There shall be two (2) Code 3 model LXEX1F-R surface mount LED lights provided, one (1) each side. Each light shall have a red lens and a chrome finished flange.

The lights shall be switched at the 12 volt control panel in the cab.

ZONES B AND D - BODY INTERSECTOR LIGHT (BODY REAR CORNERS)

There shall be two (2) Code 3 model 65BZR (6" x 4") surface mount LED lights provided, one (1) each side. Each light shall have a red lens and a chrome finished flange.

The lights shall be switched at the 12 volt control panel in the cab.

ZONE C - REAR WARNING LIGHTS (LOWER REAR CORNERS)

There shall be two (2) Code 3 model 65BZR (6" x 4") surface mount LED lights provided, one (1) each side. Each light shall have a red lens and a chrome finished flange.

The lights shall be switched at the 12 volt control panel in the cab.

Special Incident Unit Production Specifications

LINE VOLTAGE ELECTRICAL SYSTEM

LIMA PTO GENERATOR

The vehicle shall be equipped with a Lima MAC 360 series, single bearing generator system with a capacity of 40,000 watts at 120/240 VAC, 333/166 amps, 3-phase. Current frequency shall be stable at 60 hertz.

The transmission's PTO port and PTO, or the split shaft PTO, and all associated drive shaft components shall be rated to support the continuous duty torque requirements of the generator's continuous duty rating as stated on the power source nameplate.

Where the generator is driven by the chassis engine and transmission through a split shaft PTO, the driving compartment speedometer shall register when the generator drive system is engaged.

Where the generator is driven by the chassis engine and transmission through a split shaft PTO and a chassis transmission retarder is furnished, it shall be automatically disengaged for generator operations.

The direct drive generator shall be mounted so that it does not change the ramp breakover angle, angle of departure, or angle of approach as defined by other components, and it shall not extend into the ground clearance area.

The direct drive generator shall be mounted away from exhaust and muffler areas or provided with a heat shield to reduce operating temperatures in the generator area.

GENERATOR ENGAGEMENT

A "Generator Engaged" indicator shall be provided in the driving compartment to indicate that the generator shift has been successfully completed.

An "OK to Operate Generator" indicator shall be provided in the driving compartment to indicate that the generator is engaged (if not always engaged), the transmission is in the proper gear (if required, automatic transmissions only), and the parking brake is engaged (if applicable).

An interlock system shall be provided to prevent advancement of the engine speed in the driving compartment or at any operator's panel unless the parking brake is engaged, and the transmission is in neutral or the output of the transmission is correctly connected to a pump or generator instead of the drive wheels.

WARRANTY PERIOD

Provided such goods are operated and maintained in accordance with Marathon's written instructions, Marathon warrants that the MAC series PTO generators shall be free from defects in material and workmanship for a period of two (2) years or one thousand (1,000) hours, whichever comes first, from the date of delivery to the first purchaser.

Production Specifications

GENERATOR MOUNTING

The generator shall be mounted between the chassis frame rails. The generator mounting brackets shall be fabricated using heavy duty steel tubing, or structural channel. The generator mounting shall be bolted and removable so that the generator can be lowered from under apparatus for service, if necessary. The generator case shall not extend below the bottom edge of the apparatus body.

POWER-TAKE-OFF GENERATOR DRIVE

There shall be a "Hot Shift" power-take-off (PTO) installed on the transmission PTO opening of the chassis. The "Hot Shift" PTO is provided to allow the engagement of the PTO at higher engine RPM speeds. The PTO output shall be connected to the generator through hollow tube type driveline with heavy duty universals.

The engagement of the PTO shall be in the chassis cab with a rocker switch and red pilot light to note engagement of the PTO.

The power supply to the PTO engagement control shall be wired to the parking brake and a neutral position transmission switch to prevent engagement unless the vehicle is stopped and transmission has been placed in neutral.

The installation of the engine, transmission, driven accessories (power takeoffs (PTO), etc.) shall meet the engine and transmission manufacturers' installation recommendations for the service intended.

Model part number shall be Chelsea 277XMFJPB5XD, 129% Ratio.

ENGINE SPEED CONTROL

An engine speed auxiliary control device (high idle switch or throttle) shall be installed to maintain a stable cycle output from generator when the apparatus is parked.

An interlock shall prevent the operation of the engine speed auxiliary control device unless the parking brake is engaged and the transmission is in neutral or park, or the parking brake is engaged and the engine is disengaged from the drive wheels.

The engine shall be prevented from regulating its own engine speed during times when engine rpm control is critical for consistent apparatus functions such as generator, water pump, or aerial operation.

Production Specifications

GENERATOR MONITORING PANEL

To properly monitor the generator performance and load demand during operation, the generator installation shall be equipped with a full instrument monitor panel.

- Generator frequency in hertz
- Line voltage, phase to neutral or phase to phase, in volts
- Line current in amperes

Individual line current and voltage shall be displayed at the push of a button.

The program shall support the accumulation of elapsed generator hours. Generator hours shall be displayed.

LOADCENTER

The loadcenter shall be a Cutler Hammer, BR Series, specifically designed for protection and distribution of 120/240 volt AC, such as lighting and small motor branch circuits. The loadcenter enclosure shall be made of 16 gauge galvanized sheet steel. The galvanized coating provides corrosion protection and as such does not require paint. All trims used on the BR Loadcenter shall be chromate sealed and finished with electro disposition epoxy paint (ASA61) which exceeds requirements for outdoor and indoor applications. A combination surface/flush cover with integral door shall be supplied.

The loadcenter shall be UL / CSA listed, **NO EXCEPTIONS** will be allowed.

OUTLETS AND CIRCUITS

The generator and or shore power shall supply the 120/240 volt electrical equipment and outlets outlined below. Proper circuit protection shall be installed as noted:

Two (2) 120 volt exterior outlets, one (1) each side near rear wheel well area.

• The outlet receptacle(s) shall be 15 amp, twist-lock (NEMA L5-15R).

Two (2) 120 volt exterior outlets, one (1) each side rear of body.

• The outlet receptacle(s) shall be 15 amp, twist-lock (NEMA L5-15R).

Special Incident Unit Production Specifications

LINE VOLTAGE ELECTRICAL SYSTEM

GENERAL REQUIREMENTS

Stability

Any fixed line voltage power source producing alternating current (ac) shall produce electric power at 60 Hz, ±3 Hz when producing power at all levels between no load and full rated power. Any fixed line voltage power source shall produce electric power at the rated voltage ±10 percent when producing power at all levels between no load and full rated power.

The maximum voltage supplied to portable equipment shall not exceed 275 volts to ground. Higher voltage shall be permitted only when used to operate fixed wired, permanently mounted equipment on the apparatus.

Conformance with National Electrical Code

All components, equipment, and installation procedures shall conform to *NFPA 70*, *National Electrical Code*, except where superseded by the requirements of this chapter. Where the requirements of this chapter differ from those in *NFPA 70*, the requirements in this chapter shall apply.

Where available, line voltage electrical system equipment and materials included on the apparatus shall be listed and used only in the manner for which they have been listed. All equipment and materials shall be installed in accordance with the manufacturer's instructions.

Location Ratings

Any equipment used in a dry location shall be listed for dry locations. Any equipment used in a wet location shall be listed for wet locations.

Any equipment, except a PTO-driven generator, used in an underbody or under chassis location that is subject to road spray shall be either listed as Type 4 or mounted in an enclosure that is listed as Type 4.

If a PTO-driven generator is located in an underbody or under chassis location, the installation shall include a shield to prevent road spray from splashing directly on the generator.

Grounding

Grounding shall be in accordance with 250.34(A) and 250.34(B) of NFPA 70. Ungrounded systems shall not be used.

Only stranded or braided copper conductors shall be used for grounding and bonding.

The grounded current-carrying conductor (neutral) shall be insulated from the equipment-grounding conductors and from the equipment enclosures and other grounded parts.

Special Incident Unit

Production Specifications

The neutral conductor shall be colored white or gray in accordance with 200.6, "Means of Identifying Grounded Conductors," of *NFPA 70*.

Any bonding screws, straps, or buses in the distribution panel board or in other system components between the neutral and equipment-grounding conductor shall be removed and discarded.

Bonding

The neutral conductor of the power source shall be bonded to the vehicle frame. The neutral bonding connection shall occur only at the power source. In addition to the bonding required for the low voltage return current, each body and each driving or crew compartment enclosure shall be bonded to the vehicle frame by a copper conductor.

The conductor shall have a minimum amperage rating, as defined in 310.15, "Ampacities for Conductors Rated 0–2000 Volts," of *NFPA 70*, of 115 percent of the rated amperage on the power source specification label.

A single conductor that is sized to meet the low voltage and line voltage requirements shall be permitted to be used.

Ground Fault Circuit Interrupters

In special service vehicles incorporating a lavatory, sink, toilet, shower, or tub, 120 V, 15 or 20 A receptacles within 6 ft (1.8 m) of these fixtures shall have ground fault circuit interrupter (GFCI) protection. GFCIs integrated into outlets or circuit breakers or as stand-alone devices shall be permitted to be used in situations.

Power Source General Requirements

All power source system mechanical and electrical components shall be sized to support the continuous duty nameplate rating of the power source.

The power source shall be shielded from contamination that would prevent the power source from operating within its design specifications.

Power Source Rating

For power sources of 8 kW or larger, the power source manufacturer shall declare the continuous duty rating that the power source can provide when installed on fire apparatus according to the manufacturer's instructions and run at 120°F (49°C) air intake temperature at 2000 ft (600 m) above sea level.

The rating on the power source specification label shall not exceed the declared rating from the power source manufacturer.

Access shall be provided to permit both routine maintenance and removal of the power source for major servicing. The power source shall be located such that neither it nor its mounting brackets interfere with the routine maintenance of the fire apparatus.

Special Incident Unit

Production Specifications

Instrumentation

If the power source is rated at less than 3 kW, a "Power On" indicator shall be provided. If the power source is rated at 3 kW or more but less than 8 kW, a voltmeter shall be provided.

If the power source is rated at 8 kW or more, the following instrumentation shall be provided at an operator's panel:

- 1) Voltmeter
- 2) Current meters for each ungrounded leg
- 3) Frequency (Hz) meter
- 4) Power source hour meter

The instrumentation shall be permanently mounted at an operator's panel. The instruments shall be located in a plane facing the operator. Gauges, switches, or other instruments on this panel shall each have a label to indicate their function.

The instruments and other line voltage equipment and controls shall be protected from mechanical damage and not obstructed by tool mounting or equipment storage.

An instruction plate(s) that provides the operator with the essential power source operating instructions, including the power-up and power-down sequence, shall be permanently attached to the apparatus at any point where such operations can take place.

Operation

Provisions shall be made for placing the generator drive system in operation using controls and switches that are identified and within convenient reach of the operator.

Where the generator is driven by the chassis engine and engine compression brakes or engine exhaust brakes are furnished, they shall be automatically disengaged for generator operations.

Any control device used in the generator system power train between the engine and the generator shall be equipped with a means to prevent unintentional movement of the control device from its set position in the power generation mode.

If there is permanent wiring on the apparatus that is designed to be connected to the power source, a power source specification label that is permanently attached to the apparatus at the operator's control station shall provide the operator with the information required.

The power source, at any load, shall not produce a noise level that exceeds 90 dBA in any driving compartment, crew compartment, or onboard command area with windows and doors closed or at any operator's station on the apparatus.

Power Supply Assembly

The conductors used in the power supply assembly between the output terminals of the power source and the main over current protection device shall not exceed 12 ft (4 m) in length.

All power supply assembly conductors, including neutral and grounding conductors, shall have an equivalent amperage rating and shall be sized to carry not less than 115 percent of the amperage of the nameplate current rating of the power source.

SVI #799

November 9, 2010

Page 81 of 88

Production Specifications

If the power supply assembly connects to the vibrating part of a generator (not a connection on the base), the conductors shall be flexible cord or other fine-stranded conductors enclosed in metallic or nonmetallic liquid tight flexible conduit rated for wet locations and temperatures not less than 194°F (90°C).

Overcurrent Protection

Manually resettable over current devices shall be installed to protect the line voltage electrical system components.

Power Source Protection

A main over current protection device shall be provided that is either incorporated in the power source or connected to the power source by a power supply assembly.

The size of the main over current protection device shall not exceed 100 percent of the rated amperage stated on the power source specification label or the rating of the next larger available size over current protection device, where so recommended by the power source manufacturer.

If the main over current protection device is subject to road spray, the unit shall be housed in a Type 4-rated enclosure.

Branch Circuit Overcurrent Protection

Over current protection devices shall be provided for each individual circuit and shall be sized at not less than 15 amps in accordance with 240.4, "Protection of Conductors," of *NFPA 70*.

Any panel board shall have a main breaker where the panel has six or more individual branch circuits or the power source is rated 8 kW or larger.

Each over current protection device shall be marked with a label to identify the function of the circuit it protects.

Dedicated circuits shall be provided for any large appliance or device (air conditioning units, large motors, etc.) that requires 60 percent or more of the rated capacity of the circuit to which it is connected, and that circuit shall serve no other purpose.

Panelboards

All fixed power sources shall be hardwired to a permanently mounted panel board unless one of the following conditions exists:

- 1) All line voltage power connections are made through receptacles on the power source and the receptacles are protected by integrated over current devices.
- 2) Only one circuit is hardwired to the power source, which is protected by an integrated over current device.

The panel shall be visible and located so that there is unimpeded access to the panel board controls. All panel boards shall be designed for use in their intended location. The panel(s) shall be protected from mechanical damage, tool mounting, and equipment storage.

Where the power source is 120/240 V and 120 V loads are connected, the apparatus manufacturer or line voltage system installer shall consider load balancing to the extent that it is possible.

Production Specifications

Wiring Methods

Fixed wiring systems shall be limited to the following:

- 1) Metallic or nonmetallic liquid tight flexible conduit rated at temperatures not less than 194°F (90°C) with stranded copper wire rated for wet locations and temperatures not less than 194°F (90°C)
- Type SOW, SOOW, SEOW, or SEOOW flexible cord rated at 600 V and at temperatures not less than 194°F (90°C)

Electrical cord or conduit shall not be attached to chassis suspension components, water or fuel lines, air or air brake lines, fire pump piping, hydraulic lines, exhaust system components, or low voltage wiring and shall be arranged as follows:

- 1) Separated by a minimum distance of 12 in. (300 mm) from exhaust piping or shielded from such piping
- 2) Separated from fuel lines by a minimum distance of 6 in. (150 mm)

A means shall be provided to allow "flexing" between the driving and crew compartment, the body, and other areas or equipment whose movement would stress the wiring.

Electrical cord or conduit shall be supported within 6 in. (150 mm) of any junction box and at a minimum of every 24 in. (600 mm) of run.

Supports shall be made of nonmetallic materials or of corrosion-resistant or corrosion-protected metal. All supports shall be of a design that does not cut or abrade the conduit or cord and shall be mechanically fastened to the apparatus.

Only fittings and components listed for the type of cord or conduit being installed shall be used.

Splices shall be made only in a listed junction box.

Additional Requirements for Flexible Cord Installations

Where flexible cord is used in any location where it could be damaged, it shall be protected by installation in conduit, enclosures, or guards.

Where flexible cord penetrates a metal surface, rubber or plastic grommets or bushings shall be installed.

Wiring Identification

Each line voltage circuit originating from the main panel board shall be identified.

The wire or circuit identification either shall reference a wiring diagram or wire list or shall indicate the final termination point of the circuit.

Where prewiring for future power sources or devices exists, the un-terminated ends shall be marked with a label showing their wire size and intended function.

Production Specifications

Wiring System Components

Only stranded copper conductors with an insulation rated for temperatures of at least 194°F (90°C) and wet locations shall be used. Conductors in flexible cord shall be sized in accordance with Table 400.5(A) of *NFPA 70*. Conductors used in conduit shall be sized in accordance with 310.15, "Ampacities for Conductors Rated 0–2000 Volts," of *NFPA 70*. Aluminum or copper-clad aluminum conductors shall not be used.

All boxes shall conform to and be mounted in accordance with Article 314, "Outlet, Device, Pull, and Junction Boxes; Conduit Bodies; Fittings; and Manholes," of *NFPA 70*. All boxes shall be accessible using ordinary hand tools. Boxes shall not be permitted behind welded or pop-riveted panels.

The maximum number of conductors permitted in any box shall be in accordance with 314.16, "Number of Conductors in Outlet, Device, and Junction Boxes, and Conduit Bodies," of *NFPA 70*.

All wiring connections and terminations shall provide a positive mechanical and electrical connection. Connectors shall be installed in accordance with the manufacturer's instructions. Wire nuts or insulation displacement and insulation piercing connectors shall not be used.

Each switch shall indicate the position of its contact points (i.e., open or closed) and shall be rated for the continuous operation of the load being controlled. All switches shall be marked with a label indicating the function of the switch. Circuit breakers used as switches shall be "switch rated" (SWD) or better. Switches shall simultaneously open all associated line voltage conductors. Switching of the neutral conductor alone shall not be permitted.

Line voltage circuits controlled by low voltage circuits shall be wired through properly rated relays in listed enclosures that control all non-grounded current-carrying conductors.

Receptacles and Inlet Devices

Wet and Dry Locations

All wet location receptacle outlets and inlet devices, including those on hardwired, remote power distribution boxes, shall be of the grounding type, provided with a wet location cover, and installed in accordance with Section 406.8, "Receptacles in Damp or Wet Locations," of *NFPA 70*.

All receptacles located in a wet location shall be not less than 24 in. (600 mm) from the ground. Receptacles on off road fire apparatus shall be a minimum of 30 in. (750 mm) from the ground. All receptacles located in a dry location shall be of the grounding type and shall be at least 12 in. (300 mm) above the interior floor height. No receptacle shall be installed in a face-up position.

The face of any wet location receptacle shall be installed in a plane from vertical to not more than 45 degrees off vertical.

Production Specifications

Receptacle Label

Each receptacle shall be marked with a label indicating the nominal line voltage (120 volts or 240 volts) and the current rating in amps of the circuit. If the receptacle is DC or other than single phase, that information shall also be marked on the label.

All receptacles and electrical inlet devices shall be listed to UL 498, *Standard for Safety Attachment Plugs and Receptacles*, or other recognized performance standards.

Receptacles used for DC voltages shall be rated for DC service.

Wiring Schematics

An "As-Built" Wiring diagrams for line voltage systems shall be provided to include the following information;

- Pictorial representations of circuit logic for all electrical components and wiring
- Circuit identification
- Connector pin identification
- Zone location of electrical components
- Safety interlocks
- Alternator-battery power distribution circuits
- Input/output assignment sheets or equivalent circuit logic implemented in multiplexing systems

120/240 VAC SCENE LIGHTING

SIDE UPPER RECESSED SCENE LIGHTS

Four (4) Fire Research Focus, model FCA200-S50, recessed light(s) shall be installed. They shall be equally divided between the curbside and streetside. The housing shall incorporate internal heat-dissipating fins and have cutout dimensions not to exceed 2" deep by 4 1/4" high by 9 3/4" wide. The lamphead shall protrude no more than 1 1/2" from the housing flange. Wiring shall extend from the bottom of the recessed housing.

The lamp head shall have one (1) quartz halogen 500 watt 120 volt bulb. The bulb shall draw 4.2 amps and generate 10,500 lumens. The bulb shall be accessible through the front. The lamphead shall direct 50 percent of the light onto the action area while providing 50 percent to illuminate the working area. Lamphead and housing shall be powder coated white. The floodlight shall be UL listed as a scene light for fire service use.

Scene lights shall be provided with a lens or a means for preventing damage from water spray and shall be listed for wet location usage.

• The above lights shall be controlled by two (2) switch(es) in the lower portion of compartment S1.

Special Incident Unit

Production Specifications

REAR TRIPOD SCENE LIGHTS

Two (2) Fire Research Focus; model FCA656-S75, tripod telescopic light shall be provided. The light pole shall be anodized aluminum and have a knurled twist lock mechanism to secure the extension pole in position. The extension pole shall extend 28" and rotate 360 degrees. An internal brake shall slow the extension pole during lowering. The outer pole shall be a grooved aluminum extrusion. The folding legs shall be anodized aluminum tubing with plastic endcaps. The fully extended tripod system shall exceed a height of 8' and be less than 5' when collapsed. Wiring shall extend from the pole bottom with a 4' retractile cord.

The lamphead shall have one (1) quartz halogen 750 watt 120 volt bulb. The bulb shall draw 6.3 amps and generate 19,600 lumens. The bulb shall be accessible through the front. The lamphead shall direct 50 percent of the light onto the action area while providing 50 percent to illuminate the working area. The lamphead angle of elevation shall be adjustable at a pivot in the mounting arm and the position locked with a round knurled locking knob. The lamphead shall incorporate heat-dissipating fins and be no more than 5" deep by 3 3/8" high by 10" wide. Scene lights shall be provided with a lens or a means for preventing damage from water spray and shall be listed for wet location usage.

A weatherproof on-off toggle switch shall be mounted in a switchbox below the lamphead. A wire guard shall be furnished to protect the lamphead glass.

A tripod truck mount bracket set shall be provided for each light. Each set shall include a lower base plate, an upper lock with a quick release spring loaded locking pin, and a shim set.

COMMAND LIGHT TOWER WITH METAL HALIDE BULB OPTION AND LOWER BANK BACKLIGHT

The apparatus shall be equipped with two (2) all-electric Command Light(s). The unit shall not require tapping into vehicle braking system to be operated, eliminating the chance for vehicle brake problems. Hydraulic or pneumatic type floodlights are not acceptable alternatives to the all-electric light tower specified.

The light bank shall have four (4) weatherproof, 1,500 watt, 240-volt quartz halogen lights and (2) two 1,000 watt metal halide lights. Light heads shall be mounted in three (3) pairs, giving two (2) vertical lines of three (3) when the lights are in the upright position. Power for light bank shall be transmitted through power collecting rings thus allowing 360+ degree continuous rotation in either direction

The lower pair of light heads shall be capable of being rotated about a horizontal axis to provide light down on the vehicle or to the opposite side of the vehicle.

Positioning of the light bank shall be accomplished with maintenance free, heavy-duty 12-volt linear actuators.

The Command Light assembly shall be all aluminum construction, with stainless steel shafts and bronze bushings for long life and low maintenance.

Light tower shall be controlled with a hand-held umbilical line remote control. Command Light to be equipped with "Auto-Park" automatic nesting feature.

Production Specifications

Command Light controls shall feature:

- Three (3) switches, one (1) for each light bank
- One (1) light bank rotation switch
- One (1) switch for elevating lower stage
- One (1) switch for elevating upper stage
- One (1) light to indicate when light bank is out of roof nest position
- One (1) light to indicate when light bank is rotated to proper nest position

Command Light controls shall be located per itemized compartment list.

The light tower shall have a full extension of 10' - 6" from mounted position and shall extend from nested position to full upright in 20 seconds.

The overall size of the nested light tower shall be approximately 48" wide x 73" long x 15.1/4" high, and weigh approximately 350 lbs.

A flashing warning light shall be provided in cab, indicating when a light tower is not in nested position as required by NFPA 1901. The operational envelope of the mast shall be automatically illuminated whenever the mast assembly is being raised, lowered, or rotated as required by NFPA 1901.

The Command Light shall be covered by a five (5) year limited warranty from defects in materials and workmanship. An operation, maintenance, and parts manual shall be provided with the delivered apparatus.

The specified light tower(s) shall be recessed into the roof of the apparatus body. The recessed area shall have two (2) water drain holes (in opposite corners) with flexible 1" diameter hose routed to the area below the body.

EQUIPMENT PAYLOAD WEIGHT ALLOWANCE

In compliance with NFPA 1901 standards, the special service vehicle shall be designed for an equipment loading allowance of 4,000 lbs. of Vista Fire Department provided loose equipment based on a 30,001 - 40,000 pound gross vehicle weight rating.

Production Specifications

EQUIPMENT

The following equipment shall be furnished with the completed special service vehicle;

- One (1) container of assorted stainless steel nuts, bolts, screws and washers used in the construction of the apparatus shall be provided with the completed apparatus.
- There shall be two (2) NFPA approved folding aluminum wheel chocks provided for 44" diameter tires that together will hold the vehicle when loaded to its GVWR or GCWR, on a hard surface with a 20 % grade, with the transmission in neutral, and the parking brake released.
 - The wheel chock(s) shall be mounted behind rear wheels, below body on streetside.

REMAINING NFPA MINOR EQUIPMENT BY PURCHASER

All other minor equipment not specified above, but required by NFPA 1901 before the unit is placed in service shall be supplied and mounted by Vista Fire Department.



Change Order #1

Customer: Vista Fire Department

Date: 12/28/2010 SVI #: **799**

Change Order Description

Misc Changes

Based on the following changes/modifications to the specification, (15) days will be added to the quoted delivery time.

Review each item for change description and price. Check the appropriate response for each item, sign and date form at bottom, and fax completed form to SVI Trucks at (970) 667-3343.

Prices shown above are per unit (ea truck) prices unless otherwise noted. All work to be performed under same terms and conditions as specified in original contract unless otherwise stipulated. Change Order documentation will override specification in cases of conflicting documentation.

Item #	Spec Section	Item Description	Unit Cost (In US \$)	Ch Acc	ange epted?
1	LOW VOLTAGE ELECTRICAL SYSTEM 12 VDC	Change the low voltage electrical system to a Weldon V-MUX multiplexed 12 volt electrical system with color Vista III display, multiplex downloader, and diagnostic kit ILO 121 volt diagnostic relay control center with switch panel and Class 1 TSM as originally specified	\$0.00	~	YES
2	PRIME MOVER AND CONTROLS	Clarify the specification to show that the apparatus will be wired for 240V operation to match the existing wiring already in place at the fire department.	\$0.00	1	YES
		Change Order Total:	\$0.00		

Authorized Customer Signature:	Date Accepted:
Authorized Dealer Signature:	Date Accepted:
Authorized SVI Signature:	Date Accepted:

This change order is not valid until signed by all parties listed above.









