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SPECIFICATION

**STEEL BALLAST CAR**  
2,400 Cubic Foot Capacity

Specification 160005AS

February 1, 2011

## Specification 160005AS

### Steel Ballast Car

2,400 Cubic Foot Capacity

<i>GENERAL DIMENSIONS</i>	
<b>LENGTH</b>	
Truck Centers	36' 1-1/2"
Inside Length	41' 8-1/2"
Over Strikers	46' 0-1/2"
Over Pulling Face of Free Couplers	48' 8"
<b>WIDTH</b>	
Inside Width	9' 10-3/4"
Over Top Chords - Extreme	10' 8"
<b>HEIGHT</b>	
Rail to Top of Side Top Chord	12' 0-1/2"
Over Diverter Angles - Extreme	12' 2"
<b>FLOOR SLOPE</b>	
End – Intermediate – Longitudinal Hoods	45 Degrees
<b>CAPACITY / WEIGHTS</b>	
Cubic Capacity - Level	2,400 Cubic Feet
Cubic Capacity - 10" Average Heap	2,744 Cubic Feet
Lightweight (Estimated)	64,700 Pounds
Gross Rail Load	286,000 Pounds
Load Limit	221,300 Pounds
Center of Gravity Above Rail - 10" Average Heap - 286,000# Gross Rail Load	94.2" Estimated

## *GENERAL DESCRIPTION*

Completed car is to be an open top ballast car designed with:

- All Steel Construction
- Riveted Side Construction
- Through Center Sill
- Four Ballast Outlet Gates

The car design is based on a 286,000 pound gross rail load and the AAR Plate "B" clearance diagram and bottom dump service operating on track meeting the requirements of the U. S. Department of Transportation Federal Railroad Administration 49CFR, Part 213.

This car was designed to meet or exceed all applicable requirements of the Association of American Railroads and the U.S. Department of Transportation Federal Railroad Administration on the date the specification was written.

*Shaded items denote parts or designs that are patented or patent pending.*

## *TRUCKS*

CAPACITY	Designed for 286,000# Gross Rail Load – AAR M-976 Compliant
WHEELS	H36 Class "C", One Wear
WHEEL BASE	5' 10"
AXLES	AAR Standard for 6-1/2" x 9" NFL Roller Bearings, Grade "F", with 1/8" oversized wheel seats
ROLLER BEARINGS	NFL 6-1/2" x 9" Labyrinth Design Seals
BRAKE SHOES	2" Thick Composition
BRAKE BEAMS	#24 Unit Type
BRAKE BEAM WEAR LINERS	Metallic
LEVERS	Drop Forged
BOTTOM ROD	Through Bolster
SIDE BEARINGS	Constant Contact – Long Travel
BOLSTERS	Light Weight Design Grade "B+" Center Plate Bowl 16" Diameter x 1-3/4" Deep Above Horizontal Bowl Liner
SIDE FRAMES	Light Weight Design Grade "B+" Column Wear Plate Applied by Grade 8 Bolts, no welding
SNUBBING	ASF Motion Control
SUPPLEMENTAL SNUBBING	Not Required
SPRING GROUP	7 AAR D-5 OC 5 AAR D-5 IC
ADAPTERS	ASF/Pennsy Adapter Plus
PEDESTAL FRAME KEYS	Included
PEDESTAL ROOF LINERS	Included with Adapter Plus
CENTER BOWL LINER	ASF – Welded-in Stainless Steel Vertical Wear Ring with Drop-in Manganese Horizontal Wear Liner.

## *BRAKE EQUIPMENT*

TYPE	Foundation brake rigging, utilizing a single-sided pipe bracket no SCTD, a fabricated reservoir, a 10" x 12" brake cylinder, and AAR approved brake hoses. A end hose support is included. A cylinder pressure port is included with empty load.
SLACK ADJUSTER	Double-acting, mounted below the center sill.
HAND BRAKE	AAR 1993 approved, mounted low with long release handle.
SAFETY APPLIANCES	Crossover Platform on both ends.
EMPTY / LOAD DEVICE	Side Frame activated with 50% proportioning valve.
AIR & HAND BRAKE RATIO	Per AAR S-401 specification, latest revision.

## MATERIAL SPECIFICATION

Material used in the construction of the car and not specifically mentioned will meet the following minimum specifications:

Steel Bars	ASTM A-36
Steel Plates	ASTM A-36
Steel Shapes	ASTM A-36
Steel Strips	ASTM A-1011, Gr. 33
Steel Sheets	ASTM A-1011, Gr. 33
Brake Pipe & Fittings	ASTM A-53
Safety Appliances	ASTM A-576, Gr.C-1015 to C-1020

#/CAR	PART DESCRIPTION	MATERIAL SIZE	MATERIAL SPECIFICATION
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### DRAFT AREA

2	Draft Sill Casting	Lightweight Design arranged for Type "E" couplers with integral hardened center plate.	AAR M-201, Gr. "B+"
2	Coupler & Yoke	Type "E", Steel Knuckle Pins	AAR M-211, Gr. "E"
2	Uncoupling Device	Standard for Type "E"	Manufacturer's Standard
2	Coupler Carrier Wear Plates		Manganese Steel
2	Draft Gear	For 24-5/8" Pocket	AAR M-901-E

### UNDERFRAME

1	Center Sill	1/2" One Piece, Roll Formed Section	ASTM A-1018 HSLAS, Gr. 70, Class 2
2	Bolster Web	3/8" Plate	ASTM A-572, Gr. 50, Type 2
2	Bolster Shear Plate	1/2" Plate	ASTM A-572, Gr. 50, Type 2
4	Bolster to Center Sill Gusset	5/16" Plate	ASTM A-572, Gr. 50
8	Side Bearing Web	5/16" Plate	ASTM A-572, Gr. 50, Type 2
4	Side Bearing Tie Plate	3/8" Plate	ASTM A-572, Gr. 50, Type 2
4	Side Bearing Face Plate	3/8" Plate	ASTM A-572, Gr. 50, Type 2
2	Center Sill to Draft Sill Tie Plate	1/2" Plate	ASTM A-1018 HSLAS, Gr. 70, Class 2
1	Crossbearer Web	3/8" Plate	ASTM A-572, Gr. 50, Type 2
1	Crossbearer Top Cap	1/4" Plate	ASTM A-36
4	Crossbearer to Center Sill Gusset	5/16" Plate	ASTM A-572, Gr. 50
2	Crossbearer to Side Connection	3/8" Plate	ASTM A-572, Gr. 50, Type 2

#/CAR	PART DESCRIPTION	MATERIAL SIZE	MATERIAL SPECIFICATION
<i><b>SIDE ASSEMBLY</b></i>			
2	Center Side Sheet	1/4" Plate	ASTM A-36
2	Side Sill	5" x 3-1/2" x 3/8" Angle	ASTM A-529, Gr. 50, Type 2
26	Side Stake	1/4" Pressed Hat Shaped	ASTM A-572, Gr. 50
4	Side Sheet – End	1/4" Plate	ASTM A-36
2	Side Top Chord	3/8" Thick Rolled Formed P Section	ASTM A-1018 HSLAS, Gr. 50, Class 2, 0.20% Minimum Copper
<i><b>ENDS</b></i>			
2	End Letter Board	1/4" Plate	ASTM A-36
2	End Top Chord	3/8" Rolled Channel	ASTM A-572, Gr. 50, Type 2
4	End Ladder Stile	3" x 2" x 3/8" Angle	ASTM A-36
2	End Sill	5" x 3-1/2" x 5/16" Angle	ASTM A-572, Gr. 50
4	End Post	5/16" Plate	ASTM A-1018 HSLAS, Gr. 50, Class 2
4	Corner Post	3-1/2" x 3-1/2" x 5/16" Angle	ASTM A-572, Gr. 50
<i><b>FLOORS</b></i>			
2	End Floor	3/8" Plate	ASTM A-572, Gr. 50, Type 2
2	Intermediate End Floor	3/8" Plate	ASTM A-36
2	Crossridge Sheet	3/8" Plate	ASTM A-36
2	Lower Crossridge Sheet	3/8" Plate	ASTM A-36
2	Longitudinal Hood	3/8" Plate	ASTM A-572 Gr. 50, Type 2
4	Outside Slope Sheet	3/8" Plate	ASTM A-36
4	Inside Slope Sheets	3/8" Plate	ASTM A-36
<i><b>DOOR OPERATING MECHANISM</b></i>			
SUPPLIER	W. H. Miner Enterprises, Incorporated – Ballast Gate only		
OPERATION	Manual		

#/CAR	PART DESCRIPTION	MATERIAL SIZE	MATERIAL SPECIFICATION
<i>MISCELLANEOUS PARTS</i>			
2	AEI Tag	Applied with a Fabricated Bracket	AAR Approved Std Temperature
2	Route Card Holder	Fabricated Bracket	AAR Approved
1	Brake Badge Plate	Etched in Black Enamel	0.032" Stainless Steel
1	Defect Card Holder	Fabricated Bracket	AAR Approved
All	Grab Irons / Ladders / Handholds	Under 36" Long - 3/4" Diameter Over 36" Long - 1" Diameter	ASTM A-576, Gr. C-1015 to C-1020
4	Sill Step	2" x 1/2" Bar	ASTM A-576, Gr. C-1015 to C-1020
4	Sill Step Tread	2" x 1/2" Bar	ASTM A-576, Gr. C-1015 to C-1020
2	Locking Kingpin	1-3/4" Diameter	ASTM A-36
1	Handbrake Mounting Plate	3/8" Plate	ASTM A-36
4	Sub Side Sill	5" x 3-1/2" x 5/16" Angle	ASTM A-572, Gr. 50
3	Corner Diagonal Brace	3-1/2" x 3-1/2" x 5/16" Angle	ASTM A-572, Gr. 50
3	Bottom Corner Connection	3/8" Plate	ASTM A-36
1	Bottom Corner Connection and Valve Support	1/2" Plate	ASTM A-36
4	Corner Caps	Drop Forged	AISI C-1040/1045
4	Side Ladder Stile	3" x 2" x 3/8" Angle	ASTM A-36
4	Roping Staple	1-1/2" Diameter Round	ASTM A-36
4	Ballast Diverter Angles	2" x 2" x 1/4" Angle	ASTM A-36

## ***CLEANING & PAINTING***

CLEANING-UNDERFRAME	Exterior of underframe to be prepared for painting per specification SSPC-SP7, Brush-off Blast Cleaning.
CLEANING-EXTERIOR	Exterior of car body to be prepared for painting per specification SSPC-SP7, Brush-off Blast Cleaning.
LAPS & JOINTS	One coat of water based primer or finish paint to be applied to all fastened steel-to-steel surfaces prior to assembly. One coat of weldable primer to be applied to underside of Diverter Angle and top surface of Top Chord.
INACCESSIBLE SURFACES	With the exception of Side Top Chords, all steel surfaces, including draft gear pocket, which will be inaccessible after assembly, to be given one coat of water based primer unless it interferes with welding. Inside of Side Top Chords to be given one coat of water based primer or finish paint approximately 4 feet in from both ends.
CAR BODY & UNDERFRAME	Exterior of car to receive direct-to-metal water based finish paint, totaling 3 mils minimum dry film thickness.
TRUCKS	To receive one, light bodied, coat of black paint at the foundry, touch-up if necessary.
DELINEATORS	The sides to consist of yellow retroreflective sheeting to meet the requirements of FRA 49CFR Part 224. The end of car will receive two additional reflective delineators applied to each end.
LETTERING	White lettering on dark or black surfaces. Black lettering on lighter contrasting colors. All lettering except those placed on castings to be decals. Lettering placed on castings will be stenciled.
MISCELLANEOUS	Ends of release rod, retainer valve handle, end cock handles, ends of cut lever handles, cut out cock pull rod handle and top three links of hand brake chain to be painted white. Hand brake to be painted with black finish paint from hand brake manufacturer.

## ***FASTENERS***

Location and type of fasteners to be FreightCar America's option.

## ***WELDING***

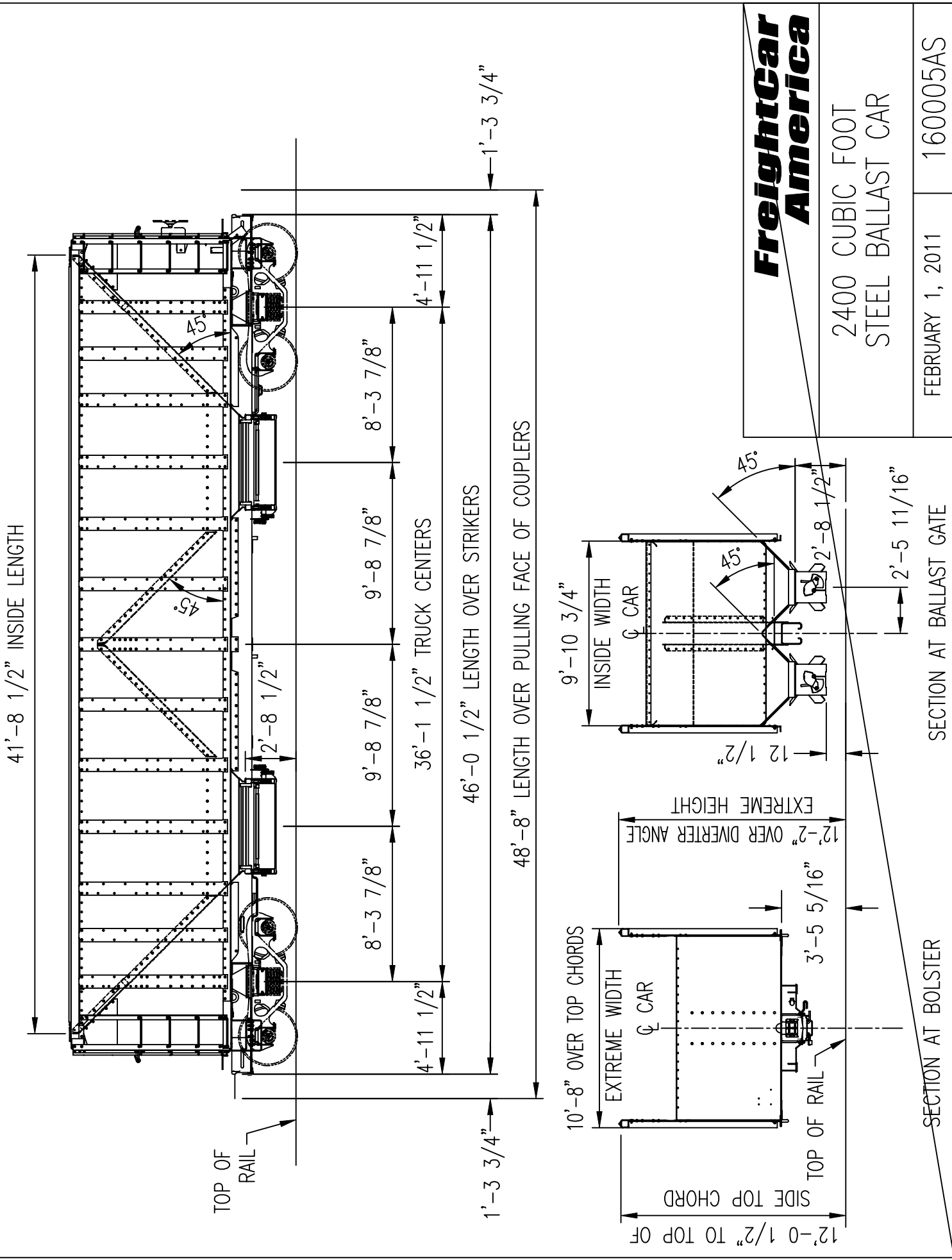
All welds to be in compliance with AWS D15.1, Class 2, unless otherwise specified.

## ***ORDER COMPLETION DATA***

FCA shall furnish the following upon completion of the order:

- 1 Set of sample car photos in JPEG format
- 1 "As Built" Specification in PDF Format

41'-8 1/2" INSIDE LENGTH



**FreightCar  
America**

2400 CUBIC FOOT  
STEEL BALLAST CAR

FEBRUARY 1, 2011      160005AS



**FreightCar America, Inc.**  
**Specialty Component List 160005 AS Revision A**

**March 2, 2011**

<b>&gt;DRAFT&lt;</b>	<b>APPROVED VENDORS</b>
DRAFT SILL CASTINGS – TYPE “E” STUFFED W/STEEL COUPLER CARRIERS	ASF
COUPLERS – TYPE “E”	ASF
W/ STEEL COUPLER KNUCKLE PINS	
UN-COUPLING DEVICE SINGLE OPERATING	STANRAIL
DRAFT GEAR – AAR M-901-E	MINER
<b>&gt;FORGING&lt;</b>	
CORNER CAPS	SCHAEFER
<b>&gt;AIR BRAKE&lt;</b>	
AIR BRAKE VALVES – DB 60 CONTROL VALVE, SINGLE SIDED PIPE BRAKET, NO S.C.T.D.	NYAB
AIR BRAKE CYLINDER 10”x12” ABU Brake Cylinder with side entry	NYAB
RETAINING VALVE - Ball Type	NYAB
ANGLECOCK 1-1/4”	NYAB
EMPTY & LOAD DEVICE – SIDE FRAME MOUNTED – 50% PROPORTIONING	ELLCON
BRAKE LEVERS, JAWS, EYES, CLEVIS – FORGED	SCHAFER
BRAKE / END HOSES – AAR APPROVED	STRATO
BRAKE REGULATOR - AAR GROUP E - SLACK ADJUSTER	NYAB
HAND BRAKE – 1700-1- LONG HANDLE	NYAB
<b>&gt;MISCELLANEOUS&lt;</b>	
END PLATFORMS / Morton design	MORTON
A E I TAGS – STANDARD TEMP AT5118 / Type 4 Latest Model	AMTECH
<b>&gt;WHEELS SETS&lt;</b>	
BEARINGS – 6-1/2” X 9”, Efficiency Plus	BRENCO
WHEELS – H36 CLASS “C”, ONE WEAR	STANDARD STEEL
AXLES – 6-1/2” X 9” GR “F”	STANDARD STEEL
AXLE MOUNTING – 6-1/2” X 9” GR “F”	AAR APPROVED SUPPLIER
BEARING ADAPTERS – PENNSY ADAPTER PLUS-NARROW PEDESTAL TYPE	ASF
SHEAR PAD – PENNSY	ASF
<b>&gt;TRUCKS&lt;</b>	
PEDESTAL FRAME KEYS	SCHAEFER
BRAKE BEAMS - #24	MINER
BRAKE SHOES – 2” COMP.	RAILROAD FRICTION
BRAKE SHOE KEYS FORGED	STANDARD CAR TRUCK
SPRINGS D5, 28 & 20 GROUP	ASF
PEDESTAL ROOF LINERS	NA
BRAKE BEAM WEAR LINERS – METALLIC	MINER
CENTER BOWL LINERS – Stainless Steel Vertical wear liner with Manganese Horizontal	CLIFTON
BOLSTERS – GR. “B+” IN LIGHT WEIGHT SECTION – Motion Control with locking center pin	ASF
SIDE FRAMES – GR “B+” IN LT. WT. Motion Control	ASF
SNUBBERS – “Inner springs to be arranged in an X pattern”	ASF
SIDE BEARING - CONSTANT CONTACT, LONG TRAVEL TCC-IV-60 LT	MINER
<b>&gt;DOOR SYSTEM&lt;</b>	
MINER GATES -	MINER
<b>&gt;FINISH&lt;</b>	
PAINT – FINISH – CAR BODY and Underframe– DIRECT TO METAL PAINT, Mineral Brown	DAVIS FROST
ROAD MARKS-DECAL-STANDARD TYPE	DYNAGRAPHICS, JAC