



## MEMORANDUM

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July 15, 2011

**TO:** Board of Mayor and Aldermen

**FROM:** Eric Stuckey, City Administrator  
Russell Truell, Assistant City Administrator for Finance & Administration  
Becky Caldwell, Solid Waste Director  
Brian Wilcox, Purchasing Manager

**SUBJECT:** Consideration of sole-source purchase from Mack of Nashville of Lavergne, TN in the total amount of \$102,079.53 for three (3) road tractors for the Disposal Division of the Solid Waste Department (\$115,000.00 budgeted in 124.89520.46130)

### Purpose

The purpose of this memorandum is to provide information to the Board of Mayor and Aldermen (BOMA) to consider a purchase agreement for three replacement road tractors for the Solid Waste Department Disposal Division.

### Background

The City currently owns three 2009 Mack road tractors, purchased during a two-year timeframe. The Solid Waste Department has experienced excessive mechanical failures with these three road tractors compared to other similar units. Many of these failures resulted from issues associated with new emission standard components. Upon contacting Mack of Nashville, they communicated the intent, in good faith, to offer a trade-in for new trucks based on the problems we experienced, as well as improved reliability and performance of newer technology in 2012 model trucks.

The Solid Waste Department (Disposal division) budget for fiscal year 2012 allocates \$115,000.00 from the Solid Waste Fund to purchase one replacement road tractor. In working with the vendor regarding the performance of the existing units, the vendor has offered a trade of the three 2009 Mack road tractors for three 2012 Mack road tractors at a total cost of \$102,079.53. This trade should prevent the inefficiencies associated with continued engine and mechanical failures that the City has experienced with this particular model year (2009).

Attached are the following documents, from Mack of Nashville, providing additional details associated with this sole-source purchase:

- Chassis Specifications Summary
- Normal Duty Warranty Certificate
- Detailed List of Bronze Warranty Components
- Documentation clarifying the intent from Mack of Nashville regarding trade-in pricing

The quoted price, per unit, is \$34,026.51. Trading three 2009 Mack road tractors for three 2012 Mack road tractors brings the total purchase price to \$102,079.53. Mack of Nashville has indicated in writing that the quoted pricing represents the best municipal pricing possible for the quantity indicated.



HISTORIC  
FRANKLIN  
TENNESSEE

## MEMORANDUM

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Solid Waste Director Becky Caldwell is of the opinion that the quoted pricing is within what would be expected in the market place for this industry at this time. If the pricing above is accepted by the City, then the total value of the order would be \$12,920.47 (11%) under budget. This is a one-time trade of three 2009 units for three 2012 trucks.

### **Financial Impact**

By approving this transaction the City incurs a cost of \$102,079.53. The budgeted amount, in the approved FY 2012 budget, to replace one road tractor, is \$115,000.00. This total is \$12,920.47 (11%) under budget.

### **Options**

1. Remain in our current situation with extended down-time and overtime associated with equipment failure.
2. Approve this trade-in and sole-source purchase of three (3) new model trucks with updated technology that is expected to prevent the problems we experience now.

### **Recommendation**

It is recommended that the City accept the pricing quoted by Mack of Nashville and approve the sole-source purchase from Mack of Nashville of Lavergne, Tennessee in the total amount of \$102,079.53 for three new 2012 Mack road tractors for use by the Disposal Division of the Solid Waste Department. Purchasing Manager Brian Wilcox is of the opinion that this proposed sole-source purchase appears to be justified and the Solid Waste Department's recommendation appears to be appropriate.



# CHASSIS SPECIFICATIONS SUMMARY

July 06, 2011

## 2012 MACK CXU613

SERVICE/UTILITY... On Hwy  
TRACTOR FOR 5TH WHEEL

<b>Engine</b>	MACK MP8-445C 445HP	<b>Transmission</b>	T310
		<b>Clutch</b>	CL39DC13 EATON
<b>Front Axle</b>	14,600# FXL14.6	<b>Rear Axle</b>	44,000# S440 Ratio 3.40
<b>Suspension</b>	14,600#	<b>Suspension</b>	46,000# SAL440
<b>Tires</b>	Front: 11R22.5 Rear: 11R22.5	<b>Wheels</b>	22.5x8.25 ALUMINUM DISC 22.5x8.25 ALUMINUM DISC
<b>Ratings</b>	GVW: 57,220# GCW: 80,000#	<b>Fuel Tanks</b>	LH: 93gal RH: 92gal
<b>Fifth Wheel</b>	BRACKET HEIGHT 9.75" FONTAINE SL7ATB SERIES	<b>Sleeper</b>	

### PRICING SUMMARY

	<u>List Price</u>
<b>CHASSIS BASE</b>	<b>\$152,720.00</b>
Factory Options	\$23,752.00
Freight	\$1,850.00
Less Additional Factory Rebate	
Sales Allowances	
<b>TOTAL FACTORY</b>	<b>\$178,322.00</b>
Locally Installed Options	\$10,184.00
Bulldog Protection Plans	\$0.00
<b>TOTAL FACTORY &amp; LOCAL</b>	<b>\$188,506.00</b>
Less Customer Discount from List	\$85,706.58
<b>SELLING PRICE (Excluding Taxes/Fees/Trade)</b>	<b>\$102,799.42</b>
Less Trade Allowances per New Vehicle	\$70,000.00
<b>QUOTED PRICE OR TRADE DIFFERENCE</b>	<b>\$32,799.42</b>
Model Year/Technology Surcharge	\$975.00
User Enter Total Fee	
Net FRET or Canadian GST Taxes	\$0.00
Tire Tax Credit (Municipal Only)	(\$293.90)
Sales/Usage Taxes	\$0.00
License/Title/Etc.	\$295.99
Misc Fees not subject to FRET	\$250.00
<b>ACQUISITION COST (Include Trade if applies)</b>	<b>\$34,026.51</b>
Less Down Payment	
<b>BALANCE DUE Per Unit</b>	<b>\$34,026.51</b>
<b>PRICE (Total Order)</b>	<b>\$34,026.51</b>
<b>BALANCE DUE (Total Order)</b>	<b>\$34,026.51</b>

Includes 3 Years 200,000 Bronze Protection Pkg  
EATS/SENSOR EA HARNESS  
MACK TRANS & R/A WARRANTY IS 5/500,000

Total Quantity: 1

Estimated Total Weight: 17,728#

Reference#: AGQV007212B

X \_\_\_\_\_  
Prepared For: Customer Signature Date  
CITY OF FRANKLIN  
417 Century Court  
Franklin, TN 37044  
Phone: --  
Fax: --

X \_\_\_\_\_  
Presented By: Dealer Signature Date  
Ron Taylor  
Mack of Nashville  
A McMahon Truck Group Company  
Laverne, TN 37086  
615-793-5600



Prepared For:

CITY OF FRANKLIN  
417 Century Court  
Franklin, TN 37044

Presented By:

Mack of Nashville  
A McMahon Truck Group Company  
Lavergne, TN 37086  
615-793-5600

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Jul 6, 2011  
2012 CXU613  
Ref#: AGQV007212B

Description

ORDER/CUSTOMER/VEHICLE INFORMATION

INITIAL REGISTRATION LOCATION, UNITED STATES, TENNESSEE

IDLE EMISSION CERTIFICATION, IDLE EMISSION CERTIFICATION - CARB 08

TYPE OF SERVICE, MUNICIPAL

VEHICLE APPLICATION CLASS, ON-HIGHWAY CLASS "A" - Unlimited operation on concrete, asphalt, or maintained gravel/packed dirt with a maximum 3% grade; limited operation on concrete, asphalt, or maintained gravel/packed dirt with maximum 8% grade. No operation on unmaintained surfaces. (3 AXLES) 64,000 lbs (29,030 kg) MAX GVW. (4 AXLES) 80,000 lbs (36,288 kg) MAX GVW.

CARRIER APPLICATION, WITH CRD150-151, Unlimited miles on 3% grade maintained gravel/packed dirt or paved, Max 5% miles on 8% grade maintained gravel/packed dirt or paved. 115000# (52000 kg) MAX GCW. (Carrier Code USA-Canada - H2)

VEHICLE TYPE, TRACTOR FOR 5TH WHEEL

VEHICLE USE AND BODY/TRAILER TYPE, SERVICE/UTILITY. . . On Hwy

80000# (36287 kg) GCW RATING

BRAKE - STOPPING DISTANCE, BRAKE REGULATION, STOPPING DISTANCE 76M (250FT)

FILE STATUS, QUOTE

PRICE BOOK LEVEL, 2012B PRICE BOOK LEVEL

PRODUCT TYPE, PRODUCT TYPE - CMM64T

PRODUCT CLASS, PRODUCT CLASS 28

BACK OFFICE PROCESS, BACK OFFICE PROCESS

BVS/FRT AXLE POS/SALES PACKAGES

CHASSIS (BASE MODEL), CXU603 6-WHEEL TRACTOR

FRONT AXLE BACK POSITION

ENGINE/TRANSMISSION/CLUTCH

ENGINE, MACK MP8-445C 445 HP @1500-1700 RPM (PEAK) 1760 LB FT. MAX TORQUE @ 1100-1300 RPM

TRANSMISSION, 10 SPEED MANUAL (OVERDRIVE), MACK T310 (13.81/0.73)

CLUTCH, MANUAL ADJUSTING, CL39DC13 EATON ADVANTAGE EZ-PEDAL, 9-SPRING, 2-PLATE, 15.5" CERAMIC CLUTCH, 6 PADDLES, MANUAL ADJ

EXHAUST/EMISSIONS

DPF, CLEARTECH HHS DPF RH SIDE UNDER CAB W/SCR FRAME MTD RH SIDE

EXHAUST AFTER-TREATMENT SYSTEM, EXHAUST AFTER-TREATMENT SYSTEM DIESEL PARTIC FILTER CERAMIC PASSIVE REGEN

DPF SMART SWITCH, NO INHIBIT DPF REGENERATION SWITCH

EXHAUST, DPF, OUTBOARD, SINGLE (R/S) VERTICAL STRAIGHT EXHAUST STACK TURNED OUT

SINGLE, BRIGHT FINISH HEAT SHIELD AND STACK

FURNISH STEEL PAINTED HEAT SHIELD FOR FRAME MTD MACK CAP DPF

ENGINE EQUIPMENT

AIR COMPRESSOR, MERITOR/WABCO 318 18.7 CFM

ALTERNATOR, DELCO 12V 145A (24SI) BRUSH-TYPE

BATTERIES, (3) MACK 12V 760/2280 CCA THREADED STUD TYPE

BUG SCREEN, BLACK ALUMINUM MOUNTED BEHIND GRILLE

TO -34 DEGREES F (-37 DEGREES C)

## Description

MACK COOLANT CONDITIONER  
ENGINE BRAKE, MACK POWERLEASH  
ENGINE BLOCK HEATER, 120V 1500 WATT ENGINE BLOCK HEATER  
FAN DRIVE, BORG WARNER COOL LOGIC FAN DRIVE (HDMS) ELECTRONICALLY CONTROLLED VARIABLE  
FLYWHEEL HOUSING, ALUMINUM  
FUEL HEATER, W/O FUEL HEATER  
FUEL-WATER SEPARATOR, MACK W/MANUAL DRAIN VALVE (INTEGRAL W/PRIMARY FUEL FILTER)  
HOSES - RADIATOR/HEATER, MACK BRAND EPDM RADIATOR & HEATER HOSES  
OIL PAN HEATER, W/O OIL PAN HEATER  
RADIATOR, ALUMINUM CORE  
STARTER, 12 VOLT DELCO 39MT-MXT  
ELECTRONIC STARTER INTERLOCK  
TETHER DEVICE, FURNISH CAP RETAINER FOR OIL FILL & RADIATOR OVERFLOW TANK

## TRANSMISSION EQUIPMENT/DRIVELINES

CLUTCH ASSIST (AIR), MECHANICAL CABLE  
CLUTCH PEDAL, CLUTCH PEDAL RUBBER PAD  
CLUTCH RELEASE HOSE, CLUTCH RELEASE LUBE HOSE  
mDRIVE - PARKER PUMP, WITHOUT PARKER PUMP FOR mDRIVE TRANSMISSION  
TRANSMISSION BELL HOUSING, ALUMINUM  
INTERNAL TRANSMISSION OIL COOLER FOR MACK T200/T300  
SYNTHETIC LUBRICANT - TRANSMISSION, 75W - 90 (SYNTHETIC LUBRICANT)  
VOCATIONAL PACKAGE - ALLISON, W/O OPTIONAL ELECTRONIC TRANS PACKAGE  
DRIVELINE - MAIN, MERITOR 18N HD W/COATED SPLINES  
DRIVELINE - INTERAXLE, MERITOR 17N HD W/COATED SPLINES

## CAB (A thru G)

MACK INTEGRAL W/HEATER (COMBO HEATER/AIR CONDITIONER UNIT) W/R134a REFRIGERANT  
AIR RESTRICTION MONITOR (INTAKE), W/O AIR RESTRICTION MONITOR  
CAB, LH-STEER CA68 CONV CAB  
CERTIFIED WEIGHT  
PARK BRAKE AND ENGINE RUNNING ACTIVATED  
DOME LIGHT (4) LAMPS RH/LH DOME LAMPS-DOOR AND SWITCH ACTIVATED, (2) CAB REAR DOME LAMPS-SWITCH  
ACTIVATED  
VISIBILITY DOOR  
DOOR INTERIOR TRIM PANELS, MOLDED UPPER DOOR PANEL & PADDED LOWER PANEL  
ENGINE SHUTOFF, KEY TYPE  
GAUGE CLUSTER, EXHAUST PRYOMETER AND TRANSMISSION OIL TEMPERATURE GAUGES  
GAUGES, ENGLISH/METRIC DISPLAY  
WITHOUT REAR AXLE OIL TEMPERATURE GAUGE  
GEAR SHIFT, W/O OPTIONAL GEAR SHIFTER  
GLASS - CAB WINDOW, SAFETY TINTED WINDSHIELD, SIDE AND REAR WINDOWS  
DIAGONAL GRAB HANDLE ON INSIDE DRIVER'S DOOR

## CAB (H thru R)

HEADLINER, VINYL COVERED FOAM PADDED HEADLINER

## Description

OMIT STD HEATER  
HOOD INSULATION  
PAINTED HOOD LATCHES  
HORN - AIR, (2) MACK RECTANGULAR SINGLE TRUMPET (ONE EACH SIDE OF CAB ROOF)  
HORN - ELECTRIC, DUAL TONE  
IDENTIFICATION/CLEARANCE LIGHTS, (5) GROTE PREMIUM BRIGHT FINISH LAMPS  
IN-DASH STORAGE, MEMO AREA AND CLIP  
INSTRUMENT CLUSTER DISPLAY, CO-PILOT DRIVER DISPLAY (ENHANCED 4.5" DIAGONAL GRAPHIC LCD DISPLAY W/4-BUTTON STALK CONTROL) (INCLUDES GUARDDOG ROUTINE MAINTENANCE MONITORING)  
INTERIOR TRIM (GENUINE - SLATE GRAY) 3 overhead storage compartments w/nets, rear panel with storage pouch w/2 trash bag hooks, 2 cup holders, slate gray door panels & trim, vinyl padded interior sun visors both sides, adjustable tilt/telescoping steering column, 2 overhead dome lights, 1 driver overhead spot light & 1 map non-glare overhead spot light, 2 12V power outlets, 2 coat hangers, RH center storage compartment.  
CHASSIS KEYPED AT RANDOM - 2 KEYS  
MIRRORS - EXTERIOR, WEST COAST, RH & LH BRIGHT FINISH MACK BULLDOG HEATED  
MIRRORS - CONVEX TYPE CAB DOORS, BRIGHT FINISH, LH & RH 8" DIA. HEATED CONVEX  
OVERHEAD CONSOLE, (3) COMPARTMENT W/NET  
AM/FM PREMIUM STEREO CD W/WEATHER BAND, MP3 & WMA  
RADIO ANTENNA, ROOF MOUNTED  
POWER LEADS (5-WAY BINDING POSTS FOR CB RADIO) MOUNTED ON TOP OF DASH  
RADIO ANTENNA - CB, SINGLE DRIVER SIDE, MIRROR MTD  
DASHBOARD MOUNTING STRAP  
RED REFLECTORS (ONE EACH SIDE) BACK OF CAB

CAB (S thru Z)

SEAT - DRIVER, AIR-NATIONAL 2000 (HI-BACK) SINGLE CHAMBER AIR LUMBAR, 2 POSITION FRONT CUSHION ADJ.  
SEAT - RIDER, MACK RIDER SEAT (MID-BACK) W/INTEGRAL STORAGE COMPARTMENT FIXED  
SEAT ARM RESTS, INBOARD MOUNTED ARM REST, DRIVER'S SEAT ONLY  
SEAT COVERING, CLOTH W/VINYL TRIM RIDER AND DRIVER  
SEAT, DUST COVER FOR DRIVER'S SEAT  
SEAT BELTS, LAP AND SHOULDER W/CAB MOUNTED SHOULDER BELT WITH FIXED D-RING FOR DRIVER AND RIDER SEATS  
STEERING COLUMN, ADJUSTABLE TILT TELESCOPE  
STEERING WHEEL, TWO SPOKE URETHANE GRIP PAINTED SPOKES & BULLDOG HORN CAP  
STORAGE POUCH REAR  
SUN VISOR, EXTERIOR, FIBERGLASS (PAINTED)  
SUN VISOR - INTERIOR, BOTH SIDES (PADDED VINYL) WITH TICKET HOLDER  
WINDSHIELD, 2-PIECE WINDSHIELD

CAB - SLEEPER BOX

FRAME EQUIPMENT/FUEL TANKS

BUMPER - FRONT, STAINLESS STEEL CLAD ALUMINUM FLUSH MTD 117.3"/2980 mm BBC (CORPORATE 94" x 15.5")  
CROSSMEMBERS, HIGHWAY SEVERE DUTY BOC AND BCL CROSSMEMBERS  
BOXED AND TAPERED CROSSMEMBER  
FIFTH WHEEL, AIR SLIDE - LH RELEASE (BOLTED TO OUTBOARD MTG ANGLES), FONTAINE SL7ATB SERIES, BRACKET

## Description

HEIGHT 9.75"

5TH WHEEL MOUNTING ANGLES, OUTBOARD MOUNTED ANGLES WITH MOUNTING HOLES

FLAPS - MUD (REAR), MACK BULLDOG TYPE, WHITE POLY ARMOR

MUD FLAP BRACKETS, BETTS B-35 SERIES BRACKETS WITH CONSPICUITY FEATURE

QUARTER FENDERS, STAINLESS STEEL QUARTER FENDERS

TOWING DEVICE - FRONT, (2) CLEVIS

W/O REAR TOWING DEVICE

FUEL TANK - LH, 93 GALLON (350 L) 26" ALUMINUM ROUND

FUEL TANK - RH, 92 GALLON (348 L) 26" ALUMINUM ROUND TANK SPLIT FOR WET LINE KIT

18.4 GALLON (70 L) 26" DIAMETER TANK LEFT SIDE FRAME MTD

PAINTED FINISH DEF TANK COVER

BRAIDED HOSE

DUAL DRAW AND RETURN FUEL SYSTEM

## FRONT AXLE/EQUIPMENT/TIRES

FRONT AXLE, 14600# (6600kg) MACK FXL14.6

TIRES BRAND/TYPE - FRONT, MICHELIN - TUBELESS RADIAL PLY, (2) 11R22.5 16 H XZE2 (ALL POSITION)

WHEELS - FRONT, ALUMINUM DISC

(2) 22.5x8.25 ALCOA 10-HOLE HUB PILOTED

WHEELS - POLISHED (FRONT), DURA BRIGHT MILLED WHEELS

BRAKES - FRONT, BENDIX ES165-06D, 16.5" x 6" CAST SPIDER

BRAKE DRUMS - FRONT, CAST OUTBOARD MOUNTED

DUST SHIELDS - FRONT BRAKE, FURNISH

HUBS - FRONT, FERROUS

FAG SCHAEFFLER, FRONT HUB OIL SEAL

DOUBLE ACTING TYPE

SLACK ADJUSTERS - FRONT, HALDEX - AUTOMATIC

SPRINGS - FRONT, MACK TAPERLEAF 14600# (6600kg) GROUND LOAD RATING

STEERING, M100P SHEP-POWER (INTEGRAL)

SYNTHETIC LUBRICANT - WHL BEARINGS, FACTORY OPTION FRONT WHEEL BEARINGS LUBRICANT

## REAR AXLE/EQUIPMENT/TIRES/RATIOS

REAR AXLE/SUSPENSION, 44000# (19958kg) MACK S440 FABRICATED STEEL HOUSING, SAL440 MACK AL-461 AIR 46000#  
CAPACITY

TIRES BRAND/TYPE - REAR, MICHELIN - TUBELESS RADIAL PLY, (8) 11R22.5 16 H XZY3 (ALL POSITION)

CARRIER/RATIO - REAR AXLE, CRDP150/151, 3.40 RATIO

WHEELS - REAR, ALUMINUM DISC

(8) 22.5x8.25 (210 mm) ALCOA 10-HOLE HUB PILOTED (11 1/4" 286mm BOLT CIRCLE)

WHEELS - POLISHED (REAR), DURABRIGHT MILLED FINISH

BRAKES - REAR, BENDIX ES165-07D, 16.5x7 CAST SPIDER

BRAKE DRUMS - REAR, CAST OUTBOARD MOUNTED

DUST SHIELDS - REAR BRAKE, FURNISH

HUBS - REAR, FERROUS

OIL SEALS, STEMCO (VOYAGER)

POWER DIVIDER LOCKOUT W/WARNING LIGHT AND BUZZER (INCLUDES IN CAB MANUAL AIR VALVE)

**Description**

SHOCK ABSORBERS - (4), MOUNTED ON FORWARD AND REAR AXLES EACH SIDE  
SLACK ADJUSTERS - REAR, HALDEX - AUTOMATIC  
SUSPENSION - AXLE SPACING, 52" AXLE SPACING (BOGIE WHEELBASE)  
SUSPENSION - HEIGHT CONTROL KIT, MACK CONTROL KIT W/WARNING LIGHT AND BUZZER  
SPRING BRAKE CHAMBERS - QUANTITY, (4) CHAMBERS  
SPRING BRAKE CHAMBERS - VENDOR, HALDEX  
SPRING BRAKE CHAMBERS, TYPE 30/30 REAR  
LUBRICANT - TANDEM REAR AXLE, 80W-90 CHEVRON DELO GEAR LUBRICANT  
TRANSVERSE TORQUE RODS (BOTH AXLES)  
DRIVER CONTROLLED INTER WHEEL DIFFERENTIAL LOCK BOTH RR AXLES, MANUAL AIR VALVE W/WARNING LIGHT.

**FRAME/WHEELBASE/PLATFORM**

FRAME RAILS, 11.81" x 3.54" x .37" (300 x 90 x 9.5mm) STEEL Section Modulus: 20.6 cu in/RBM 2,470,000 in lbs per rail  
WHEELBASE, 191" (4860 mm) WB 126" CA (3197 mm)  
PLATFORM, 182" LP (4627 mm) 56" AF (1430 mm) USED WITH 191" WB

**AIR/BRAKE**

ABS/ATC DRIVER OPTION, LOCATE ATC MUD/SNOW SWITCH NEXT TO CRUISE CONTROL SWITCHES ON "D" PANEL  
AIR DRYER, BENDIX HEATED AIR DRYER, AD9 W/COALESCING OIL FILTER  
ANTI-LOCK BRAKE SYSTEM, MACK ROAD STABILITY ADVANTAGE BENDIX ABS/ATC/ESP W/YAW CONTROL  
W/O COLLISION WARNING SYSTEM  
BRAKE CONTROL VALVE SYSTEM, TWO (2) VALVE DUAL BRAKE SYSTEM - TRAILER SUPPLY AND TRACTOR-TRAILER  
PARK  
DRAIN VALVES, AUTOMATIC DRAIN VALVE, HEATED, ON SUPPLY TANK, W/LANYARDS ON ALL OTHER TANKS  
HAND CONTROL VALVE FOR TRAILER BRAKES  
WITHOUT SPRING BRAKE INVERSION VALVE  
LOW PROFILE DECK PLATE (Useable CA, 112"-129")

**TRAILER CONNECTIONS**

TRAILER AIR CONNECTIONS, TRAILER AIR BRAKE CONNECTIONS, BACK OF CAB  
TRAILER AIR HOSES (12 FT COILED TYPE)  
GLAD HAND COUPLINGS - NORTH AMERICAN STD  
STRAIGHT - 12FT. PHILLIPS, LECTRAFLX, ISOFLEX TLR CORDS RT TO RR CAB/SLPR  
TRAILER ELECTRICAL RECEPTACLE, SAEJ560 & ISO3731 TRL. RCPT. BOC W/CMN PIN (GND-HT) + ISO3731 BLU CTR  
WRE TO DSH SW/LP; ING. FEED  
PHILLIPS COUPLING 2-PLUG HOLDER

**ELECTRICAL**

BACK-UP ALARM, W/INTERMITTENT FEATURE (AMBIENT NOISE SENSITIVE 87-112 DB(A))  
BATTERY BOX COVERS, MOLDED PLASTIC  
BATTERY BOX - MOUNTING, (3) BATTERY MAX, MTD LHS UNDER CAB, W/AIR RESERVOIR MTD LHS BOC  
FLAMING RIVER BIG SWITCH WIRED ON POSITIVE SIDE  
BATTERY SHOCK PADS  
TRIPLES TRAILER ELECTRICAL PACKAGE INCLUDES: 12 GAUGE WIRE FOR TURN SIGNALS, 12 GAUGE WIRE AND 30  
AMP CIRCUIT W/RELAY FOR CLEARANCE AND MARKER LAMPS, 10 GAUGE WIRE AND 20 AMP CIRCUIT W/RELAY FOR  
STOP LAMPS, 12 GAUGE WIRE AND 20 AMP CIRCUIT W/RELAY FOR TAIL LAMPS, AND 8 GAUGE WIRE FOR GROUND  
ELECTRIC CIRCUIT PROTECTION PACKAGE, ALL CIRCUITS FUSE/BREAKER PROTECTED



## Description

WATERPROOF ELECTRICAL CONNECTIONS SPRAYED W/PROTECTIVE COATING  
SIGNAL FLASHER TYPE, TRANSISTORIZED TURN SIGNAL, ACD TRITON  
TRAILER HOOK-UP LIGHT, SINGLE (1) BACK OF CAB, DAYCAB

## PAINT/VINYL STRIPING

PAINT/VINYL STRIPING - CAB EXTERIOR, SINGLE COLOR, MACK WHITE (HIGH GLOSS)  
PAINT - CAB, URETHANE BASE COAT W/O CLEAR COAT  
PAINT - CHASSIS RUNNING GEAR, MACK BLACK (URETHANE)  
WITHOUT SPECIAL PRE-FINISHED OPTIONS  
WITHOUT SPECIAL PRE-FINISHED OPTIONS

## PAINT PROCESS CODES

W/O PAINT FOR BUMPER (5ZB-Z1X)  
CHASSIS RUNNING GEAR - STD COLOR (MACK BLACK) (6AB-Z1X)  
W/O PAINT FOR FUEL TANK (7HB-Z1X)  
W/O CUSTOM PAINT FOR HUB&DRUM/SPOKES (5YB-Z1X)  
W/O CUSTOM PAINTED FRONT/REAR RIM/WHEEL (6BB-Z1X)

## PTO/SPECIALTY/ADDITIONAL EQUIPMENT

W/O OPTIONAL TRANS TORQUE CONVERTER

## V-MAC IV PROGRAMMABLE PARAMETERS

CRUISE CONTROL SETTINGS W/O ALLISON TRANS  
CRUISE CONTROL MAX SET SPEED (MPH) 72 mph  
CRUISE CONTROL MIN SET SPEED (MPH) 20 mph  
CRUISE CONTROL AUTORESUME W/CLUTCH Furnish  
CRUISE'N BRAKE ENGAGEMENT DELAY (MPH) 3 mph  
DATAMAX SETTING FOR USE WITH INSTRUMENT CLUSTER DISPLAY (C0J002)  
ENGINE OVERSPEED COMPANY LIMIT (RPM) 2200 rpm  
FUELED ENGINE OVERSPEED COMPANY LIMIT (RPM) 2100 rpm  
VEHICLE OVERSPEED COMPANY LIMIT (MPH) 75 mph  
FUELED VEHICLE OVERSPEED COMPANY LIMIT (MPH) 70 mph  
IDLE LOGGING DELAY (MIN) 2  
PERIODIC TRIP TYPE Monthly Trip Summary  
PERIODIC TRIP HOUR OF DAY 0 (disable)  
PERIODIC TRIP DAY OF WEEK 0 (disable)  
PERIODIC TRIP DAY OF MONTH 1  
DAYTIME RUNNING LIGHTS W/O OVERRIDE SWITCH  
DRL OVERRIDE SWITCH SPEED THRESHOLD (MPH) 00  
DRL OVERRIDE SWITCH OFF TIME (MIN) 00 mph  
CO-PILOT FLEET TRIP PROGRAMMING ACCESS Fleet Level  
FLEET MANAGEMENT VIA CO-PILOT Omit  
DEL MESSAGES CO-PILOT ACTIVATION Omit  
EHT MAX ENGINE SET SPEED (RPM)

2100 rpm

EHT MIN ENGINE SET SPEED (RPM) 500 rpm  
EHT VEHICLE SPEED RANGE LIMIT (MPH) 10 mph

## Description

EHT RAMP RATE (RPM/Sec)  
EHT SINGLE SPEED CONTROL ACTIVATION Omit  
EHT SINGLE SPEED CONTROL SET SPEED (RPM) 1000 rpm  
EHT JUMP-TO-MIN SET SPEED Omit  
ENGINE PROTECTION - OIL PRESSURE SHUTDOWN Furnish  
ENGINE PROTECTION - COOLANT LEVEL SHUTDOWN Omit  
ENGINE PROTECTION - COOLANT TEMP SHUTDOWN Furnish  
ENGINE PROTECTION - ENGINE OIL TEMP SHUTDOWN Furnish  
ENGINE PROTECTION TRANS OIL TEMP SHUTDOWN Omit  
FUEL ECONOMY INCENTIVE FOR USE WITH INSTRUMENT CLUSTER DISPLAY (C0J 0002)  
FEI PENALTY TARGET FUEL ECONOMY No Driver Incentive  
FEI PENALTY TARGET FUEL ECONOMY (MPG) 0.0  
FEI PENALTY VEHICLE SPEED DECREASE (MPH) 0 mph  
FEI REWARD TARGET FUEL ECONOMY (MPG) 0.0  
FEI REWARD VEHICLE SPEED INCREASE (MPH) 0 mph  
FEI DISTANCE CALCULATION INTERVAL (Miles) 00  
GOVERNOR SETTINGS FOR USE WITHOUT AUTOMATIC TRANSMISSIONS  
GOVERNOR TYPE Min-Max Governor  
ENGINE HIGH IDLE SPEED IN UPPER GEARS 2100  
ENGINE LOW IDLE SET SPEED (RPM) 650 rpm  
DRIVER LOW IDLE ADJUST FEATURE ACTIVATION Omit  
SMART IDLE FEATURE ACTIVATION Omit  
SMART IDLE ELEVATED IDLE RPM TIME (MINS) 10  
IDLE COOLDOWN FEATURE ACTIVATION Omit  
IDLE SHUTDOWN FEATURE ACTIVATION Omit  
IDLE SHUTDOWN TIME (MINS) 10  
IDLE SHUTDOWN WARNING TIME (SECS) 30  
IDLE SHUTDOWN WARM-UP TEMPERATURE (DEG F) 100  
IDLE SHUTDOWN WARM-UP TIMER (MINS) 5  
IDLE S/D OVERRIDE W/EHT Omit  
IDLE S/D OVERRIDE W/PTO Furnish  
IDLE S/D OVERRIDE W/ENGINE LOAD Furnish  
MAINTENANCE MONITOR FEATURE ACTIVATION Furnish  
MAINTENANCE MONITOR OEM DEFAULT INTERVALS MP Highway  
MAINTENANCE DUE WARNING PERCENT 90  
PTO 1 MAX ENGINE SET SPEED (RPM) 2100 rpm  
PTO 1 MIN ENGINE SET SPEED (RPM) 600 rpm  
PTO 1 VEHICLE SPEED RANGE LIMIT (MPH) 10 mph  
PTO 1 RAMP RATE (RPM/Sec) 100  
PTO 1 SINGLE SPEED CONTROL ACTIVATION Omit  
PTO 1 SINGLE SPEED CONTROL SET SPEED (RPM) 1000 rpm  
PTO 1 SINGLE SPEED CONTROL AUTOSET Omit  
PTO 1 JUMP-TO-MIN SET SPEED Omit

## Description

PTO 1 VEHICLE LIMITING SPEED (MPH) 60 mph  
PTO 2 MAX ENGINE SET SPEED (RPM) 2100 rpm  
PTO 2 MIN ENGINE SET SPEED (RPM) 600 rpm  
PTO 2 VEHICLE SPEED RANGE LIMIT (MPH) 10 mph  
PTO 2 RAMP RATE (RPM/Sec) 100  
PTO 2 SINGLE SPEED CONTROL ACTIVATION Omit  
PTO 2 SINGLE SPEED CONTROL SET SPEED (RPM) 1000 rpm  
PTO 2 SINGLE SPEED CONTROL AUTOSET Omit  
PTO 2 JUMP-TO-MIN SET SPEED Omit  
PTO 2 VEHICLE LIMITING SPEED (MPH)  
SPEED SENSOR TAMPER DETECTION SYSTEM ACTIVATION Furnish  
SPEED SENSOR TAMPER DETECTION TORQUE LIMIT (%) 50

TIME GAP SETTING, WITHOUT TIME GAP SETTINGS

TRANSMISSION SETTINGS, TRANSMISSION SETTINGS FOR USE W/O mDRIVE OR W/O EATON AUTO/ULTRASHIFT

EATON AUTOSHIFT/ULTRASHIFT SHIFT MODE W/O Eaton Auto/Ultrashift Mode

CUSTOMER VEHICLE LIMITING SPEED (MPH) 72 mph

LGVLS FEATURE ACTIVATION Omit

LOWER GEAR VEHICLE LIMITING SPEED (MPH) 70 mph

## DEALER INFORMATION

ENGINE WARRANTY, 2YR/250,000 MILES ENGINE WARRANTY US10

MANUALS, PEDIGREED PROTECTION PLAN TECH. SERVICE MANUAL PROVIDED

PILOT INSPECTION, WITHOUT PILOT INSPECTION

PREP

WETLINE

BULLDOG PROTECTION 36/200,000 BRONZE PROTECTION W/EATS/HARNESS STARTER/ALTERNATOR

STANDARD SHIPPING INSTRUCTIONS

# NORMAL DUTY WARRANTY CERTIFICATE



Mack Trucks, Inc., warrants certain individual components of the new Mack truck to be free from defects in material and workmanship under normal use and service up to the periods as specified, provided all Mack Trucks, Inc. maintenance and inspection requirements found in the Operator's Manuals and service manual/instructions are followed. All warranty periods are calculated from date in service. All coverage is 100% for parts and labor excepts as noted.

**LIMITATIONS AND EXCLUSIONS TO THIS WARRANTY APPEAR ON THE REVERSE SIDE OF THIS CERTIFICATE. THESE LIMITATIONS AND EXCLUSIONS ARE IMPORTANT AND MUST BE READ AND UNDERSTOOD.**

This warranty applies to Model Year 2012 and newer models manufactured by Mack Trucks, Inc. with EPA '10 Engine Emissions operated in the United States and Canada. Specific coverage is based on the application and weight class as described in the following chart:

CHASSIS BUILT WITH EPA '10 EMISSION ENGINES VEHICLE APPLICATION: HIGHWAY / NORMAL DUTY (A)	Hours	Months	Miles	Kilometers
<b>SCHEDULE 1. BASIC VEHICLE*</b> **Roadside Assistance and Towing on warrantable failures are covered for 3 months/5,000 miles/8,050 kilometers *Brake Drums are covered for 12 months or 25,000 miles/40,000 kilometers only.	---	12 3	100,000 5,000	161 000 8 050
<b>SCHEDULE 2. MACK DIESEL ENGINE</b> Standard Warranty: **Standard Warranty Includes: Roadside Assistance and Towing on warrantable engine failures.	6,250	24	250,000	402 500
Major Components:      Block Stiffener (Ladder Frame)      Engine Gears (Rear Mounted) Camshaft Forging                              Exhaust Manifold Casting Camshaft Caps & Bolts                        Flywheel Housing Connecting Rod & Cap Forging              Intake Manifold Casting Coolant Pump Housing                        Main Bearing Bolts & Caps Crankshaft Forging                            Oil Pump Drive & Driven Gears Cylinder Block Casting                        Thermostat Housing Cylinder Head Casting & Bolts              Timing Gear Cover & Mounting Plate	12,500	60	500,000	805 000
Coverage also applies to consumables such as lubricant, antifreeze, filter elements, belts, hoses and similar maintenance items not reusable and replaced directly as a result of a warrantable engine, carrier, or transmission failure. Components not manufactured by Mack Trucks, Inc., but used on MACK diesel engine assemblies are excluded from the coverage in Schedule 2. These components are covered by the component manufacturer's warranty in effect at the time of delivery. Consult your local Mack service facility for details.				
<b>SCHEDULE 3. MACK T300 and TM300 TRANSMISSIONS</b> Extended Warranty for Long Haul Highway Service - (over 60,000 miles per year) Applies to Models: T306G, T309, T310, T313, T313-21, T318, T318-21 Towing on warrantable failures for Mack T300 and TM300 transmissions	--- --- ---	60 60 24	500,000 750,000 250,000	805 000 1 207 500 402 500
Mack mDrive Transmissions: Engine Torque > 1760 ft/lb Extended Warranty for Engine Torque <= 1760 ft/lb mDrive Clutch mDrive Towing on warrantable failures	12,500 15,000 7,500 ---	36 60 36 24	500,000 750,000 300,000 250,000	805 000 1 207 500 480 000 402 500
<b>SCHEDULE 4. DPF SYSTEM COMPONENTS (OEM WARRANTY)</b> <b>DPF/SCR SYSTEM COMPONENTS (EMISSION WARRANTY)</b> *Roadside Assistance and Towing on warrantable DPF/SCR failures	6,250 3,250 6,250	24 60 24	250,000 100,000 250,000	402 500 161 000 402 500
<b>SCHEDULE 5. MACK CARRIER / AXLE HOUSING / FRONT AXLE BEAM</b> Rear Carriers and Housings Front I-Beam, Steering Knuckle & Tie Rod Rear Carrier Seals, Gaskets S65 Bogie and Carrier, Regardless of Carrier Model	--- --- --- ---	60 36 36 12	500,000 300,000 300,000 100,000	805 000 483 000 483 000 161 000
<b>SCHEDULE 6. TRUNNION BRACKET AND SPINDLE, SUSPENSION TRUNNION (except Bushings).</b>	---	36	300,000	483 000
<b>SCHEDULE 7. FRAMES: SIDE RAILS AND CROSSMEMBERS</b> Extended Warranty for CHU and CXU Model Chassis	--- ---	60 72	500,000 750,000	805 000 1 207 500
<b>SCHEDULE 8. CAB STRUCTURE</b>	---	60	500,000	805 000
<b>SCHEDULE 9. CAB CORROSION</b> Coverage applies to perforation (an actual hole in the cab panel) due to corrosion. Coverage does not apply to corrosion caused by damage to paint finish.	---	60	500,000	805 000
<b>SCHEDULE 10. Components not manufactured by Mack Trucks, Inc. may have warranty coverage different from the above as they are covered by the manufacturer's warranty. Consult your local MACK sales facility for</b>				

\*\*Roadside Assistance and Towing coverage does not apply to vendor engines, transmissions and axles.  
3/19/2010: Schedule 3 - Added Models: T306G, T309, T310, T313, T313-21, T318, T318-21

**THIS WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES AND REPRESENTATIONS OR CONDITIONS, STATUTORY OR OTHERWISE, EXPRESSED OR IMPLIED INCLUDING, BUT NOT LIMITED TO, IMPLIED INCLUDING, BUT NOT LIMITED TO, IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.**

**THESE LIMITATIONS AND EXCLUSIONS ARE IMPORTANT AND MUST BE READ AND UNDERSTOOD**

LIMITATIONS - Mack Trucks, Inc.'s obligation is limited to, at its sole option, repair or replacement of parts which are acknowledged by it to be defective. In the case of acknowledged defective assemblies, exchange with factory rebuilt units may occur. The defective parts or assemblies replaced shall become the property of Mack Trucks, Inc.. Warranty repairs performed by the dealer's shop in accordance with the terms of the warranty set forth herein are free of charge. Warranty repairs do not constitute an extension of the original warranty period for the vehicle or any part thereof. Warranty consideration can only be given if the deficiency is brought to the attention of an authorized Mack Truck dealer upon discovery and the vehicle must be made available, in a timely fashion during the coverage period, for repair.

**NO PAYMENT OR OTHER COMPENSATION WILL BE MADE FOR CONSEQUENTIAL, INDIRECT OR INCIDENTAL EXPENSES OR DAMAGES OF ANY KIND.**

**EXCLUSIONS:**

1. REPAIR: Warranty consideration can only be given if the deficiency is brought to the attention of an authorized Mack Truck dealer upon discovery and the truck must be made available, in a timely fashion during the warranty period, for repair. Failures resulting from the user's unreasonable delay in making the truck available, after being notified of a potential product problem, are not covered.
2. REPEAT REPAIRS: The term "repeat repair" only refers to the repair or replacement of the exact same part or component more than once. Repair or replacements of different components within the same system does not constitute a repeated repair.
3. DAMAGES: Damages due to accidents, misuse, negligence, improper operations, alterations, storage or transport, operation at excessive speeds, loading beyond the factory rated load capacity, and improper or insufficient maintenance services are not covered. Damages due to failure to follow Mack Trucks, Inc. service procedures are considered damages due to improper maintenance services.
4. APPLICATION: The responsibility of determining the correct application and/or specification for a vehicle sold to a customer belongs at the selling location. Vehicle application problems, including but not limited to, replacement of incorrect axle or transmission gear ratios, failures of component parts of vehicles being operated in excess of factory rated load capacities, or the use of a vehicle for a purpose of which it was not intended are not covered.
5. ENVIRONMENTAL DAMAGE: Parts made out of cloth, leather, wood, rubber, synthetics, paint or chrome which have been effected by exposure to the elements or chemical influence including, but not limited to road salts/chemicals, industrial fall-out or the use of improper cleaners, polishes, and or waxes are not covered.
6. GLASS: Glass breakage and scratches are not covered unless positive physical proof of manufacturing responsibility is established.
7. SUSPENSION PARTS: Suspension parts, including but not limited to rubber bushings, torque rod bushings, spring pins and bushings, and all greased lubrication points that fail due to improper maintenance, abnormally severe service or abuse are not covered.
8. ALTERATIONS: Any vehicle repaired and/ or altered in any way, so as to adversely effect, in Mack Trucks, Inc.'s sole judgment, its stability or reliability, is not covered.
9. OPTIONAL EQUIPMENT: Any part of the truck that fails, malfunctions or does not perform as a result of improper conversion or installation of special bodies or equipment by other manufacturers or suppliers is not covered.
10. MAINTENANCE AND PARTS CONSUMED ("Consumables"): Normal maintenance services including, but not limited to, replacement of oil filters, adjustments of the engine injection pump / transmission / brakes / linkages, as well as diagnosis, test time and all other adjustments, are not covered. Parts which are normally consumed or worn out during the vehicle's usual service life and customarily replaced during usual maintenance service are not covered or have limited coverage. These parts include, but are not limited to, the following:
  - NOT COVERED - Brake linings, clutch brake, clutch linings, mud flaps and brackets.
  - COVERED FOR 30 DAYS - Fluorescent lights or ballast, light bulbs, fuses, wiper blades and all filters (oil, fuel, air, etc.).
  - COVERED FOR 90 DAYS - Loose fasteners, leaking fittings or hose clamps.
  - COVERED FOR 12 MONTHS, OR 100,000 MILES (161,000 KM) OR 3,250 OPERATING HOURS, WHICHEVER OCCURS FIRST - Cab suspension on models used in heavy duty applications, batteries, frame paint, sealed light assemblies, exhaust flex pipe, hose clamps, all rubber/nylon bushings or mounts, flexible hoses, all belts, shock absorbers (leakage only), wheel seals, and all grease lubricated points (tie rods ends, king-pins, u-joints, spring pins, etc.)
11. ALIGNMENT: Alignment of axle(s) and balancing of tires, including changing of axle camber, caster, toe and thrust angle settings are not covered.
12. NON-GENUINE PARTS: Any vehicle which has been repaired by use of parts and accessories, as well as major assemblies and exchange units, which are substandard and which cause a vehicle component or system to fail are not covered.
13. TIRES: Tires are covered by separate warranties given by their respective manufacturers.
14. CAB STRUCTURE AND CORROSION: Cab structural defects or cab corrosion that occurs in areas of the cab that have been previously damaged, repaired, altered or modified are not covered. Cab corrosion where metal is perforated from the outside to the inside is not covered.
15. ENGINES AND AUTOMATIC TRANSMISSIONS: The engines and Allison automatic transmissions used in Mack trucks are warranted by their respective manufacturers. Refer to the engine and transmission manufacturers' warranty statements.
16. ODOMETER READING: Any vehicle in which the odometer has been disconnected or the mileage reading has been altered and the actual mileage cannot be readily determined is not covered.
17. ACCESS TO INFORMATION: The user must allow Mack Trucks, Inc. full access to all data stored in all Electronic Control Modules; failure to do so may result in the loss of warranty coverage.
18. PREMIUM LABOR: Labor for overtime and/or shift differential is not covered.
19. EXCESSIVE LABOR: Excessive labor for a warrantable repair due to installation of equipment or body by the customer is not covered.
20. MISC. EXPENSE: Road service, towing, meals, lodging, telephone calls, travel time, loss of cargo, downtime, loss of revenue, rental vehicles, or driver's wages and other miscellaneous expenses are not covered. Shop supplies, lube oil, lubricants, sealers, anti-freeze, filter elements and labor performed by a non-approved location are not covered.
21. ADDITIONAL COMPONENTS: Components or parts that are not installed by Mack Trucks, Inc. are not covered. Mack Trucks, Inc. factory manufacturing records will determine Mack Trucks, Inc. installations.
22. APPLICATION CHANGE OR CHANGE OF OWNERSHIP: If at any time during the term of the original warranty there is a change in the application of the vehicle or a change in ownership, the owner must notify Mack Trucks, Inc., Post Office Box 26115, Greensboro, NC 27402-6115 in writing and within 30 days of date of the change. Failure to provide such timely notice may result in the warranty becoming null and void. If the change in ownership is accepted by Mack Trucks, Inc., and/or the change in application does not affect coverage, Mack Trucks, Inc. will transfer any remaining applicable portion of the warranty to the new owner or, for the new application.

Mack Trucks, Inc.  
Post Office Box 26115  
Greensboro, North Carolina 27402-6115

### Mack Bulldog Purchased Coverage Engine Offering Comparison

Component(s)	Bronze	Black	Platinum Plus Deductible Based Coverage	Value Plus 1	Value Plus 2	Value Plus 3
Turbo						
Fuel Injectors						
Injector Sieves						
Waterpump						
EGR Cooler, EGR Valve, EGR Mixer						
Rocker Lever Assembly						
ECM						
Piston, Rings and Liners						
Lube Oil Cooler Assembly						
Gear Cover						
Oil Pan						
Connecting Rod Assembly						
Lube Pump Assembly						
Brake Housing, Bushings, Rocker Levers, Roller Pin, Roller, Crosshead Pin, Crosshead, Including Mounting Hardware and Gaskets						
Vibration Dampner						
Cam Follower Assemblies						
Cylinder Head Assembly						
Cylinder Block Assembly						
Engine Cylinder Block Casting						
Engine Cylinder Head Capscrews						
Engine Cylinder Head Casting						
Engine Crankshaft Forging						
Engine Camshaft Forging						
Engine Main Bearing Bolts						
Engine Connecting Rods, Caps and Bolts						
Exhaust Manifold Casting						
Cam Follower Housing						
Intake Manifold Castings						
Rocker Lever Housings						
Gear Train Gears						
Timing Gear and Mounting Plate						
Oil Pump Drive and Driven Gears/Lube Pump						
Thermostat housing						
Flywheel Housing						
Ladder frame						
Air Compressor						
Air Compressor Sprocket & mounting bolts						
EGR Piping and EGR System Wire Harness						
Hoses, Tubes and Lines - Supplied with Engine, Oil fill tube & Cap, Oil pressure valve relief assembly, Engine Breather Tube, Oil pump pickup tubes and distribution tubes, Nozzle holder inserts, Belt tensioners & idler and Oil pan gasket & plug						
PTO drive housing / REPTO						
Fuel Pressure Regulator Valve						
Power Steering Pump						
Fuel Supply Pump						
Block Heater and Exhaust Manifold, gaskets, rings, studs and wraps, Flexplate						
Engine Heat shields						
Electronic unit injector orings, retainer and retainer screws, sleeve,						
Water filter base, Thermostat, Thermostat side cover, Coolant duct cover						
Starter						
Engine After-Treatment System						
EA Harness/Sensor						