

Program for Advanced Vehicle Evaluation



at AUBURN UNIVERSITY

1600 Lee Road 151
Opelika, AL 36804
www.pavetrack.com
334-844-6857

Reference Information Describing the NCAT Fleet

Prepared for

NTRCI
2360 Cherahala Boulevard
Knoxville, TN 37932

January 6, 2011

Prepared by:



R. Buzz Powell, PhD, PE
Research Engineer



Bob Rosenthal
Technical Consultant

FREIGHTLINER LLC
4747 N CHANNEL AVE, PO BOX 3849, PORTLAND, OR 97208-3849

PAGE 1

EHICLE ID: 2FZHAZCK97AY16448
VEH S/N: Y16448

Information Sterling Tractors (2)

SOLD TO: LONG-LEWIS, INCORPORATED
DBA LONG LEWIS STERLING-WESTERN STAR OF BESSEMER
P.O. BOX 989
BESSEMER, AL 35021

DESCRIPTION

PRICE LEVEL INFORMATION

STERLING PRL-22J (EFF:1/10/06)

BASE MODEL

STERLING LT9500 CHASSIS
2007 MODEL YEAR SPECIFIED
STERLING LEVEL II WARRANTY
SET BACK AXLE - TRUCK
STRAIGHT TRUCK PROVISION
LH PRIMARY STEERING LOCATION

VEHICLE ID: 2FZHAZCK97AY16448
VEH S/N: Y16448

ENGINE

DDC 60-14.0L 470/490 HP @ 1800 RPM, 2100
GOV RPM, C/P 1650 LB/FT @ 1200 RPM
2004 EPA/CARB EMISSION CERTIFICATION
ENGINE AFTERTREATMENT DEVICE, NO AFTERTR
EATMENT WIRING

ENGINE EQUIPMENT

ENGINE MOUNTED OIL CHECK AND FILL
DUAL AIR INTAKE THROUGH LH/RH SIDES WITH
2 STAGE DONALDSON CLEANER WITH SAFETY E
LEMENT FIREWALL MOUNTED
DR 12V 145 AMP 24-SI QUADRAMOUNT PAD ALT
ERNATOR
(3) ALLIANCE MODEL 1131, GROUP 31, 12 VO
LT MAINTENANCE FREE 2850 CCA THREADED ST
UD BATTERIES
BATTERY BOX FRAME MOUNTED
SINGLE BATTERY BOX FRAME MOUNTED LH SIDE
BACK OF CAB
FRAME GROUND RETURN FOR BATTERY CABLES
NON-POLISHED BATTERY BOX COVER
BATTERY SHUTOFF SWITCH AT BATTERY BOX
POSITIVE AND NEGATIVE POSTS FOR JUMPSTAR
T MOUNTED NEAR/ON BATTERY TRAY/BOX
EATON FULLER 15-1/2" DAMPENED CERAMIC SO
LO CLUTCH, 7 SPRING, ADJUSTMENT FREE, SO
FT-RATE
TORQUE LIMITING CLUTCH BRAKE
ZERK FITTING WITH EXTENSION HOSE AT
CLUTCH RELEASE BEARING
BW MODEL BA-921 15.9 CFM SINGLE CYLINDER
COMPRESSOR WITH SAFETY VALVE
STANDARD AIR COMPRESSOR GOVERNOR
TEFLON COMPRESSOR DISCHARGE LINE
ELECTRONIC ENGINE INTEGRAL SHUTDOWN
PROTECTION SYSTEM
JACOBS COMPRESSION BRAKE
STATIONARY CAB MOUNTED SINGLE RH VERTICA
L EXHAUST ROTATED FORWARD
FLEXIBLE STAINLESS STEEL EXHAUST PIPING
10' 06" (126"+0/-5") EXHAUST SYSTEM HEIG
HT
CHROME UPPER STACK(S), ELBOW(S) AND CLAM
P(S)

VEHICLE ID: 2FZHAZCK97AY16448
VEH S/N: Y16448

VERTICAL CURVED TAILPIPE(S), RH (SINGLE
EXHAUST) OR RH AND LH SIDES (DUAL EXHAUS
T)
STAINLESS STEEL AFTERTREATMENT DEVICE/MU
FFLER/TAILPIPE SHIELD
HORTON DRIVEMASTER ON/OFF FAN DRIVE
AUTOMATIC FAN CONTROL WITH DASH SWITCH A
ND INDICATOR LIGHT
OMIT FUEL FILTER(S)
FULL FLOW OIL FILTER
PENRAY NEED RELEASE WATER FILTER
1400 SQUARE INCH RADIATOR
REMOTE MOUNTED SURGE TANK
ANTIFREEZE TO -34F, ETHYLENE GLYCOL PRE-
CHARGED SCA HEAVY DUTY COOLANT
GATES BLUE STRIPE COOLANT HOSES
CONSTANT TENSION HOSE CLAMPS FOR COOLANT
HOSES
RADIATOR DRAINCOCK
PHILLIPS-TEMRO 1500 WATT/115 VOLT BLOCK
HEATER
CHROME ENGINE HEATER RECEPTACLE MOUNTED
UNDER LH DOOR
ALUMINUM FLYWHEEL HOUSING
DELCO 12V 39MT HD STARTER

TRANSMISSION & EQUIPMENT

EATON FULLER RTO-16908LL TRANSMISSION
CAST IRON CLUTCH HOUSING
AIR TO OIL TRANSMISSION COOLER
MAGNETIC PLUGS, ENGINE DRAIN, TRANSMISSI
ON FILL AND DRAIN, AXLE(S) FILL AND DRAI
N
PAINTED SHIFT LEVER, SOLID LINKAGE
TRANSMISSION REAR SUPPORT LEAF SPRING

FRONT AXLE, SUSPENSION & EQUIPMENT

MFS-20-133A FL1 20,000# SINGLE FRONT
AXLE
MERITOR 16.5X6 Q+ CAST SPIDER CAM FRONT
BRAKES, DOUBLE ANCHOR, FABRICATED SHOES
NON-ASBESTOS FRONT BRAKE LINING
CONMET CAST IRON FRONT BRAKE DRUMS
FRONT BRAKE DUST SHIELDS
CHICAGO RAWHIDE SCOTSEAL PLUS XL FRONT O
IL SEALS

VEHICLE ID: 2FZHAZCK97AY16448
VEH S/N: Y16448

STEMCO ALUMINUM VENTED FRONT HUB CAPS WITH WINDOW AND CENTER AND SIDE PLUGS - OIL
L
STANDARD SPINDLE NUTS FOR ALL AXLES
GUNITE AUTOMATIC FRONT SLACK ADJUSTERS
TRW THP-60 POWER STEERING WITH RH RAM
POWER STEERING PUMP
4 QUART POWER STEERING RESERVOIR
OIL/AIR POWER STEERING COOLER
20,000# FLAT LEAF FRONT SUSPENSION
GRAPHITE BRONZE BUSHINGS WITH SEALS -
FRONT SUSPENSION
FRONT SHOCK ABSORBERS

REAR AXLE, SUSPENSION & EQUIPMENT

RT-46-160P R-SERIES TANDEM REAR AXLE @ 4
6,000#
4.30 REAR AXLE RATIO
IRON REAR AXLE CARRIER WITH STANDARD AXLE HOUSING
STANDARD REAR AXLE SHAFT HOLES
18N MERITOR MAIN DRIVELINE WITH FULL ROUND YOKES
17N MERITOR INTERAXLE DRIVELINE WITH FULL ROUND YOKES
DRIVER CONTROLLED TRACTION DIFFERENTIAL
- BOTH TANDEM REAR AXLES
INTERAXLE AND/OR DIFFERENTIAL LOCKOUT
WITH INDICATOR LIGHT
MOBIL SYNTHETIC 50W TRANSMISSION OIL AND
75W-90W ALL AXLES
MERITOR 16.5x7 Q+ CAST SPIDER CAM REAR BRAKES, DOUBLE ANCHOR, FABRICATED SHOES
NON-ASBESTOS REAR BRAKE LINING
HIGH MOUNT CAM BRAKE CHAMBER POSITION WITH AUXILIARY SUPPORT BRACKETS
CONMET CAST IRON REAR BRAKE DRUMS
REAR BRAKE DUST SHIELDS
CHICAGO RAWHIDE SCOTSEAL PLUS XL
REAR OIL SEALS
HALDEX LONGSTROKE 2-DRIVE AXLES SPRING PARKING CHAMBERS
GUNITE AUTOMATIC REAR SLACK ADJUSTERS
HENDRICKSON HN462 REAR SUSPENSION
@ 46,000#
HENDRICKSON HN 400/460 - 9.56" RIDE HEIGHT

EHICLE ID: 2FZHAZCK97AY16448
VEH S/N: Y16448

NO REAR AXLE CLAMPS
54" AXLE SPACING
HENDRICKSON HN AND HAULMAAX SERIES STEEL
BEAMS WITH BAR PIN
FORE/AFT AND TRANSVERSE CONTROL RODS
REAR SHOCK ABSORBERS - TWO AXLES (TANDEM
)
CLEAR SPACE; 36" FORWARD AND 23" AFT
OF AXLE LOCATION FOR CUSTOMER FURNISHED
AND INSTALLED PUSHER SUSPENSION
52" AXLE SPACING PUSHER/TAG

BRAKE SYSTEM

WABCO 4S/4M ABS WITHOUT TRACTION CONTROL
ENHANCEMENT
REINFORCED NYLON, FABRIC BRAID AND WIRE
BRAID CHASSIS AIR LINES
STANDARD BRAKE SYSTEM VALVES
RELAY VALVE WITH 5-8 PSI CRACK PRESSURE,
NO REAR PROPORTIONING VALVE
BW AD-9 BRAKE LINE AIR DRYER WITH HEATER
AIR DRYER MOUNTED INBOARD ON LH RAIL
STEEL AIR BRAKE RESERVOIRS
USE DESIGN 5
PRICE QUOTE NUMBER: 22D2 0608141018
BW DV-2 AUTO DRAIN VALVE WITHOUT HEATER
ON ALL TANK(S)

FRAME & WHEELBASE

5325MM (210") WHEELBASE
11/32" X 3-1/2" X 10-15/16" STEEL FRAME
(8.73MM X 277.8MM/.344" X 10.94") 120KSI
1/4" (6MM) C-CHANNEL INNER FRAME REINFOR
CEMENT
NO FRONT FRAME EXTENSION
1650MM (65") REAR FRAME OVERHANG
SQUARE END OF FRAME
STANDARD WEIGHT ENGINE CROSSMEMBER
STANDARD MIDSHIP #1 CROSSMEMBER(S)
OVERSLUNG CROSSMEMBER
STANDARD SUSPENSION CROSSMEMBER
STEEL REAR OVERHANG CROSSMEMBER, BOLTED
CONSTRUCTION
STANDARD REARMOST CROSSMEMBER

EHICLE ID: 2FZHAZCK97AY16448
VEH S/N: Y16448

CHASSIS EQUIPMENT

NO LH OR RH BACK OF CAB ACCESS
NO DECK PLATE
12" CHROMED STEEL BUMPER
FRONT TOW HOOKS - FRAME MOUNTED
NO MUDFLAP BRACKETS
NO REAR MUDFLAP
FENDER MOUNTED FRONT MUDFLAPS
GRADE 8 THREADED HEX-HEADED FRAME FASTENERS

FIFTH WHEEL & EQUIPMENT

NO FIFTH WHEEL
NO 5TH WHEEL LOCATION
NO FIFTH WHEEL LEG HEIGHT
NO FIFTH WHEEL PLUMBING
NO FIFTH WHEEL RELEASE/INST.

FUEL TANK(S) & EQUIPMENT

70 GALLON/264 LITER ALUMINUM FUEL TANK - RH
70 GALLON/264 LITER ALUMINUM FUEL TANK - LH
23" DIAMETER FUEL TANK(S)
ALUMINUM FUEL TANK BRACKET(S)
POLISHING OF FUEL/HYDRAULIC TANK(S) WITH PAINTED BANDS
FUEL TANK(S) FORWARD
FUEL TANK FILLER NECK ANTI-SIPHON INSERT
CHROME FUEL TANK CAP(S)
ALLIANCE FUEL FILTER/WATER SEPARATOR WITH INDICATOR LIGHT
FUEL/WATER SEPARATOR LOCATION - NONE
EQUIFLO INBOARD FUEL SYSTEM
REINFORCED NYLON FUEL HOSE
NO FUEL COOLER
IN TANK FUEL LEVEL SENDER(S)

TIRES

MICHELIN XZY-3 425/65R22.5 20 PLY RADIAL FRONT TIRES
MICHELIN XZY-3 11R24.5 16 PLY RADIAL REAR TIRES

VEHICLE ID: 2FZHAZCK97AY16448
VEH S/N: Y16448

HUBS

CONMET IRON FRONT HUBS
CONMET IRON REAR HUBS

WHEELS

ACCURIDE 29374A 22.5X12.25 10-HUB PILOT
4.75 INSET 10-HAND ALUMINUM DISC FRONT
WHEELS
ACCURIDE 29362 ALUMINUM OUTSIDE, ACCURID
E 28409 STEEL INSIDE; 24.5X8.25 10-HUB P
ILOT DISC REAR WHEELS
POLISHED FRONT WHEELS (OUTSIDE ONLY)
POLISHED REAR WHEELS - OUTSIDE OF
OUTER WHEELS ONLY

CAB EXTERIOR

122" BBC CONVENTIONAL STEEL CAB
LH CAB DOOR(S) WITH 55 DEGREE DOOR STOP
RH CAB DOOR(S) WITH 55 DEGREE DOOR STOP
NO SLEEPER BOX/SLEEPERCAB
NO AIR SHIELD OR BRACKETS
STERLING VALANCE PANEL
AIR CAB MOUNTS
NONREMOVABLE BUGSCREEN MOUNTED BEHIND GR
ILLE
FRONT FENDER, STANDARD
5" FENDER EXTENSIONS
LH AND RH EXTERIOR GRAB HANDLES AND LH I
NTERIOR GRAB HANDLE MOUNTED TO 'A' POST
HOOD MOUNTED CHROMED PLASTIC GRILLE
NO HOOD MOUNTED AIR INTAKE SCREEN
FIBERGLASS HOOD
HOOD LINER INSULATION
DUAL HADLEY RECTANGULAR AIR HORNS, DUAL
BASE
SINGLE ELECTRIC HORN
DUAL HORN SHIELDS
DOOR LOCKS AND IGNITION SWITCH KEYED THE
SAME
SINGLE RECTANGULAR HALOGEN HEADLIGHTS
WITH BRIGHT BEZELS
AERODYNAMIC MARKER LIGHTS - LARGE
INTEGRAL STOP/TAIL/BACKUP LIGHTS
STANDARD FRONT TURN SIGNAL LAMPS

EHICLE ID: 2FZHAZCK97AY16448
VEH S/N: Y16448

DUAL STAINLESS STEEL HEATED MIRRORS WITH
LIGHTS
DOOR MOUNTED MIRRORS
102" EQUIPMENT WIDTH
LH AND RH GROTE 8" STAINLESS STEEL CONVE
X MIRRORS MOUNTED UNDER PRIMARY MIRRORS
FIBERGLASS EXTERIOR SUN VISOR
(2) 15"X26" TINTED REAR WINDOWS
TINTED DOOR GLASS LH AND RH WITH TINTED
OPERATING WING WINDOWS
RH AND LH ELECTRIC POWERED WINDOWS
LOWER RH DOOR WINDOW WITH FRESNEL LENS
TINTED WINDSHIELD
8 LITER WINDSHIELD WASHER RESERVOIR WITH
OUT FLUID LEVEL INDICATOR

CAB INTERIOR

OASIS TAN VINYL INTERIOR
LH MOLDED DOOR PANEL WITH UPPER VINYL
AND LOWER CARPET INSERTS
RH MOLDED DOOR PANEL WITH UPPER VINYL
AND LOWER CARPET INSERTS
DARK TAUPE VINYL MATS WITH SINGLE INSULA
TION
CONSOLE MOUNTED ASHTRAY AND DASH MOUNTED
LIGHTER
FORWARD ROOF MOUNTED CONSOLE
CENTER STORAGE, CONSOLE, BELOW DASH
WITH (2) CUP HOLDERS
LH DOOR MAP POCKET
(1) COAT HOOK ON BACKWALL OF CAB
SAHARA/ASH WING DASH
5 LB. FIRE EXTINGUISHER
HEATER, DEFROSTER AND AIR CONDITIONER
MAIN FRESH AIR INLET AND MAIN
RECIRCULATION FILTERS
MAIN HVAC CONTROLS WITHOUT
RECIRCULATION SWITCH
STANDARD HEATER PLUMBING
VISTEON SC90V AIR CONDITIONER COMPRESSOR
RADIATOR MOUNTED AIR CONDITIONER CONDENS
ER
BINARY CONTROL, R-134A
CAB INSULATION WITH ADDITIONAL NOISE AND
THERMAL TREATMENT
AUTOMATIC SELF-RESET CIRCUIT BREAKERS

VEHICLE ID: 2FZHAZCK97AY16448
VEH S/N: Y16448

CENTER MOUNTED DOME AND READING LIGHTS AND LH/RH COURTESY LIGHTS IN KICK PANELS
CAR DOOR LATCHES WITH MANUAL DOOR LOCKS
(1) 12V POWER SUPPLY IN DASH
TRIANGULAR REFLECTORS WITHOUT FLARES
EZYRIDER HIGH BACK AIR SUSPENSION DRIVER SEAT WITH ADJUSTABLE LUMBAR SUPPORT
EZYRIDER TOOL BOX HIGH BACK NON SUSPENSION PASSENGER SEAT
INBOARD DRIVER SEAT ARMREST - NO PASSENGER SEAT ARMREST
VINYL WITH CLOTH INSERT DRIVER SEAT
VINYL WITH CLOTH INSERT PASSENGER SEAT
3 POINT ADJUSTABLE D-RING RETRACTOR DRIVER AND PASSENGER SEAT BELTS
ADJUSTABLE TILT AND TELESCOPING STEERING COLUMN
2-SPOKE 18" (450MM) BLACK STEERING WHEEL (S)
DRIVER AND PASSENGER TWO-WAY INTERIOR SUN VISORS WITH MAP BAND

CONTROLS & INSTRUMENTS

ELECTRONIC INDIVIDUAL ROUND GAUGE (NGI) PACKAGE
NON-ADJUSTABLE SUSPENDED CLUTCH, BRAKE AND ACCELERATOR PEDALS
BRIGHT ARGENT FINISH GAUGE BEZELS
MULTIPLEX INSTRUMENT CLUSTER MOUNTED IN BLACK PANEL WITH TAUPE SURROUND AND ROUND GAUGES
DARK TAUPE CENTER INSTRUMENT PANEL WITH FLAT GAUGE INSERT
LOW AIR PRESSURE LIGHT AND BUZZER
2" PRIMARY AND SECONDARY AIR PRESSURE GAUGES
DASH MOUNTED AIR RESTRICTION INDICATOR WITH GRADUATIONS
CRUISE CONTROL-ELECTRONIC, CONTROLS ON STEERING WHEEL SPOKES
KEY OPERATED IGNITION SWITCH AND INTEGRAL START POSITION; 4 POSITION OFF/RUN/START/ACCESSORY
WARNING LIGHT BAR DISPLAY MOUNTED IN INSTRUMENT CLUSTER, NGI
DIAGNOSTIC INTERFACE CONNECTOR, 9 PIN, SAE J1587/1708, LOCATED BELOW DASH

4747 N CHANNEL AVE, PO BOX 3849, PORTLAND, OR 97208-3849

EHICLE ID: 2FZHAZCK97AY16448

VEH S/N: Y16448

2" ELECTRIC FUEL GAUGE
DUAL REAR AXLE TEMPERATURE GAUGES WITH S
ENSOR SHIELD
2" MULTIPLEXED ENGINE COOLANT TEMPERATUR
E GAUGE
ENGINE OIL TEMPERATURE GAUGE
2" TRANSMISSION OIL TEMPERATURE GAUGE
ENGINE AND TRIP HOUR METERS INTEGRAL WIT
HIN DRIVER DISPLAY
2" MULTIPLEXED ENGINE OIL PRESSURE GAUGE
F/L XTA-2400 AM/FM/WB CD RADIO BY DELPHI
(2) RADIO SPEAKERS (CAB ONLY)
30" AM/FM ANTENNA MOUNTED RH SIDE COWL
POWER AND GROUND STUDS TOP OF DASH PLUS
POWER AND GROUND WIRING PROVISION IN OVE
RHEAD CONSOLE
TOP OF DASH MOUNT CB RADIO PROVISION WIT
H PLATE AND STRAPS
MULTI-BAND AM/FM/WB/CB LH MIRROR MOUNTED
ANTENNA SYSTEM
MULTIPLEX SPEEDOMETER WITH LCD MESSAGE
DISPLAY, ODOMETER AND TRIP ODOMETER
STANDARD VEHICLE SPEED SENSOR
MULTIPLEXED TACHOMETER 3000 RPM
REAR BRAKE VALVE, HAND CONTROL - SPRING
LOADED
VOLTMETER; MULTIPLEXED
SINGLE ELECTRIC WINDSHIELD WIPER MOTOR
WITH DELAY
(3) POSITION ROTARY HEADLAMP SWITCH
WITH SEPARATE MARKER LIGHT INTERRUPTER
SWITCH, DIMMER WITH INTERIOR DOME
ONE VALVE PARKING BRAKE SYSTEM WITH WARN
ING INDICATOR
SIGNAL STAT SELF CANCELING TURN SIGNAL S
WITCH WITH BRAKE OVERRIDE AND STALK MOUN
TED WIPER CONTROLS
HEAVY DUTY MECHANICAL TURN SIGNAL FLASHE
R

PAINT

PAINT: ONE SOLID COLOR
CAB COLOR A: L0006ED
WHITE ELITE BC
BLACK, HIGH SOLIDS POLYURETHANE CHASSIS
PAINT
VENDOR WHITE REAR WHEELS/RIMS

Information on Freightliner Tractors (5)

- Model Year – 2004
- GVW – 52,000
- Engine – Minimum 14.0 Liter 435HP @ 2100 RPM 1650 LB/FT Torque
- Batteries – (3) 12V with 2280 CCA
- Positive Post for jump starting the truck
- Compressor – Minimum of 15.9 CFM
- Clutch – Eaton Fuller 15-1/2” Adjust Free
- Exhaust – Right hand mounted vertical exhaust with 13’ 06” curved vertical chrome tailpipe.
- Coolant filter – Fleetguard or approved equivalent
- Radiator – Minimum 1350 SQ-IN
- Antifreeze – Minimum rating of -34F
- Transmission – Eaton Fuller RTOC-16909A
- Transmission – Convert transmission to 13-speed at 500,000 miles (Provide total price for parts and labor as a separate line item)
- Transmission oil cooler – Air to oil
- Front Axle – Dana Spicer E-1200I 3.5” Drop Front Axle rated at 12,000 LB
- Front Brakes – Dana Spicer 15 x 4L ES LMS Extended Lube front brakes
- Front Suspension – 12,000 LB Taper-Leaf
- Front Slack adjusters – Dana Spicer LMS Extended Lube automatic front slack adjusters
- Front shock absorbers
- Rear Axle – Dana Spicer DSH40 rated at 40,000 LB
- Rear Axle Ratio – 3.70
- Main Driveline – Dana Spicer SPL250HD
- Interaxle Driveline – Dana Spicer SPL170 XL
- Interaxle Lockout – To include indicator light
- Synthetic Oil – 50W Transmission / 75W – 90W all axles
- Rear Brakes – Dana Spicer 16.5x7L LMS extended lube
- Rear Slack Adjusters – Dana Spicer LMS extended lube automatic rear slack adjusters
- Rear Suspension – Airliner 40,000 LB extra duty
- Air Suspension Dump Valve – Manual with indicator light and warning buzzer
- Rear Shock Absorbers – Both axles
- Trailer Air Hose – 15’ coiled
- Trailer Electrical Cable – 15’ Coiled
- Wheelbase – 187”
- Frame – 7/16” x 3-11/16” x 11-1/8” steel frame with a 1/4” full C-Channel frame reinforcement with a minimum RBM rating 3,432,000 lbf-in per rail
- Frame Overhang – Minimum of 57 inches
- Front Tow Hooks – Frame mounted

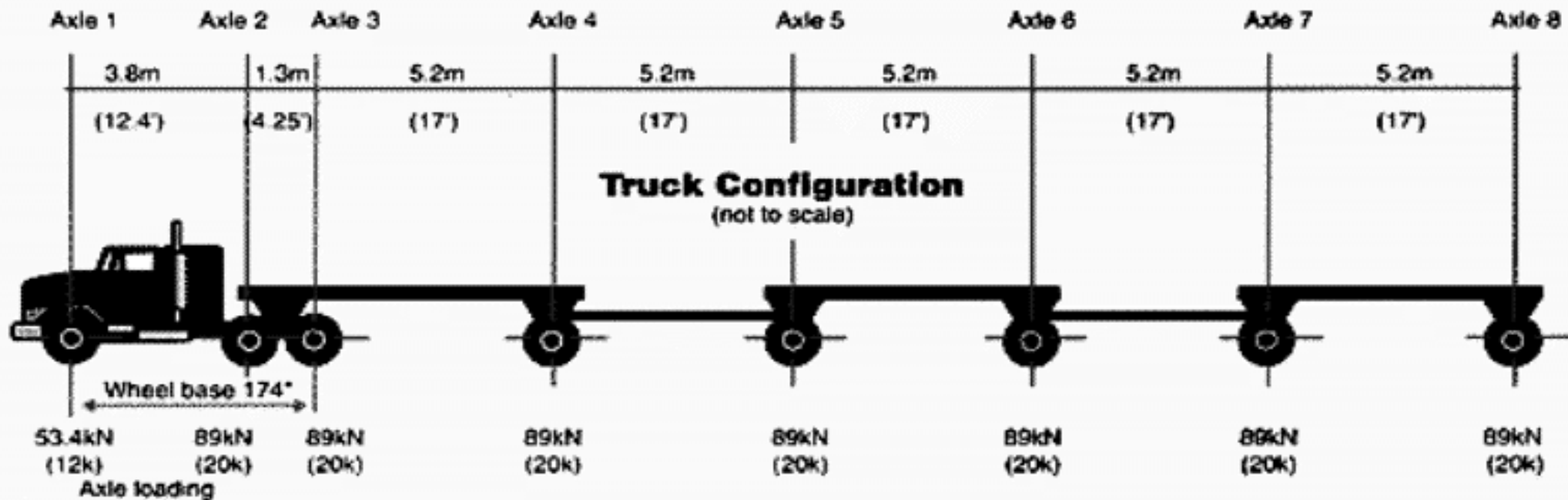


- Clear Frame Rails 30" back of cab for cab guard mounting
- Air Slide 5th Wheel – 24" with a vertical load capacity of 70,000 lbs and a trailing load capacity of 200,000 lbs
- Fuel Tank – 100 - gallon aluminum right hand mounted fuel tank
- Front Tires – 275/80R 22.5 14 PLY Michelin XZA2
- Front Wheels – Aluminum 10-Hub Pilot
- Rear Tires – 275/80R 22.5 14 PLY Michelin XDA H/T
- Rear Wheels – 10-Hub Pilot 5-hand steel wheels
- Cab – Minimum of 120" conventional cab
- Cab Mounts – Air ride
- Air Horn
- Utility Light – Flush mounted back of cab
- Mirrors – Dual West Coast heated mirrors with right hand remote 102" wide
- Convex Mirrors – 8" convex mirrors mounted under primary mirrors on driver and passenger sides
- Factory tinted windshield and glass
- Vent Windows
- Ash Tray and Lighter – Dash mounted
- Fire Extinguisher – Mounted left hand of drivers seat
- Heater and Defroster
- Air Conditioning
- Driver Seat – High back air ride driver seat with adjustable lumbar support and dual armrest
- Passenger Seat – High back non-suspension
- Seat Covers – Heavy duty vinyl
- Gauges – To include all standard gauges plus tachometer, trip meter, hour meter, voltmeter, air restriction indicator, low air pressure light and buzzer, primary and secondary air pressure gauges, engine coolant temperature, and engine oil pressure
- Radio – AM/FM/WB Cassette
- Trailer Brake – Hand Controlled
- Park Brake System – Two valve system with warning indicator



Geometry of Knight Triple Trailer Trains (3)

(Note that Tractor is not representative of those currently used at the NCAT Pavement Test Track)



Information on Utility Triple Trailer Train (1)**Specifications (☉ = Option to Base Model)****1-Model & Payload Capacity**

MODEL	FS2CHS
MODEL	☉ MODEL FFSCHS -FULL TRAILER
PAYLOAD CAPACITY	☉ 40,000 LBS EVENLY DISTRIBUTED
GROSS VEHICLE WEIGHT RATING	☉ 37,000 LBS

2-Dimensions

LENGTH	☉ 28'0" O.A. LENGTH
OVERALL HEIGHT	58-1/2" FRONT DECK HEIGHT ON 47" FIFTH WHEEL HEIGHT
WIDTH	☉ 102" OVERALL WIDTH

3-Deck

DECK TYPE	STRAIGHT DECK TYPE
-----------	--------------------

4-Front Subframe

APPROACH PLATE	1/4" STEEL APPROACH PLATE 39" WIDE, FRONT 9" TAPERED UP 3"
RUN UP MEMBERS	(4) STEEL ANGLE RUN UP MEMBERS
KINGPIN PLATE	KINGPIN PLATE INTEGRAL WITH APPROACH PLATE
KINGPIN TYPE	CRUCIFORM TYPE KINGPIN
KINGPIN LOCATION	30" KINGPIN LOCATION

5-Support Legs

SUPPORT LEG LOCATION	SUPPORT LEG LOCATION OF 140" FROM LEADING EDGE OF FRONT RAIL
SUPPORT LEG CRANK LOCATION	ROADSIDE SUPPORT LEG CRANK LOCATION
SUPPORT LEG SHOE TYPE	10" X 10" HINGED SQUARE LOW PROFILE SAND SUPPORT LEG SHOES
SUPPORT LEG BRACING	2" X 2" BOLT-ON STEEL ANGLE SUPPORT LEG BRACING WITH HORIZONTAL BETWEEN LEGS
SUPPORT LEGS	BINKLEY MODEL #50,000 SQUARE 2 SPEED STEEL CRANK TYPE SUPPORT LEGS

10/00 14:17 615 444 1530

UTILITY TRAILER

6-Frame, Rails & Crossmembers

BOTTOM FLANGE	1/2" X 4" HITEN STEEL 80,000 PSI BOTTOM FLANGE
TOP FLANGE	1/4" X 6-1/2" HITEN STEEL 80,000 PSI FORMED CHANNEL TOP FLANGE
FRAME WEB	25-1/4" DEEP 7 GA STEEL 60,000 PSI ONE PIECE FRAME WEB
OUTRIGGERS	(3) STEEL TUBE TYPE OUTRIGGERS EACH SIDE
CROSSMEMBERS	3" STEEL I BEAM CROSSMEMBERS ON 12" C/L FULL LENGTH
SIDE RAIL	4-7/16" 7GA. HITEN STEEL BOLT-ON SIDE RAIL
SIDE POCKETS	7 GA HITEN STEEL OUTSIDE-TYPE SIDE POCKETS
FRONT POCKETS	7 GA HITEN STEEL OUTSIDE-TYPE FRONT POCKETS
REAR POCKETS	CARBON STEEL OUTSIDE TYPE REAR POCKETS
RUB RAIL	1/4" X 3" HITEN STEEL RUB RAIL ON SIDES AND REAR ONLY
PIPE SPOOLS	STEEL PIPE SPOOLS ON 24" C/L CENTERED BETWEEN POCKETS
REAR CORNERS	1/2" X 6" STEEL PLATE REAR CORNERS
REAR RAIL	CARBON STEEL BOLT-ON REAR RAIL
FRONT GOOSENECK DEPTH	11-1/4" FRONT GOOSENECK DEPTH
FRONT RAIL	CARBON STEEL BOLT-ON FRONT RAIL WITH SST FRONT CORNERS

7-Rear Subframe

REAR SUBFRAME TYPE	REAR SUBFRAME INTEGRAL WITH MAIN FRAME
PINTLE HOOK	⇒ PINTLE HOOK, AIR HITCH SYSTEM FOR TRIPLES OPERATION
QUICK GUIDES FOR PINTLE HOOK	⇒ QUICK GUIDE CASTINGS
VERTICAL & HORIZONTAL DOCK BUMPER	DOT STL BMFR W/NONSLIP HORIZ 22" MAX FROM GROUND TO BOT OF HORIZ WITHIN LESS THAN 4" O.A. W.E.A. SIDE
TRIPLES REINFORCEMENT	⇒ REINFORCING FOR TRIPLES OPERATION
RUBBER DOCK BUMPERS ON REAR RAIL	(2) 3-1/2" RUBBER BUMPERS MTD ON REAR RAIL (1) OFFSET TO R/S & (1) OFFSET TO C/S

8-Suspension/Axles/Actuation

SPRING SUSPENSION	BINKLEY SP9000 SERIES DURALITE SPRING SUSPENSION WITH 49" AXLE SPACING
-------------------	--

SPRINGS 3 LEAF STEEL SPRINGS WITH 11,200 LB CAPACITY PER SPRING

OIL SEALS STEMCO GUARDIAN HP OIL SEALS

AIR BRAKE CHAMBERS MOM TAMPER RESISTANT 3030 AIR BRAKE CHAMBERS

AIR ACTUATION ONE TANK AIR ACTUATION SYSTEM W/ SPRING BRAKES

FIXED SPRING SUSPENSION LOCATION 44" C/L TO REAR

SLACK ADJUSTERS 5-1/2" HALDEX AUTOMATIC SLACKS

BRAKE LINING COMPOUND CARLISLE MB-21 NON ASBESTOS BRAKE LINING

ROLLER FIFTH WHEEL ➤ LARGE DIAMETER BALL BEARING ROLLER FIFTH WHEEL

COUPLER BAR ➤ 7GA STEEL TAPERED COUPLER BAR W/ DOT SAFETY CHAIN, AIR HOSES & ELECTRICAL JUMPERS

FRONT AXLE LOCATION ➤ FRONT AXLE LOCATION OF 37" C/L TO FRONT

HUB PILOTED SYS W/OUTBOARD DRUMS FOR 16-1/2" X 7" BRAKES 10 STUD HUB-PILOTED SYSTEM WITH OUTBOARD CAST DRUMS WITH 16-1/2" X 7" BRAKES

ANTILOCK BRAKE SYSTEMS (ABS) ➤ EATON 2S/1M ABS SYSTEM

WHEEL BEARING LUBRICATION ➤ KENDALL HBL SEMI-FLUID TETRAUREA GREASE W/DUAL DYNAMICS HUB CAP

AXLE MANUFACTURER DANA AXLES

AXLE WALL THICKNESS SPRING SUSP 7/16" NOM AXLE WALL THICKNESS FOR SPRING SUSPENSION

AXLE SPINDLE TYPE N-SPINDLE TYPE

AXLE BEAM TYPE 5" ROUND AXLE BEAM

WHEEL BEARING AND CUP MANUFACTURER FOR N-SPINDLE TIMKEN BEARINGS AND CUP

14-Floor

FLOOR TYPE 1-1/8" DIMENSIONAL SHIPLAP HARDWOOD FLOOR

17-Electrical System

MAIN HARNESS UTM MOISTURE RESISTANT "BASIC" 6-WIRE CABLE HARNESS WITH INTERNAL GROUND AND 7-WAY PLUG

ELECTRICAL RECEPTACLE7-WAY RECEPTACLE WITHOUT CIRCUIT BREAKERS ON FRONT RAIL
ROADSIDE**CLEARANCE LIGHT QUANTITY**

D.O.T. MINIMUM CLEARANCE LIGHT QUANTITY

CLEARANCE LIGHTS

2-1/2" ROUND GROTE ULTRA SEAL 10 TYPE CLEARANCE LIGHTS

STOP/TAIL/TURN LIGHTSGROTE STOP/TAIL/TURN LIGHTS (2) PER SIDE GROMMET MTD
SEALED BEAM GROUNDED THROUGH HARNESS**SIDE MOUNTED DIRECTIONAL
LIGHT**GROTE ULTRA SEAL 60 SIDE MTD DIRECTIONAL INTEGRAL WITH
CENTER CLEARANCE LIGHT**CONSPICUITY TAPE LOCATION**

CONSPICUITY TAPE DOT MINIMUM LOCATION ON RUB RAIL

CONSPICUITY TAPE

REFLEXITE CONSPICUITY TAPE

18-Finish Specifications**BODY FINISH**UTM BLACK ENAMEL FINISH W/PRIMER UNDERCOAT ON ALL SHOW
SURFACES**FRAME & BODY PARTS**UTM BLACK ENAMEL FINISH W/PRIMER UNDERCOAT ON ALL SHOW
SURFACES**19-Miscellaneous****MUDFLAP TYPE**

WHITE PLASTIC ANTI-SAIL MUDFLAPS WITH UTM LOGO

STACKING

☛ THREE HIGH STACK

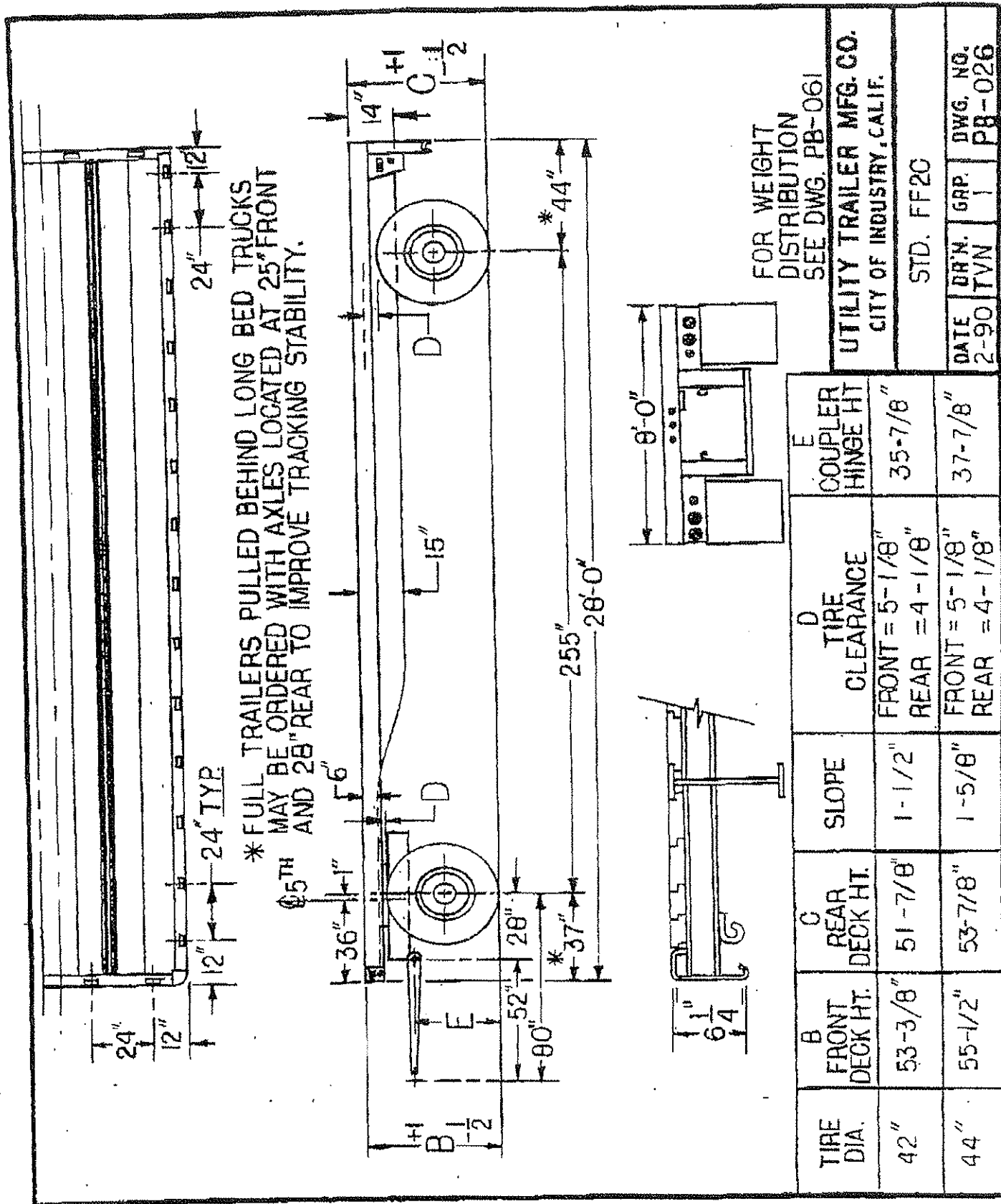
20-Tires, Wheels & Rims**Wheels & Rims**

☛ 8 - 22.5 X 8.25 Factory Choice-Factory Choice 10 Holes Hub-Piloted

Tires

☛ 8 - 295/75R 22.5 BRIDGESTONE-R-226 14-Ply

Total Weight 8,270 lbs. (+/- 3%)



Cheetah Chassis Corporation

3rd & Oak Streets
P.O. Box 388
Berwick, PA 18603

Information on Cheetah Triple Trailer Train (1)



Phone: (570) 752-2709
FAX: (570) 752-3758
www.cheetahc.com

ADDENDUM A

CHEETAH CHASSIS CORPORATION MAJOR COMPONENT PARTS/SYSTEMS

COMPONENT	SUPPLIER	WARRANTY PERIOD
Axles	Dana Corp.	5 Years
Brake Valves	WABCO/Sealco	1 Year
ECU Valves	WABCO	3 Years
King Pin	Holland	2 Years
Landing Gear	Jost A-400	5 Years
Rims	Hayes Wheels/Accuride	5 Years
Automatic Slack	Arvin Meritor	5 Years
Springs	Standen	1 Year
Suspension	Hutchens	5 Years
Paint	Champion zinc-rich primer with urethane topcoat.	5 Years
Decals	Selecto-Flash/Fleet Decal	5 Years
Wheels	Arvin Meritor (Dayton- Walther)	5 Years
Bearings	General	5 Years
Seals, Grease	Stemco	1 Year
Spring Brakes	Midland	3 Years
Twist Locks	Penz	5 Years
Locking Pins	Penz	5 Years
Hub Caps	Stemco	1 Year

Spec. #4235SNFFP-NCAT

Revised 5-13-04

Page 1 of 3

Cheetah Chassis Corporation
23 ½' Straight Frame Single Axle Chassis with Pintle Hook
NCAT

Function	Carries one 20 ft. ISO Container. Meets all DOT, TOFC, AAR, FMVSS, ANSI, SAE, and TTMA specifications in effect at time of manufacture and applicable to operation in the United States.
Overall Length Closed	23 ft 3 inches
Overall Width	96 inches
Axle Location	54 inches from rear
Kingpin Location	15 inches from front of chassis
Maximum Rear Height	50 ½ inches
Main Beams	Wide flange I-Beam 12 inch deep, 16 lb/ft, hot rolled steel, ASTM A572-50
Forward Beams	6 1/2 inch deep I-Beam, fabricated with ½ inch x 5 inch grade 65 top flange and ½ inch x 6 inch grade 65 bottom flange and ¼ inch web
Cross Member	All cross members are formed from 10-gauge steel
Upper Coupler Assembly	Pick up plate is 5/16" thick and extends approximately 33 inches behind the kingpin and is reinforced fore and aft of the king pin by 5/16 inch formed channels
Front Bolster	Box type with 3/8 inch x 8 inch top plate and ¼ inch thick formed channel lower member
Rear Bolster	Box type with 3/8 inch x 8 inches top plate and ¼ inch thick formed channel lower member with ICC light holes. A small license plate bracket will be mounted on the under side.
Twist Locks	None
Pintle Hook	Premier #270 34 inch eye height
ICC Bumper	4 inch x 4inch x 3/16 inch Tube step bumper. Main beam and bumper struts are extended 2 inches to protect rear bolster. (No rubber dock bumpers)

Spec. #4235SNFFP-NCAT

Revised 5-13-04

Page 2 of 3

Cheetah Chassis Corporation
23 ½' Straight Frame Single Axle Chassis with Pintle Hook

NCAT

Landing Gear	Two speed AAR approved, square leg. 50,000 lb. lift capacity and 140,000 static load capacity. Low profile sandshoe. Curb side crank handle
Suspension	Undermount, single axle suspension with three leaf springs.
Hub and Drum	FBC
Wheels	8.25 x 22.5 disc, hub piloted
Tires	295/75R 22.5
Axles	FBC
Lubrication	FBC
Slack Adjusters	FBC
Brakes	Single tank, two valve system. 2S/1M ABS brake control system with separate spring brake valve. 30/30 brake chambers. Meets the requirements of FMVSS 121
Electrical System	12 volt, 7-way split pin receptacle plug front and rear; modular wiring harness
Lights	<ul style="list-style-type: none">▪ 4 inch grommet mounted combination stop, tail, and turn light▪ 2 inch red or amber grommet mounted clearance lights▪ License light
Metal Preparation	Clean, dry steel and NACE No. 3 /SSPC-SP-6 "Commercial Blast Cleaning"
Paint	Primer: Zinc Rich Topcoat: Black urethane
Markings	FHWA plate, tare weight, 2 small Cheetah logos.
Conspicuity	Meets DOT requirements
Registration Holder	Plastic with clear screw on top
Mud Flaps	Plastic anti-sail
Steel and Fasteners	All structural steel is ASTM-A572, Grade 50, or

Spec. #4235SNFFP-NCAT

Revised 5-13-04

Page 3 of 3

Cheetah Chassis Corporation
23 1/2' Straight Frame Single Axle Chassis with Pintle Hook

NCAT

ASTM-A607, Grade 50. All structural fasteners are
Grade 5 or better and are zinc coated

GVWR

45,000 lbs

Weight

Approximately 4,300 lbs. \pm 2%

#

These specifications are subject to constant engineering design improvements; you will
be advised of any change.

BEAM RATING : 22,500 lbs. *
BRAKE RATING: 20,000 lbs. **

Spicer Trailer Products
Axle Specification

Date Printed
15-DEC-04

Page 1 of 2

Specification #...	D22AX501A2193-001				
	D22-FC167W-B10	71.50"			
Quantity.....	1		Slack Adjuster...	M16WR135	4 2
Track.....	71.5			THIS IS A BENDIX 5.5 INCH BRAKE SLACK ADJUSTER.	
Bs - Bs.....	65.87		Dust Shield.....		
Spindle.....	D22SP127	1 2	Air Chamber.....		
Spider.....	M16WS180	1X 2	Dust Boot.....		
			Washers and snap rings	31624	2
				M10HR155	2
				M10HS143	2
Flange.....				M10HS145	2
				M10HS148	2
Spider Placement..	5.75				
Cams.....	M16WKL25	205 1			
	M16WKR25	205 1			
Cam Cover.....			Wheel End Lube....	OIL	
Cam Brackets.....	M16WHR50 L	1	Wheel Ends.....	K22HU254	8 2
	M16WHR50 R	1			
A/C Set Up.....	1650-6760-STD		Bearings.....	M10HB100	2
				M10HB101	2
Brake Adj Length..	5.5		Seal.....	128859	2
A/C Brackets.....	M10WJ227	2	Ring.....		
			Spindle Nuts and Washers and/or	M10HN100	2
Gussets.....			Spindle Cover	M10HN101	2
				M10HN102	2
				M10HN151	2
ABS Block.....	M10WH154	2			
ABS Location.....	.904/.938		Hub Cap.....	M10HK182	2
ABS Sensor.....	M10HR158	2	H.C. Gasket.....	M10HG108	2
	M10HY112	2	Cap Nuts.....		
Brake Shoes..	M16WN122	31X 4			
	16 1/2" x 7" FAST CHANGE SHOES w/ SPICER SILVER LINING				
Return Spring.....	M16WJ100	2			
Retainer Spring...	M16WJ101	4	MGM Specs.....	MGM 506	
Anchor Pin.....	M16WJ105	4			

* BEAM RATING IS FOR ON-HIGHWAY USE WITH A SPRING SUSPENSION AND SPRING CENTERS AT 38 INCHES. BEAM RATING IS FOR A STANDARD DUAL WHEEL SET UP, THIS AXLE IS NOT APPROVED FOR USE WITH AN AIR RIDE SUSPENSION.

** BRAKE RATING VALID WHEN A TYPE 30 AIR CHAMBER IS USED WITH A 5.5 INCH SLACK ADJUSTER. (SLACK COMES ON THIS AXLE) THE TIRE STATIC LOADED RADIUS

Cheetah Chassis Corporation
23 1/2' Straight Frame Chassis
Standard

