

**INFORMATION Redacted PURSUANT TO THE FREEDOM OF  
INFORMATION ACT (FOIA), 5 U.S.C. 552(B)(6)**

EA11-001

FORD

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Appendix B

**1999-2003 F-150, Expedition, Navigator, Blackwood, F-250, Excursion  
Brake Line Corrosion Peer Review**

**OWNER REPORTS**

As the agency is aware, within FCSD's North American Customer Service Operations, there is a Customer Relationship Center (CRC) that is responsible for facilitating communication between customers, dealerships and Ford Motor Company. Among other things, the CRC handles telephonic, electronic, and written inquiries, suggestions, informational requests, and concerns ("contacts") from Ford and Lincoln-Mercury vehicle owners about their vehicles or sales and service experience. The contacts are handled by CRC customer service representatives who enter a summary of the customer contact into a database known as CuDL (Customer Data Link). Certain contacts, such as letters from customers, are entered into the CuDL database. Those that were entered into the earlier MORS II system were also microfilmed. More recently, the records in MORS III/CuDL are imaged and stored electronically.

The CRC assigns to each vehicle-related contact report a "symptom code" or category that generally characterizes the nature of the customer contact or vehicle concern, as described by the owner. The CRC does not undertake to confirm the accuracy of the description provided by the owner; they simply record what is reported. Therefore, given the complexity of the modern motor vehicle, it is Ford's experience that a significant percentage of owner contacts do not contain sufficient information to make a technical assessment of the condition of the vehicle or the cause of the event reported. Accordingly, although MORS contact reports may be useful in identifying potential problems and trends, the records are not the empirical equivalent of confirmed incidents and/or dealership's diagnosis. In the interest of responding promptly to this inquiry, Ford has not undertaken to gather the electronic images related to these contacts because of the largely duplicative nature of the information contained in the images, as well as the time and the burden associated with locating and producing those documents. The pertinent information related to those contacts generally would be included in the contact reports obtained from the CuDL system. To the extent that those documents exist, they are characterized in the comments of MORS III contact reports. Upon request, Ford will attempt to locate any specific items that are of interest to the agency.

In responding to this information request, Ford electronically searched CuDL using the following criteria:

Model Year: 1999-2003

Subject Peer Vehicle: F-150, F-250 light duty and heavy duty, Expedition, Navigator, Blackwood, and Excursion manufactured for sale or lease in the United States, District of Columbia, Puerto Rico, Northern Mariana Islands, Guam, American Samoa and the Virgin Islands.

Date Parameters: 01/01/1998 through 07/26/2011 (the date of this inquiry)

Types of Contacts: All, including suspended data, canceled contacts and inquiries

MORS III Symptom Code(s):

<b>SYMPTOM CATEGORY</b>		<b>Symptom Code Description</b>	<b>MORS CODE</b>
CHASSIS	SERVICE BRAKE SYSTEM	SERVICE BRAKE/ABS INDICATOR	301A00
CHASSIS	SERVICE BRAKE SYSTEM	SERVICE BRAKE PEDAL	301500
CHASSIS	SERVICE BRAKE SYSTEM	SERVICE BRAKE PEDAL HIGH EFFORTS	301550
CHASSIS	SERVICE BRAKE SYSTEM	SERVICE BRAKE PEDAL SOFT/SPONGY	301551
CHASSIS	SERVICE BRAKE SYSTEM	SERVICE BRAKE PEDAL LOW PEDAL	301553
CHASSIS	SERVICE BRAKE SYSTEM	SERVICE BRAKE INOP/INEFFECTIVE	301600
CHASSIS	SERVICE BRAKE SYSTEM	SERVICE BRAKE INOP/INEFFECTIVE FRONT	301686
CHASSIS	SERVICE BRAKE SYSTEM	SERVICE BRAKE INOP/INEFFECTIVE REAR	301687
CHASSIS	SERVICE BRAKE SYSTEM	SERVICE BRAKE INOP/INEFFECT FRONT AND REAR	301688
CHASSIS	SERVICE BRAKE SYSTEM	SERVICE BRAKE LEAKS	301800
CHASSIS	SERVICE BRAKE SYSTEM	SERVICE BRAKE LEAKS FLUID	301820

MORS III Reason Code(s):

<b>Reason Code</b>	<b>Description</b>
0702	LEGAL – ALLEGED INJURY NOT RELATED TO SRS
0703	LEGAL - ALLEGED SERIOUS INJURY
0714	LEGAL - GENERAL/OTHER
0772	LEGAL – ACCIDENT
0773	LEGAL - ACCIDENT & PERSONAL/PROPERTY DAMAGE
0774	LEGAL - INSURANCE COMPANY SETTLEMENT
0775	LEGAL - PERSONAL/PROPERTY DAMAGE CLAIM
0793	LEGAL – ALLEGED – NON-SERIOUS INJURY

Word Searches:

The reports located using the search criteria described above were then searched using the Electronic Data Download System using a keyword process. Those reports that were identified by the keyword search described here were manually reviewed for relevance. The following keyword search was conducted:

*Key Word Search*

Rupture
Abrasion
Chafe
Rub
Burst
Leak
Drip
Fluid
Loss

Level
Hole
Thru
Through
Rust
Corr
Tube
Line
Hose
Pedal
Fail

### **LEGAL CONTACTS**

Beginning in early 2008, most consumer complaints and all legal claim processing has been centralized in OGC within the Consumer Litigation team. A transition has occurred such that all legal contacts (including those formerly handled by "Litigation Prevention") are coordinated through this team.

Prior to the transition, there was a Consumer Affairs Department within FCSD that managed customer concerns, which could not be resolved by the Customer Relationship Center (CRC). Among other things, the Consumer Affairs Department had a section, known as "Litigation Prevention," that handled a variety of informal (i.e., non-litigation) claims, such as property damage claims or attorney demand claims.

The Litigation Prevention section had been centralized in the Consumer Affairs Department since 1995, in Dearborn, Michigan. Prior to that time, Litigation Prevention personnel operated on a regional basis. For matters that the Litigation Prevention section handled, there were typically paper files that reflected the handling, investigation and resolution of property damage claims.

The claims, known as "Legal Contacts" are entered into the CuDL database that the CRC uses to enter other customer communications. When a customer contact is designated as a Legal Contact, it is so indicated near the top of the contact report.

### **FIELD REPORTS**

Within FCSD, there is a Vehicle Service & Programs Office that has overall responsibility for vehicle service and technical support activities, including the administration of field actions. That Office is the primary source within Ford of vehicle concern information originating from Ford and Lincoln-Mercury dealerships, field personnel, and other sources. The information is maintained in a database known as the Common Quality Indicator System (CQIS). The CQIS database includes reports compiled from more than 40 Company sources (e.g., Company-owned vehicle surveys, service technicians, field service and quality engineers, and technical hot line reports, etc.) providing what is intended to be a comprehensive concern identification resource. As with MORS contact reports, CQIS reports are assigned a "symptom code" or category that generally reflects the nature of the concern.

In responding to this information request, Ford electronically searched CQIS using the following criteria:

Model Year:           1999-2003

Subject Vehicle: F-150, F-250 light duty and heavy duty, Expedition, Navigator, Blackwood, and Excursion manufactured for sale or lease in the United States, District of Columbia, Puerto Rico, Northern Mariana Islands, Guam, American Samoa and the Virgin Islands.

Date Parameters: 01/01/1998 through 07/26/2011 (the date of this inquiry)

Symptom Code(s):

Symptom Code	Symptom Description
227700	Driver Aides & Information, Warning Indicators/Messages/Chimes, Brake System Warning Light, Unknown
227730	Driver Aides & Information, Warning Indicators/Messages/Chimes, Brake System Warning Light, Flashes
227738	Driver Aides & Information, Warning Indicators/Messages/Chimes, Brake System Warning Light, Inoperative
227768	Driver Aides & Information, Warning Indicators/Messages/Chimes, Brake System Warning Light, Stays On
660000	Stop/Steer/Ride, Stopping, Unknown, Unknown
660100	Stop/Steer/Ride, Stopping, Performance/Effectiveness, Unknown
660102	Stop/Steer/Ride, Stopping, Performance/Effectiveness, Always
660138	Stop/Steer/Ride, Stopping, Performance/Effectiveness, Inoperative
660300	Stop/Steer/Ride, Stopping, Pedal Feel, Unknown
660328	Stop/Steer/Ride, Stopping, Pedal Feel, Excessive Effort
660340	Stop/Steer/Ride, Stopping, Pedal Feel, Long Travel
660367	Stop/Steer/Ride, Stopping, Pedal Feel, Spongy/Mushy
665100	Stop/Steer/Ride, Pedals/Lever, Brake, Unknown
665162	Stop/Steer/Ride, Pedals/Lever, Brake, Power Function
666200	Stop/Steer/Ride, Fluids, Brake Fluid, Unknown
666216	Stop/Steer/Ride, Fluids, Brake Fluid, Consumption
666287	Stop/Steer/Ride, Fluids, Brake Fluid, Visible Leak

Word Searches:

The reports located using the search criteria described above were then searched using the Electronic Data Download System using a keyword process. Those reports that were identified by the keyword search described here were manually reviewed for relevance. The following keyword search was conducted:

*Key Word Search:*

Rupture
Abrasion
Chafe
Rub
Burst
Leak
Drip
Fluid
Loss
Level
Hole
Thru

Through
Rust
Corr
Tube
Line
Hose
Pedal
Fail

**WARRANTY**

Ford's Analytical Warranty System (AWS) contains warranty claims and vehicle information for model years 1991 and forward for North America, and model years 1992 and forward for Europe.

Ford performed a search of AWS for potentially responsive reports using the following search criteria:

Model Year: 1999-2003

Subject Vehicle: F-150, F-250 light duty and heavy duty, Expedition, Navigator, Blackwood, and Excursion manufactured for sale or lease in the United States, District of Columbia, Puerto Rico, Northern Mariana Islands, Guam, American Samoa and the Virgin Islands.

Base Part Number(s):

- 2234
- 2263
- 2264
- 2265
- 2267
- 2268
- 2B523
- 2B532
- 2C058

Word Searches:

The reports located using the search criteria described above were then searched using the Electronic Data Download System using a keyword process. Those reports that were identified by the keyword search described here were manually reviewed for relevance. The following keyword search was conducted:

*Key Word Search:*

Rupture
Abrasion
Chafe
Rub
Burst
Leak

Drip
Fluid
Loss
Level
Hole
Thru
Through
Rust
Corr
Tube
Line
Hose
Pedal
Fail

## AWS CUSTOMER CONCERN CODES (CCC)

Customer  
Concern

Code (CCC) Customer Concern Description

A02	RECEPTION QUALITY
A04	AUDIO SOUND QUALITY
A06	SPEAKER TROUBLES
A07	OTHER AUDIO TROUBLES
A16	CD PLAYER TROUBLES
A17	CASSETTE PLAYER TROUBLES
A18	FAMILY ENTERTAINMENT SYSTEM TROUBLES
A25	SPEED CONTROL ENGAGEMENT TROUBLES
A26	SPEED CONTROL DISENGAGEMENT TROUBLES
A27	SPEED CONTROL DOES NOT MAINTAIN A CONSISTENT SPEED
A34	HORN TROUBLES
A35	COMPASS/THERMOMETER TROUBLES
A37	SPEEDOMETER TROUBLES
A40	TIRE PRESSURE MONITORING TROUBLES
A59	TRIP COMP./NAVIGATION SYSTEMS TROUBLES

A60	SATELLITE DIGITAL AUDIO REC. SYS. TROUBLES
A85	OTHER ELECTRICAL ACCESSORY TROUBLES
A86	CELLULAR PHONE TROUBLES
A87	CIGARETTE LIGHTER/POWERPOINT TROUBLES
A88	WIRING TROUBLES
A99	ADMINISTRATIVE (PARTS RETURN/MAINT/MISBUILT/ETC.)
B01	BODY PANEL DENTS, DINGS
B02	BODY PANEL FITS POORLY
B05	BODY PANELS HARD TO OPEN
B06	BUMPER DENTS, DINGS
B07	BUMPER FITS POORLY
B09	BODY PANEL/HINGE SQUEAK/RATTLE
B15	BODY PANEL HARD TO CLOSE
B19	OTHER BODY PANEL TROUBLES (NOT INCLUDING TRIM)
B43	DOOR TRIM PANEL - LOOSE, POOR FIT, WARPED, WRINKLED
B44	DOOR TRIM PANEL - TEARS, SNAGS, CRACKS
B45	DOOR TRIM PANEL - FADED, DISCOLORED
B47	DOOR TRIM PANEL - BLISTERED/BUBBLED/PEELED
B50	DOOR TRIM PANEL - SPLIT SEAMS
B53	IP/DASHBOARD - LOOSE, POOR FIT, WARPED, WRINKLED
B54	CENTER FLR CONSOLE - LOOSE,POOR FIT,WARPED,WRINKLED
B62	MOLDINGS,EXTERIOR TRIM CORRODED
B63	MOLDINGS, EXTERIOR TRIM LOOSE/MISSING
B64	MOLDINGS,EXTERIOR TRIM POORLY ALIGNED OR FIT
B65	WHEEL/HUBCAP TROUBLES
B66	OTHER EXTERIOR TRIM TROUBLES
B69	OTHER BUMPER TROUBLES
B73	ROOF LINING MATERIAL - LOOSE, POOR FIT, WARPED,

## WRINKLED

- B74 CARPET/FLOOR MAT - LOOSE, POOR FIT, WARPED, WRINKLED
- B75 TRUNK&CARGO INTERIOR - LOOSE,POOR FIT,WARPED,WRINKLED
- B78 INTERIOR ODOR
- B81 IP/DASHBOARD - TEARS, SNAGS, CRACKS
- B82 IP/DASHBOARD - FADED, DISCOLORED
- B84 IP/DASHBOARD - BLISTERED/BUBBLED/PEELED
- B85 GLOVEBOX DOOR GAPS,FIT POOR,DIFFICULT TO OPN/CLOSE
- B91 CENTER FLOOR CONSOLE - TEARS, SNAGS, CRACKS
- B92 CENTER FLOOR CONSOLE - FADED, DISCOLORED
- B94 CENTER FLOOR CONSOLE - BLISTERED/BUBBLED/PEELED
- B95 OTHER INSTRUMENT PANEL/CONSOLE TROUBLES
- C01 A/C SLOW TO COOL
- C02 A/C NOT COLD ENOUGH
- C03 HEATER-SLOW TO HEAT
- C04 HEATER-NOT HOT ENOUGH
- C05 A/C DOES NOT WORK
- C07 HEATER-DOES NOT WORK
- C09 HEATER, DEFROSTER OR A/C NOISE
- C12 W`SHIELD DEFROST/DEFOGGING DOES NOT WORK
- C15 SIDE WINDOW DEFROST/DEFOGGING DOES NOT WORK
- C19 REGISTER/VENT ADJUSTMENT TROUBLES
- C20 OTHER TEMPERATURE CONTROL TROUBLES
- C21 W`SHIELD DEFROST/DEFOGGING SLOW TO CLEAR/UNEVEN CLEARING
- C22 SIDE WDO DEFROST/DEFOGGING SLOW TO CLEAR/UNEVEN CLEARING
- C23 BACK WINDOW DEFROST/DEFOGGING TROUBLES

C24	A/C WATER LEAK/CONDENSATION TROUBLES
C25	DEAD BATTERY
C26	WEAK OR LOW ELECTRICAL POWER
C27	POWER SUPPLY TROUBLES
C30	A/C HEATER/DEFROSTER ODOR
C50	OTHER STEERING/HANDLING AND RIDE TROUBLES
D02	ENGINE WOULD NOT START
D03	ENGINE DIFFICULT OR SLOW TO START
D10	ENGINE IDLES TOO SLOW
D11	ENGINE IDLES TOO FAST
D13	ENGINE IDLES ROUGH
D21	ENGINE STALLS
D35	EXCESSIVE FUEL CONSUMPTION
D36	ENGINE HESITATES/SURGES WHEN ACCELERATING
D41	ENGINE HESITATES/SURGES AT STEADY SPEED
D42	POOR PERFORMANCE/LACKS POWER
D50	OTHER ENGINE TROUBLES
E19	ENGINE BELT SLIPPING/SQUEALING
E20	ENGINE BELT OFF/FRAYED/COMING APART/BROKEN
E23	ENGINE OVERHEATS/RADIATOR TROUBLES
E26	EXCESSIVE OIL CONSUMPTION
E29	"CHECK ENGINE" LIGHT TROUBLE
E40	ELECTRONIC MODULE TROUBLES
E41	UNUSUAL EXHAUST SYSTEM ODOR
E42	UNUSUAL EXHAUST SYSTEM NOISE
E43	EXHAUST SYSTEM RUST/CORROSION/APPEARANCE
E65	SLOW FUEL TANK FILL/SPITBACK
E68	FUEL LEAK/ODOR

E69	LOW OIL PRESSURE
F04	THIN/NO PAINT (EXCLUDES TRIM/BUMPER)
F05	SAGS/RUNS IN PAINT (EXCLUDES TRIM/BUMPER)
F06	PEELED PAINT (EXCLUDES TRIM/BUMPER)
F07	BUBBLES/BLISTERS IN PAINT (EXCLUDES TRIM/BUMPER)
F10	PAINT SPRAY OVER BODY FINISH (EXCL TRIM/BUMPER)
F11	BODY RUST/CORROSION (NOT PERFORATION,EXCL BUMPER)
F12	STAINED/SPOTTED PAINT (EXCLUDES TRIM/BUMPER)
F13	FADED/DULL PAINT (EXCLUDES TRIM/BUMPER)
F15	DETAIL PAINT OR TAPE STRIPE COMING OFF (EXCL BMPR)
F19	CHIPPED/SCRATCHED PAINT (EXCLUDES TRIM/BUMPER)
F20	DIRT IN PAINT (EXCLUDES TRIM/BUMPER)
F25	RUST PERFORATION
F30	UNEVEN COLOR/COLOR DIFFERENT BETWEEN BODY PANELS
F33	BUMPER FADED/DULL PAINT
F34	BUMPER SAGS/RUNS IN PAINT
F35	BUMPER THIN/NO PAINT
F36	BUMPER STAINED/SPOTTED PAINT
F37	BUMPER DIRT IN PAINT
F38	UNEVEN COLOR/COLOR DIFFERENCES BTW. BUMPER PANELS
F39	BUMPER RUST/CORROSION
F41	BUMPER PEELED PAINT
F99	INSUFFICIENT FLUID
G02	GLASS BROKEN/CHIPPED/CRACKED/DISTORTED
G05	WINDOW OPENING, CLOSING TROUBLES-MANUAL
G07	WINDOW OPENING, CLOSING TROUBLES-POWER
G09	GLASS NOISE (SQUEAK/RATTLE/SCRAPE)
G29	OTHER INDICATOR/WARNING LIGHT TROUBLES

G30	ODOMETER TROUBLES
G31	ENGINE TEMP GAGE TROUBLES
G32	INST. CLUST/MESSAGE CENTER TROUBLES
H02	BRAKES GRAB OR LOCK-UP
H04	PARKING BRAKE TROUBLES
H05	EXCESSIVE "BRAKE PEDAL EFFORT" REQUIRED
H06	VEHICLE PULLS LEFT WHILE BRAKING
H07	VEHICLE PULLS RIGHT WHILE BRAKING
H15	BRAKE PEDAL SPONGY
H16	BRAKES TOO SENSITIVE
H19	BRAKE-ABS WARNING LIGHT TROUBLES
H20	OTHER BRAKE TROUBLES (INCLUDING AIR BRAKES)
H21	STEERING HAS EXCESSIVE FREE PLAY/WANDER
H22	STEERING REQUIRES EXTRA OR UNEVEN EFFORT
H24	STRG WHL SPOKES NOT CORRECTLY POSITIONED WHEN FRNT
H25	CONSTANT PULL TO LEFT
H26	CONSTANT PULL TO RIGHT
H39	TRACTION CONTROL/ADVANCE TRAC WARNING LIGHT TROUBLES
H44	HARSH RIDE
H45	MUSHY RIDE
H50	STEERING GEAR/PUMP TROUBLES
H62	IMPROPER TIRE WEAR
J03	SUN/MOON/T-TOP/CONVERTIBLE ROOF FITS POORLY
J04	SUN/MOON/T-TOP/CONVERTIBLE DIFFICULT TO OPN/CLS
K01	TRANSFER CASE TROUBLES
K02	AXLE WHINE/HOWL/GROAN
K03	AXLE VIBRATION/SHAKE

L06	EXT. DOOR LOCK CONTROLS-MANUAL
L07	EXT. DOOR LOCK CONTROLS-POWER
L08	EXTERIOR DOOR HANDLE TROUBLES
L10	FUEL-FILLER DOOR TROUBLES
L13	IGNITION SWITCH TROUBLES
L14	ANTI-THEFT/ALARM SYSTEM TROUBLES
L15	OTHER LOCK/MECHANISM TROUBLES
L16	INT. DOOR LOCK CONTROLS - MANUAL
L17	INT. DOOR LOCK CONTROLS - POWER
L18	INTERIOR DOOR HANDLE TROUBLES
L19	DOOR AJAR WARNING LIGHT TROUBLES
L20	REMOTE/KEYLESS ENTRY TROUBLES
L22	HEADLAMP AIM/ALIGNMENT
L23	KEY TROUBLES
L25	LIGHTS NOT WORKING-INTERIOR
L26	LIGHTS NOT WORKING-EXTERIOR
L29	OTHER LIGHTING TROUBLES (INCL. LEAKS/CONDENSATION)
L30	TURN SIGNAL TROUBLES
L63	BRAKE FLUID LEAK
L65	ENGINE LEAKS OIL
L68	POWER STEERING FLUID LEAK
L69	FUEL GAUGE TROUBLES
L72	TRANSMISSION/CLUTCH FLUID LEAKS
L85	UNDETERMINED ENGINE LEAK
L87	COOLANT LEAK
L88	FRONT/REAR AXLE OR DRIVESHAFT LEAKS
M05	EXTERIOR MIRROR TROUBLES
M06	INTERIOR MIRROR TROUBLES

M10	OTHER MIRROR TROUBLES
N11	UNUSUAL ENGINE NOISE AT IDLE
N12	UNUSUAL ENGINE NOISE WHILE DRIVING
N17	BRAKES NOISY
N18	UNUSUAL TRANSMISSION NOISE
N22	VEHICLE VIBRATES WHEN DRIVING BELOW 45 MPH
N23	STEERING WHEEL VIBRATION/SHIMMY BELOW 45 MPH
N24	STEERING WHEEL VIBRATION/SHIMMY ABOVE 45 MPH
N25	VEHICLE VIBRATES WHEN DRIVING ABOVE 45 MPH
N27	VIBRATION OR SHUDDER WHILE BRAKING
N30	OVERHEAD CONSOLE SQUEAK/RATTLE
N31	CENTER FLOOR CONSOLE SQUEAK/RATTLE
N32	GLOVE BOX DOOR SQUEAK/RATTLE
N33	INSTRUMENT PANEL/DASHBOARD SQUEAK/RATTLE
N40	FRONT SIDE DOOR SQUEAK/RATTLE
N41	REAR SIDE DOOR SQUEAK/RATTLE
N42	TRUNK,H'BACK,T'GATE,REAR CARGO DOOR SQUEAK/RATTLE
N43	SUN/MOON,T-TOP, CONVERTIBLE ROOF SQUEAK/RATTLE
N50	SQUEAK/RATTLE VEHICLE EXTERIOR-FRONT
N51	SQUEAK/RATTLE VEHICLE EXTERIOR-REAR
N57	STEERING COLUMN/WHEEL SQUEAK/RATTLE
N58	STEERING NOISY
N59	OTHER SQUEAK/RATTLE (EXCLUDING WIND NOISE)
P01	DIFFICULT TO OPERATE SHIFT LEVER,CHANGE GEARS
P09	OTHER MANUAL TRANSMISSION TROUBLES
P22	CLUTCH CHATTERS/GRABS/SLIPS/JERKS
P23	CLUTCH REQUIRES TOO MUCH OR UNEVEN EFFORT
P24	OTHER CLUTCH TROUBLES

P31	MANUAL-4-WHEEL/ALL WHEEL DRIVE TROUBLES
P51	DIFFICULT TO OPERATE SHIFT LEVER
P59	OTHER AUTOMATIC TRANSMISSION TROUBLES
P66	SHIFTS ROUGH OR JERKY WHILE DRIVING
P67	SHIFTS OCCUR TOO EARLY, TOO LATE, TOO OFTEN
P68	TRANSMISSION SHIFTS ROUGH OR JERKY FROM PARK
P69	GEAR CHANGES TAKE TOO LONG TO COMPLETE
P82	AUTOMATIC - 4-WHEEL/ALL -WHEEL DRIVE TROUBLES
P83	NO FORWARD/REVERSE MOVEMENT IN GEAR
R01	WATER LEAK AROUND WINDSHIELD
R02	WATER LEAK AROUND FRONT SIDE DOOR/WINDOW
R03	WATER LEAK AROUND REAR SIDE DOOR/WINDOW
R04	WATER LEAK AROUND BACK WINDOW
R05	WATER LEAK AROUND SLIDING REAR WINDOW
R06	WATER LEAK AROUND TRUNK/HATCHBK/LIFTGT/RR CARGO DR
R08	WATER LEAK AROUND NON-SLIDING REAR WINDOW
R09	WATER LEAK AROUND SUN/MOON/CONVERTIBLE/T-TOP ROOF
R10	OTHER WATER LEAKS (SEALING ISSUES ONLY)
R21	WIND NOISE AROUND WINDSHIELD
R22	WIND NOISE AROUND FRONT SIDE DOOR/WINDOW
R23	WIND NOISE AROUND REAR SIDE DOOR/WINDOW
R24	WIND NOISE AROUND BACK WINDOW
R25	WIND NOISE AROUND SLIDING REAR WINDOW
R26	WIND NOISE AROUND TRUNK/HATCHBK/LIFTGT/RR CARGO DR
R29	WIND NOISE AROUND SUN/MOON/CONVERTIBLE/T-TOP ROOF
R30	OTHER WIND NOISE TROUBLES (TURBULENCE)
R31	OTHER GASKET/SEALING TROUBLES
S03	FRONT SEAT LOOSE

S04	REAR SEAT LOOSE
S06	SEAT ADJUSTMENT OPERATION - FRONT MANUAL CNTRL
S07	SEAT ADJUSTMENT OPERATION - REAR SEAT
S08	SEAT LOOSE THIRD ROW
S09	FRONT SEAT SQUEAK/RATTLE
S15	SEAT ADJUSTMENT OPERATION TROUBLE-FRONT POWER CNTL
S17	REAR SEAT SQUEAK/RATTLE
S21	SEAT BELT SOILED/DIRTY
S25	SEAT BELT COIL/UNCOIL TROUBLES
S26	SEAT BELT BUCKLE LATCHING TROUBLES
S27	STEERING WHEEL TRIM APPEARANCE
S38	AIR BAG (SRS) TROUBLES
S39	AIR BAG WARNING LIGHT TROUBLES
S40	OTHER RESTRAINT TROUBLES
S50	SEAT UPHOLSTERY - LOOSE, POOR FIT, WARPED, WRINKLED
S52	SEAT UPHOLSTERY - TEARS, SNAGS, CRACKS
S53	SEAT UPHOLSTERY - FADED, DISCOLORED
S55	SEAT UPHOLSTERY - SPLIT SEAMS
S56	HEATED/COOLED SEAT TROUBLES
T02	ROOF LINING MATERIAL - TEARS, SNAGS, CRACKS
T03	ROOF LINING MATERIAL - FADED, DISCOLORED
T12	CARPET/FLOOR COVERING - TEARS, SNAGS, CRACKS
T13	CARPET/FLOOR COVERING - FADED, DISCOLORED
T15	CARPET/FLOOR COVERING - SPLITTING SEAMS
T22	TRUNK/CARGO INTERIOR - TEARS, SNAGS, CRACKS
T50	CUPHOLDER TROUBLES
T51	SUN VISOR TROUBLES
T52	ASHTRAY TROUBLES

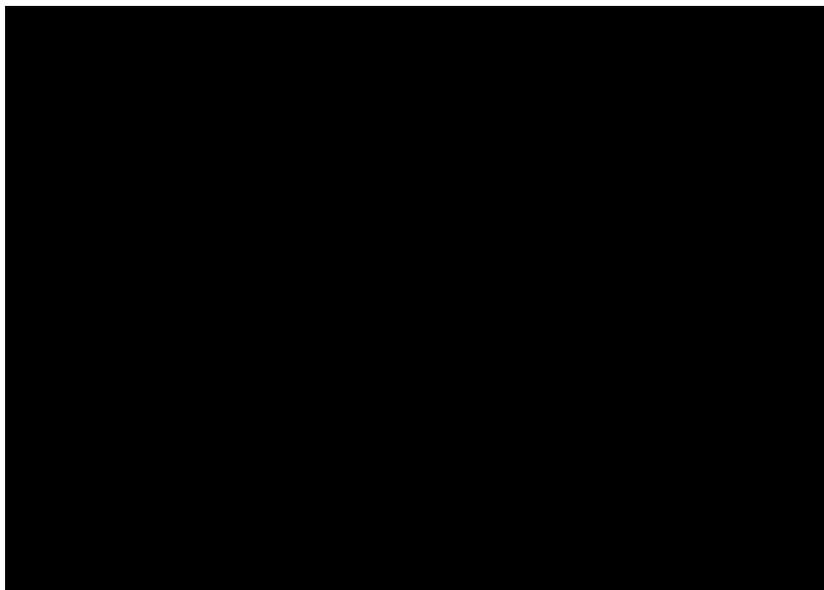
T53	INT MOLDING - LOOSE, POOR FIT, WARPED, WRINKLED
T54	INTERIOR MOLDINGS - MISSING
T55	INT FASTENERS - LOOSE, MISSING, POOR FIT, WARPED
TA1	ENTIRE OR PARTIAL TREAD SEPARATION FROM TIRE
TA2	TIRE SIDEWALL BLOWOUT OR SUDDEN AIR LOSS
TA3	BUBBLE/BULGE(S) IN SIDEWALL
TA4	SPLITS/CRACKS IN SIDEWALL/TREAD
TA5	TIRE TREAD CHUNKS MISSING
TB2	FLAT TIRE (SELF-SEALING TIRES ONLY)
TB3	VIBRATION/OUT OF ROUND
TB6	SLOW LEAKS (NOT CAUSED BY WHEEL VALVE STEM)
TB7	PREMATURE TREAD WEAR
TB8	PULLS/DRIFTS (NOT CAUSED BY ALIGNMENT)
TC8	OTHER (REQUIRES DESCRIPTION)
W03	FRONT WINDSHIELD WASHER TROUBLES
W04	REAR WINDOW WASHER TROUBLES
W05	FRONT WIPERS TROUBLES
W06	REAR WINDOW WIPERS TROUBLES
W10	OTHER WIPER/WASHER TROUBLES (INCLUDING LEAKS)

EA11-001

FORD

9-28-2011

Appendix D



BEGINNING OF CONTACT  
09/28/2010

VOICE OF THE CUSTOMER TRACKING SYSTEM

07.55.07

REGION: A1 SELECT DEALER OGC ISSUE CASE NBR: 1515122700  
VIN: 1FMPU18L5XL [REDACTED] ZONE: A08 OPENED: 2010/09/27  
ENGINE: L VEH TYPE: T CLOSED: 2010/09/27

LAST NAME: [REDACTED] FIRST NAME: [REDACTED] STATUS: CLOSED  
TITLE: [REDACTED] MI:  
ADDRESS: [REDACTED]  
CITY: FORDS STATE: NJ ZIP: 08863  
HOME PHONE:  
MODEL YEAR: 1999 MODEL: EXPEDITI  
MILEAGE: 111000  
DEALER NAME: SMITH MOTOR CO INC SALES CODE: F13457 P & A: 20630  
REASON CODE: 0796 LEGAL - ALLEGED INJURY  
SYMPTOMS: 704100 FIRE/SMOKE VISIBLE FLAME

ORIGIN: CACI38 - US CONCERN CASE BASE COMMUNICATION: PHONE  
ACTION: 705 - CONTACT ADVANCED TO OGC  
DOCUMENT: ANALYST: SMILL240 MILLER, SUSAN

DATE: 2010/09/27 TIME: 14.18.31 :  
ACTION DATA/COMMENTS:

CUSTOMER SAID: -VEH JUST CAUGHT FIRE ON FRIDAY-VEH AT DLR NOW -TOOK VEH TO CAR WASH -THEY NOTICED A SMALL AMOUNT OF SMOKE-S/M STATES BRAKE LINES DEVELOPED A LEAK AND THIS IS THE CAUSE OF FIRE-COST OF REPAIR 1300.00-VEH AT SMITH MOTORS-FLAMES WERE SEEN FROM THE WHEEL WELL ON THE EXHAUST MANIFOLD\*\*\*\*\*1. DATE THE VEHICLE CAUGHT ON FIRE. 09/24/10 2. WHERE THE FIRE ORIGINATED IN THE VEHICLE. UNDER HOOD UNDERNEATH IN THE WHEEL WELL ON THE EXHAUST MANIFOLD ON DRIVER SIDE 3. CURRENT LOCATION OF THE VEHICLE. SMITH MOTORS 4. WHETHER OR NOT THERE WAS A FIRE REPORT FILED WITH THE FIRE DEPARTMENT. FIRE DEPT WAS NOT CALLED 5. IF A FIRE REPORT WAS FILED, WHAT THE FINDINGS WERE. FIRE DEPT WAS NOT CALLED 6. THE FIRE REPORT NUMBER AND THE CITY OR COUNTY IN WHICH THE REPORT WAS FILED. UNKNOWN 7. IF THERE WERE DAMAGES TO ANYTHING OTHER THAN THE VEHICLE. NO JUST THE ENGINE COMPARTMENT 8. WHETHER OR NOT THE CUSTOMER HAS FILED A CLAIM WITH THEIR INSURANCE COMPANY. NO 9. IF A CLAIM HAS BEEN FILED WITH THE INSURANCE COMPANY, WHAT IS THE STATUS OF THE CLAIM. NO FILED 10. WHETHER OR NOT THE VEHICLE IS REPAIRABLE. VEH AT DLR NOW. IS REPAIRABLE 11. NAME AND ADDRESS OF CUSTOMER'S ATTORNEY (ONLY IF THE CUSTOMER MENTIONS THEY HAVE SOUGHT ONE). NONE MENTIONED 12. WHETHER OR NOT THE VEHICLE WAS RUNNING WHEN THE FIRE STARTED. YES VEH WAS RUNNING 13. WHAT THE CUSTOMER IS SEEKING HELP WITH COST OF REPAIR DEALER SAID: SMITH MOTOR COMPANY INC. 359 ROUTE 31 WASHINGTON, NJ 07882 TEL:(908) 835-8100 CRC ADVISED: I WILL FORWARD YOUR INFORMATION TO FORD'S OFFICE OF THE GENERAL COUNSEL. YOU SHOULD RECEIVE A WRITTEN RESPONSE WITHIN 15 BUSINESS DAYS TO YOUR CONCERN. NOTE TO CCR: REMEMBER TO VERIFY ALL CUSTOMER CONTACT INFORMATION BEFORE SENDING ISSUE.

EA11-001

FORD

9-28-2011

Appendix E

Claimant_Name	Claimant_Address	Claimant_Phone	Rep_Name	Rep_Phone	Owner_Name	Owner_Address
[REDACTED]	[REDACTED]	[REDACTED]	Andrew Reiner	310-553-3800	[REDACTED]	[REDACTED] Encino, CA [REDACTED]

Owner_Phone	Incident_State	Incident_Date	Notice_Date	Make	Model	MY	VIN	Mileage	Alleged_Crash
[REDACTED]	CA	1/12/2001	12/14/2001	Lincoln	Navigator	2001	5LMEU27A41L [REDACTED]	2881	Y

EA11-001

FORD

9-28-2011

Appendix F

Type	Claimant_Name	Claimant_Address	Claimant_Phone	Rep_Name	Rep_Phone	Owner_Name	Owner_Address
Claim	[REDACTED]	[REDACTED] Glen Gardner, NJ [REDACTED]	[REDACTED]			[REDACTED]	[REDACTED]
Claim	[REDACTED]	[REDACTED] Encino, CA [REDACTED]	[REDACTED]	Andrew Reiner	310-553-3800	[REDACTED]	[REDACTED]

Owner_Phone	Incident_State	Litigation	Incident_Date	Notice_Date	Make	Model	MY	VIN	Mileage	Alleged_Crash
[REDACTED]	NJ	N	9/24/2010	9/28/2010	Ford	Expedition	1999	1FMPU18L5XL [REDACTED]	111000	N
[REDACTED]	CA	N	1/12/2001	12/14/2001	Lincoln	Navigator	2001	5LMEU27A41L [REDACTED]	2881	Y

Alleged_Rollover	Alleged_Property_Damage	Alleged_Fire	Alleged_Injuries	Alleged_Fatalities
N	Y	Y	0	0
N	N	N	0	0

EA11-001

FORD

9-28-2011

Appendix H

**New Contract Coverage**

		1999-2003 Blackwood										
		Coverage		Plan Years								
		Time	Mileage	2001	2002	2004	2005	2006	2007	2009	2010	2011
<b>BASECARE</b>	<b>3 Years</b>	<b>48000</b>	X	X	X	X	X	X	X	X	X	X
		<b>60000</b>	X	X	X	X	X	X	X	X	X	X
	<b>5 Years</b>	<b>60000</b>	X	X	X	X	X	X	X	X	X	X
		<b>75000</b>	X	X	X	X	X	X	X	X	X	X

		1999-2003 Blackwood										
		Coverage		Plan Years								
		Time	Mileage	2001	2002	2004	2005	2006	2007	2009	2010	2011
<b>EXTRACARE</b>	<b>3 Years</b>	<b>60000</b>	X	X	X	X	X	X	X	X	X	X
		<b>75000</b>	X	X	X	X	X	X	X	X	X	X
	<b>4 Years</b>	<b>100000</b>	X	X	X	X	X	X	X	X	X	X
		<b>60000</b>	X	X	X	X	X	X	X	X	X	X
	<b>5 Years</b>	<b>75000</b>	X	X	X	X	X	X	X	X	X	X
		<b>100000</b>	X	X	X	X	X	X	X	X	X	X
		<b>60000</b>	X	X	X	X	X	X	X	X	X	X
	<b>6 Years</b>	<b>75000</b>	X	X	X	X	X	X	X	X	X	X
		<b>100000</b>	X	X	X	X	X	X	X	X	X	X
		<b>36000</b>	X	X	X	X	X	X	X	X	X	X
	<b>7 Years</b>	<b>60000</b>	X	X	X	X	X	X	X	X	X	X
		<b>75000</b>	X	X	X	X	X	X	X	X	X	X
		<b>100000</b>	X	X	X	X	X	X	X	X	X	X

		1999-2003 Blackwood										
		Coverage		Plan Years								
		Time	Mileage	2001	2002	2004	2005	2006	2007	2009	2010	2011
<b>PREMIUMCARE</b>	<b>3 Years</b>	<b>60000</b>	X	X	X	X	X	X	X	X	X	X
		<b>75000</b>	X	X	X	X	X	X	X	X	X	X
		<b>100000</b>	X	X	X	X	X	X	X	X	X	X
	<b>4 Years</b>	<b>60000</b>	X	X	X	X	X	X	X	X	X	X
		<b>75000</b>	X	X	X	X	X	X	X	X	X	X
		<b>100000</b>	X	X	X	X	X	X	X	X	X	X
	<b>5 Years</b>	<b>36000</b>	X	X	X	X	X	X	X	X	X	X
		<b>60000</b>	X	X	X	X	X	X	X	X	X	X
		<b>75000</b>	X	X	X	X	X	X	X	X	X	X
		<b>100000</b>	X	X	X	X	X	X	X	X	X	X
	<b>6 Years</b>	<b>36000</b>	X	X	X	X	X	X	X	X	X	X
		<b>48000</b>	X	X	X	X	X	X	X	X	X	X
		<b>60000</b>	X	X	X	X	X	X	X	X	X	X
		<b>75000</b>	X	X	X	X	X	X	X	X	X	X
	<b>7 Years</b>	<b>100000</b>	X	X	X	X	X	X	X	X	X	X
		<b>36000</b>	X	X	X	X	X	X	X	X	X	X
		<b>48000</b>	X	X	X	X	X	X	X	X	X	X
		<b>60000</b>	X	X	X	X	X	X	X	X	X	X
		<b>75000</b>	X	X	X	X	X	X	X	X	X	X

**New Contract Counts**

		1999-2003 Blackwood										
		Coverage		Plan Years								
		Time	Mileage	2001	2002	2004	2005	2006	2007	2009	2010	2011
<b>BASECARE</b>	<b>3 Years</b>	<b>48000</b>	0	1	0	0	0	0	0	0	0	0
		<b>60000</b>	1	0	0	0	0	0	0	0	0	0
	<b>5 Years</b>	<b>60000</b>	0	1	0	0	0	0	0	0	0	0
		<b>75000</b>	0	2	0	0	0	0	0	0	0	0

		1999-2003 Blackwood										
		Coverage		Plan Years								
		Time	Mileage	2001	2002	2004	2005	2006	2007	2009	2010	2011
<b>EXTRACARE</b>	<b>3 Years</b>	<b>60000</b>	0	1	0	0	0	0	0	0	0	0
		<b>75000</b>	0	1	0	0	0	0	0	0	0	0
	<b>4 Years</b>	<b>100000</b>	0	0	1	0	0	0	0	0	0	0
		<b>60000</b>	0	1	0	1	0	0	0	0	0	0
	<b>5 Years</b>	<b>75000</b>	0	4	2	0	0	0	0	0	0	0
		<b>100000</b>	0	8	5	0	0	0	0	0	0	0
		<b>60000</b>	0	1	0	0	0	0	0	0	0	0
	<b>6 Years</b>	<b>75000</b>	0	3	4	2	2	0	0	0	0	0
		<b>100000</b>	2	4	4	2	0	0	0	0	0	0
		<b>36000</b>	0		0	1	0	0	0	0	0	0
	<b>7 Years</b>	<b>60000</b>	1	3	0	0	2	0	0	0	0	0
		<b>75000</b>	0	4		1	0	0	0	0	0	0
		<b>100000</b>	0	1	1	1	0	0	0	0	0	0

		1999-2003 Blackwood										
		Coverage		Plan Years								
		Time	Mileage	2001	2002	2004	2005	2006	2007	2009	2010	2011
<b>PREMIUMCARE</b>	<b>3 Years</b>	<b>60000</b>	0	1	0	0	0	0	0	0	0	0
		<b>75000</b>	1	1	0	0	0	0	0	0	0	0
		<b>100000</b>	0	6	0	0	0	0	0	0	0	0
	<b>4 Years</b>	<b>60000</b>	0	1	0	0	0	0	0	0	0	0
		<b>75000</b>	0	1	0	1	0	0	0	0	0	0
		<b>100000</b>	3	14	3	0	0	0	0	0	0	0
	<b>5 Years</b>	<b>36000</b>	0	1	0	0	0	0	0	0	0	0
		<b>60000</b>	1	4	2	2	0	0	0	0	0	0
		<b>75000</b>	3	33	9	7	1	0	0	0	0	0
	<b>6 Years</b>	<b>100000</b>	3	48	6	5	0	0	0	0	0	0
		<b>36000</b>	1	2	0	0	0	0	0	0	0	0
		<b>48000</b>	1	2	0	0	1	0	0	0	0	0
		<b>60000</b>	1	11	4	8	15	1	0	0	0	0
	<b>7 Years</b>	<b>75000</b>	6	51	21	14	6	0	0	0	0	0
		<b>100000</b>	17	41	10	17	1	0	0	0	0	0
		<b>36000</b>	0	0	0	1	4	0	0	0	0	0
		<b>48000</b>	0	2	1	1	1	0	0	0	0	0
		<b>60000</b>	2	10	4	10	12	0	0	0	0	0
<b>75000</b>		11	33	8	20	20	0	0	0	0	0	
	<b>100000</b>	0	20	5	12	13	0	0	0	0		

**Used Contract Coverage**

		<b>1999-2003 Blackwood</b>										
		<b>Plan Years</b>										
<b>BASECARE</b>	<b>Coverage</b>		<b>2001</b>	<b>2002</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	
	<b>Time</b>	<b>Mileage</b>										
	<b>1 Year</b>	<b>12000</b>	X	X	X	X	X	X	X	X	X	X
	<b>2 Years</b>	<b>24000</b>	X	X	X	X	X	X	X	X	X	X
	<b>3 Years</b>	<b>36000</b>	X	X	X	X	X	X	X	X	X	X
<b>4 Years</b>	<b>48000</b>	X	X	X	X	X	X	X	X	X	X	

		<b>1999-2003 Blackwood</b>										
		<b>Plan Years</b>										
<b>EXTRACARE</b>	<b>Coverage</b>		<b>2001</b>	<b>2002</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	
	<b>Time</b>	<b>Mileage</b>										
	<b>1 Year</b>	<b>12000</b>	X	X	X	X	X	X	X	X	X	X
	<b>2 Years</b>	<b>24000</b>	X	X	X	X	X	X	X	X	X	X
	<b>3 Years</b>	<b>36000</b>	X	X	X	X	X	X	X	X	X	X
<b>4 Years</b>	<b>48000</b>	X	X	X	X	X	X	X	X	X	X	

		<b>1999-2003 Blackwood</b>										
		<b>Plan Years</b>										
<b>PREMIUMCARE</b>	<b>Coverage</b>		<b>2001</b>	<b>2002</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	
	<b>Time</b>	<b>Mileage</b>										
	<b>1 Year</b>	<b>12000</b>	X	X	X	X	X	X	X	X	X	X
	<b>2 Years</b>	<b>24000</b>	X	X	X	X	X	X	X	X	X	X
	<b>3 Years</b>	<b>36000</b>	X	X	X	X	X	X	X	X	X	X
	<b>4 Years</b>	<b>48000</b>	X	X	X	X	X	X	X	X	X	X
<b>5 Years</b>	<b>60000</b>	X	X	X	X	X	X	X	X	X	X	

		<b>1999-2003 Blackwood</b>									
		<b>Plan Years</b>									
<b>ROYALSHIELD</b>	<b>Coverage</b>		<b>2001</b>	<b>2002</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>
	<b>Time</b>	<b>Mileage</b>									
<b>3 Months</b>	<b>4000</b>	X	X	X	X	X	X	X	X	X	X

**Used Contract Counts**

		1999-2003 Blackwood										
		Coverage		Plan Years								
		Time	Mileage	2001	2002	2004	2005	2006	2007	2009	2010	2011
<b>BASECARE</b>	<b>1 Year</b>	<b>12000</b>	0	0	0	0	0	0	0	1	0	0
	<b>2 Years</b>	<b>24000</b>	0	0	0	2	2	3	1	1	0	
	<b>3 Years</b>	<b>36000</b>	0	0	0	0	1	1	1	1	2	
	<b>4 Years</b>	<b>48000</b>	0	0	0	0	1	0	0	1	0	

		1999-2003 Blackwood										
		Coverage		Plan Years								
		Time	Mileage	2001	2002	2004	2005	2006	2007	2009	2010	2011
<b>EXTRACARE</b>	<b>1 Year</b>	<b>12000</b>	0	0	1	2	1	0	0	0	0	
	<b>2 Years</b>	<b>24000</b>	0	0	0	1	1	2	1	1	1	
	<b>3 Years</b>	<b>36000</b>	0	0	0	3	2	2	1	0	0	
	<b>4 Years</b>	<b>48000</b>	0	0	1	1	2	1	0	2	0	

		1999-2003 Blackwood										
		Coverage		Plan Years								
		Time	Mileage	2001	2002	2004	2005	2006	2007	2009	2010	2011
<b>PREMIUMCARE</b>	<b>1 Year</b>	<b>12000</b>	0	0	0	0	1	0	0	0	0	
	<b>2 Years</b>	<b>24000</b>	0	0	0	4	4	10	5	1	1	
	<b>3 Years</b>	<b>36000</b>	0	0	1	10	14	15	5	5	3	
	<b>4 Years</b>	<b>48000</b>	0	0	0	0	0	1	9	3	1	
	<b>5 Years</b>	<b>60000</b>	0	0	0	0	0	0	0	0	3	

		1999-2003 Blackwood										
		Coverage		Plan Years								
		Time	Mileage	2001	2002	2004	2005	2006	2007	2009	2010	2011
<b>ROYALSHIELD</b>	<b>3 Months</b>	<b>4000</b>	0	0	0	0	2	0	0	0	0	

**New Contract Coverage**

Coverage		1999 - 2003 Excursion											
		Plan Years											
Time	Mileage	1998	1999	2000	2001	2002	2004	2005	2006	2007	2009	2010	2011
3 Years	48000	X	X	X	X	X	X	X	X	X	X	X	X
	60000	X	X	X	X	X	X	X	X	X	X	X	X
	75000	X	X	X	X	X	X	X	X	X	X	X	X
	100000	X	X	X	X	X	X	X	X	X	X	X	X
4 Years	36000	X	X	X	X	X	X	X	X	X	X	X	X
	48000	X	X	X	X	X	X	X	X	X	X	X	X
	60000	X	X	X	X	X	X	X	X	X	X	X	X
	75000	X	X	X	X	X	X	X	X	X	X	X	X
5 Years	100000	X	X	X	X	X	X	X	X	X	X	X	X
	36000	X	X	X	X	X	X	X	X	X	X	X	X
	48000	X	X	X	X	X	X	X	X	X	X	X	X
	60000	X	X	X	X	X	X	X	X	X	X	X	X
6 Years	75000	X	X	X	X	X	X	X	X	X	X	X	X
	100000	X	X	X	X	X	X	X	X	X	X	X	X
	36000	X	X	X	X	X	X	X	X	X	X	X	X
	48000	X	X	X	X	X	X	X	X	X	X	X	X
7 Years	60000	X	X	X	X	X	X	X	X	X	X	X	X
	75000	X	X	X	X	X	X	X	X	X	X	X	X
	100000	X	X	X	X	X	X	X	X	X	X	X	X
	48000	X	X	X	X	X	X	X	X	X	X	X	X

Coverage		1999 - 2003 Excursion											
		Plan Years											
Time	Mileage	1998	1999	2000	2001	2002	2004	2005	2006	2007	2009	2010	2011
3 Years	48000	X	X	X	X	X	X	X	X	X	X	X	X
	60000	X	X	X	X	X	X	X	X	X	X	X	X
	75000	X	X	X	X	X	X	X	X	X	X	X	X
	100000	X	X	X	X	X	X	X	X	X	X	X	X
4 Years	36000	X	X	X	X	X	X	X	X	X	X	X	X
	48000	X	X	X	X	X	X	X	X	X	X	X	X
	60000	X	X	X	X	X	X	X	X	X	X	X	X
	75000	X	X	X	X	X	X	X	X	X	X	X	X
5 Years	100000	X	X	X	X	X	X	X	X	X	X	X	X
	36000	X	X	X	X	X	X	X	X	X	X	X	X
	48000	X	X	X	X	X	X	X	X	X	X	X	X
	60000	X	X	X	X	X	X	X	X	X	X	X	X
6 Years	75000	X	X	X	X	X	X	X	X	X	X	X	X
	100000	X	X	X	X	X	X	X	X	X	X	X	X
	36000	X	X	X	X	X	X	X	X	X	X	X	X
	48000	X	X	X	X	X	X	X	X	X	X	X	X
7 Years	60000	X	X	X	X	X	X	X	X	X	X	X	X
	75000	X	X	X	X	X	X	X	X	X	X	X	X
	100000	X	X	X	X	X	X	X	X	X	X	X	X
	48000	X	X	X	X	X	X	X	X	X	X	X	X

**New Contract Counts**

		1999 - 2003 Excursion											
Coverage		Plan Years											
Time	Mileage	1998	1999	2000	2001	2002	2004	2005	2006	2007	2009	2010	2011
BASECARE	3 Years	48000	0	1	11	6	4	0	0	0	0	0	0
		60000	0	1	6	10	4	0	0	0	0	0	0
		75000	0	0	7	7	1	0	0	0	0	0	0
		100000	0	0	4	17	6	4	0	0	0	0	0
	4 Years	36000	0	15	141	0	0	0	0	0	0	0	0
		48000	1	0	4	6	4	2	1	0	0	0	0
		60000	0	2	4	6	8	2	1	0	0	0	0
		75000	0	1	7	10	8	2	2	0	0	0	0
	5 Years	100000	0	1	9	34	16	8	2	0	0	0	0
		36000	0	0	46	20	1	0	1	0	0	0	0
		48000	0	0	0	1	0	0	2	0	0	0	0
		60000	0	2	34	65	35	11	5	1	0	0	0
6 Years	75000	2	4	45	108	104	33	4	2	0	0	0	
	100000	0	1	26	114	87	31	4	1	1	0	0	
	36000	0	0	0	1	0	0	0	0	0	0	0	
	48000	0	1	0	1	4	0	0	0	0	0	0	
7 Years	60000	0	1	21	34	30	6	1	6	0	0	0	
	75000	1	9	25	69	123	37	24	6	6	0	0	
	100000	0	1	26	75	92	45	12	5	0	0	0	
	48000	0	0	0		1	0	0	0	0	0	0	
	60000	0	0	0	2	3	3		2	0	0	0	
	75000	0	0	0	10	29	13	5	2	1	0	0	
	100000	0	0	0		13	7	4	5	0	0	0	

		1999 - 2003 Excursion											
Coverage		Plan Years											
Time	Mileage	1998	1999	2000	2001	2002	2004	2005	2006	2007	2009	2010	2011
EXTRACARE	3 Years	48000	0	1	23	21	5	2	0	0	0	0	0
		60000	0	1	19	21	10	1	0	0	0	0	0
		75000	0	1	24	31	8	1	0	0	0	0	0
		100000	0	1	32	123	147	65	2	1	0	0	0
	4 Years	36000	0	0	3	0	0	0	0	0	0	0	0
		48000	0	1	10	11	12	2	1	0	0	0	0
		60000	2	7	38	47	15	2	3	0	0	0	0
		75000	1	4	40	58	36	4	1	0	0	0	0
	5 Years	100000	0	4	79	152	55	26	1	0	0	0	0
		36000	0	0	0	0	3	0	0	0	0	0	0
		48000	0	0	2	10	2	1	1	0	0	0	0
		60000	3	9	131	365	191	53	9	6	0	0	0
6 Years	75000	3	19	341	805	473	119	45	11	0	0	0	
	100000	2	18	186	604	417	92	25	3	0	0	0	
	36000	0	0	0	8	1	2	1	0	0	0	0	
	48000	0		13	10	5	1	0	1	0	0	0	
7 Years	60000	1	15	100	150	135	40	13	7	1	0	0	
	75000	10	19	263	533	631	207	119	36	8	0	0	
	100000	0	16	228	667	408	137	52	16	0	0	0	
	36000	0	0	0	0	3	1	0	0	0	0	0	
	48000	0	0	0	0	4	3	0	1	1	0	0	
	60000	0	0	0	35	28	10	4	2	0	0	0	
	75000	0	0	0	110	129	50	27	10	3	0	0	
	100000	0	0	0	0	90	59	28	15	2	0	0	

**New Contract Coverage**

Coverage		1999 - 2003 Excursion												
		Plan Years												
Time	Mileage	1998	1999	2000	2001	2002	2004	2005	2006	2007	2009	2010	2011	
PREMIUMCARE	3 Years	48000	X	X	X	X	X	X	X	X	X	X	X	X
		60000	X	X	X	X	X	X	X	X	X	X	X	X
		61000	X	X	X	X	X	X	X	X	X	X	X	X
		75000	X	X	X	X	X	X	X	X	X	X	X	X
		100000	X	X	X	X	X	X	X	X	X	X	X	X
	4 Years	101000	X	X	X	X	X	X	X	X	X	X	X	X
		36000	X	X	X	X	X	X	X	X	X	X	X	X
		48000	X	X	X	X	X	X	X	X	X	X	X	X
		60000	X	X	X	X	X	X	X	X	X	X	X	X
		75000	X	X	X	X	X	X	X	X	X	X	X	X
5 Years	100000	X	X	X	X	X	X	X	X	X	X	X	X	
	36000	X	X	X	X	X	X	X	X	X	X	X	X	
	48000	X	X	X	X	X	X	X	X	X	X	X	X	
	60000	X	X	X	X	X	X	X	X	X	X	X	X	
	75000	X	X	X	X	X	X	X	X	X	X	X	X	
6 Years	100000	X	X	X	X	X	X	X	X	X	X	X	X	
	36000	X	X	X	X	X	X	X	X	X	X	X	X	
	48000	X	X	X	X	X	X	X	X	X	X	X	X	
	60000	X	X	X	X	X	X	X	X	X	X	X	X	
	75000	X	X	X	X	X	X	X	X	X	X	X	X	
7 Years	100000	X	X	X	X	X	X	X	X	X	X	X	X	
	36000	X	X	X	X	X	X	X	X	X	X	X	X	
	48000	X	X	X	X	X	X	X	X	X	X	X	X	
	60000	X	X	X	X	X	X	X	X	X	X	X	X	
	75000	X	X	X	X	X	X	X	X	X	X	X	X	

		New Contract Counts											
		1999 - 2003 Excursion											
Coverage		Plan Years											
Time	Mileage	1998	1999	2000	2001	2002	2004	2005	2006	2007	2009	2010	2011
PREMIUMCARE	3 Years	48000	1	1	45	59	26	3	1	0	0	0	0
		60000	1	8	121	110	77	5	2	0	0	0	0
		61000	0	0	1	0	0	0	0	0	0	0	0
		75000	3	14	114	158	88	26	9	0	0	0	0
		100000	0	16	140	266	170	29	6	1	0	0	0
		101000	0	0	0	0	1	0	0	0	0	0	0
	4 Years	36000	0	0	2	0	0	0	0	0	0	0	0
		48000	0	1	42	45	39	9	2	0	0	0	0
		60000	1	24	174	133	118	25	8	3	0	0	0
		75000	6	43	215	305	217	47	20	6	1	0	0
		100000	3	33	364	833	579	141	43	0	0	0	0
		36000	0	0	4	19	9	3	2	1	1	0	0
	5 Years	48000	0	0	17	36	27	15	6	3	0	0	0
		60000	4	18	390	909	662	123	42	23	3	0	0
		75000	18	106	1232	2609	2636	743	347	86	10	0	0
		100000	7	59	1059	2833	2884	660	353	57	1	0	0
		36000	2	6	31	62	37	17	14	6	4	0	0
		48000	3	8	41	69	52	23	9	9	4	0	0
	6 Years	60000	14	86	545	834	920	324	182	123	50	0	0
		75000	39	188	1052	2154	3118	1208	752	444	93	0	0
100000		27	140	1572	4416	3164	938	716	316	22	0	0	
36000		0	0	0	0	28	21	8	6	7	0	0	
48000		0	0	0	0	48	16	12	17	6	0	0	
60000		0	0	0	261	231	107	85	69	25	0	0	
7 Years	75000	0	0	0	918	1163	462	381	264	110	0	0	
	100000	0	0	0	0	1183	496	398	313	78	1	0	

**Used Contract Coverage**

		1999 - 2003 Excursion												
Coverage		Plan Years												
Time	Mileage	1998	1999	2000	2001	2002	2004	2005	2006	2007	2009	2010	2011	
<b>BASECARE</b>	6 Months 6000	X	X	X	X	X	X	X	X	X	X	X	X	
	1 Year 12000	X	X	X	X	X	X	X	X	X	X	X	X	
	2 Years 24000	X	X	X	X	X	X	X	X	X	X	X	X	
	3 Years 36000	X	X	X	X	X	X	X	X	X	X	X	X	
	4 Years 48000	X	X	X	X	X	X	X	X	X	X	X	X	
5 Years 60000	X	X	X	X	X	X	X	X	X	X	X	X		

		1999 - 2003 Excursion												
Coverage		Plan Years												
Time	Mileage	1998	1999	2000	2001	2002	2004	2005	2006	2007	2009	2010	2011	
<b>EXTRACARE</b>	1 Year 12000	X	X	X	X	X	X	X	X	X	X	X	X	
	2 Years 24000	X	X	X	X	X	X	X	X	X	X	X	X	
	3 Years 36000	X	X	X	X	X	X	X	X	X	X	X	X	
	4 Years 48000	X	X	X	X	X	X	X	X	X	X	X	X	

		1999 - 2003 Excursion												
Coverage		Plan Years												
Time	Mileage	1998	1999	2000	2001	2002	2004	2005	2006	2007	2009	2010	2011	
<b>PREMIUMCARE</b>	1 Year 12000	X	X	X	X	X	X	X	X	X	X	X	X	
	2 Years 24000	X	X	X	X	X	X	X	X	X	X	X	X	
	3 Years 36000	X	X	X	X	X	X	X	X	X	X	X	X	
	4 Years 48000	X	X	X	X	X	X	X	X	X	X	X	X	
	5 Years 60000	X	X	X	X	X	X	X	X	X	X	X	X	

		1999 - 2003 Excursion												
Coverage		Plan Years												
Time	Mileage	1998	1999	2000	2001	2002	2004	2005	2006	2007	2009	2010	2011	
<b>Royalshield</b>	3 Months 4000	X	X	X	X	X	X	X	X	X	X	X	X	

		1999 - 2003 Excursion												
Coverage		Plan Years												
Time	Mileage	1998	1999	2000	2001	2002	2004	2005	2006	2007	2009	2010	2011	
<b>Royalshield</b>	1 Month 1000	X	X	X	X	X	X	X	X	X	X	X	X	
	2 Months 3000	X	X	X	X	X	X	X	X	X	X	X	X	
	3 Months 4000	X	X	X	X	X	X	X	X	X	X	X	X	
	6 Months 6000	X	X	X	X	X	X	X	X	X	X	X	X	
	1 Year 12000	X	X	X	X	X	X	X	X	X	X	X	X	

**Used Contract Counts**

		1999 - 2003 Excursion													
		Coverage		Plan Years											
		Time	Mileage	1998	1999	2000	2001	2002	2004	2005	2006	2007	2009	2010	2011
<b>BASECARE</b>	<b>6 Months</b>	<b>6000</b>	0	0	1	10	9	13	16	13	3	1	0	0	
	<b>1 Year</b>	<b>12000</b>	0	0	0	8	60	59	68	34	41		2	0	
	<b>2 Years</b>	<b>24000</b>	0	0	1	58	231	295	250	121	76	27	22	18	
	<b>3 Years</b>	<b>36000</b>	0	0	1	70	232	172	118	55	34	22	36	11	
	<b>4 Years</b>	<b>48000</b>	0	0	1	53	130	110	57	26	16	35	28	20	
	<b>5 Years</b>	<b>60000</b>	0	0	0	0	0	0	0	0	0	0	0	1	

		1999 - 2003 Excursion													
		Coverage		Plan Years											
		Time	Mileage	1998	1999	2000	2001	2002	2004	2005	2006	2007	2009	2010	2011
<b>EXTRACARE</b>	<b>1 Year</b>	<b>12000</b>	0	1	2	10	41	39	48	33	38	2	1		
	<b>2 Years</b>	<b>24000</b>	1	1	6	114	349	303	279	177	109	70	70	54	
	<b>3 Years</b>	<b>36000</b>	0	3	9	244	601	357	231	115	74	50	29	5	
	<b>4 Years</b>	<b>48000</b>	0	0	0	68	221	144	109	47	33	60	28	12	

		1999 - 2003 Excursion													
		Coverage		Plan Years											
		Time	Mileage	1998	1999	2000	2001	2002	2004	2005	2006	2007	2009	2010	2011
<b>PREMIUMCARE</b>	<b>1 Year</b>	<b>12000</b>	0	0	0	3	32	38	36	17	14	12	13	7	
	<b>2 Years</b>	<b>24000</b>	0	0	0	39	400	416	430	263	262	118	76	17	
	<b>3 Years</b>	<b>36000</b>	0	0	0	282	737	733	572	394	317	63	33	52	
	<b>4 Years</b>	<b>48000</b>	0	0	0	0	460	105	109	0	0	124	75	12	
	<b>5 Years</b>	<b>60000</b>	0	0	0	0	0	0	0	0	0	0	0	12	

		1999 - 2003 Excursion													
		Coverage		Plan Years											
		Time	Mileage	1998	1999	2000	2001	2002	2004	2005	2006	2007	2009	2010	2011
<b>Royalsield</b>	<b>3 Months</b>	<b>4000</b>	0	0	3	0	0	0	0	0	0	0	0	0	0

		1999 - 2003 Excursion													
		Coverage		Plan Years											
		Time	Mileage	1998	1999	2000	2001	2002	2004	2005	2006	2007	2009	2010	2011
<b>Royalsield</b>	<b>1 Month</b>	<b>1000</b>	0	0	0	0	0	0	0	0	0	0	1		
	<b>2 Months</b>	<b>3000</b>	0	0	0	0	0	0	0	0	0	0	1	1	1
	<b>3 Months</b>	<b>4000</b>	0	0	0	117	276	172	197	149	79	17	13	7	
	<b>6 Months</b>	<b>6000</b>	0	0	0	5	2	0	0	0	0	0	0	0	
	<b>1 Year</b>	<b>12000</b>	0	0	0	2	3	0	0	0	0	0	0	0	

New Contract Coverage

		1999 - 2003 Expedition												
Coverage		Plan Years												
Time	Mileage	1998	1999	2000	2001	2002	2004	2005	2006	2007	2009	2010	2011	
BASECARE	3 Years	48000	X	X	X	X	X	X	X	X	X	X	X	X
		60000	X	X	X	X	X	X	X	X	X	X	X	X
		75000	X	X	X	X	X	X	X	X	X	X	X	X
		100000	X	X	X	X	X	X	X	X	X	X	X	X
	4 Years	36000	X	X	X	X	X	X	X	X	X	X	X	X
		48000	X	X	X	X	X	X	X	X	X	X	X	X
		60000	X	X	X	X	X	X	X	X	X	X	X	X
		75000	X	X	X	X	X	X	X	X	X	X	X	X
	5 Years	100000	X	X	X	X	X	X	X	X	X	X	X	X
		36000	X	X	X	X	X	X	X	X	X	X	X	X
		48000	X	X	X	X	X	X	X	X	X	X	X	X
		60000	X	X	X	X	X	X	X	X	X	X	X	X
6 Years	75000	X	X	X	X	X	X	X	X	X	X	X	X	
	100000	X	X	X	X	X	X	X	X	X	X	X	X	
	36000	X	X	X	X	X	X	X	X	X	X	X	X	
	48000	X	X	X	X	X	X	X	X	X	X	X	X	
7 Years	60000	X	X	X	X	X	X	X	X	X	X	X	X	
	75000	X	X	X	X	X	X	X	X	X	X	X	X	
	100000	X	X	X	X	X	X	X	X	X	X	X	X	
	48000	X	X	X	X	X	X	X	X	X	X	X	X	

		1999 - 2003 Expedition												
Coverage		Plan Years												
Time	Mileage	1998	1999	2000	2001	2002	2004	2005	2006	2007	2009	2010	2011	
EXTRACARE	3 Years	48000	X	X	X	X	X	X	X	X	X	X	X	X
		60000	X	X	X	X	X	X	X	X	X	X	X	X
		75000	X	X	X	X	X	X	X	X	X	X	X	X
		100000	X	X	X	X	X	X	X	X	X	X	X	X
	4 Years	36000	X	X	X	X	X	X	X	X	X	X	X	X
		48000	X	X	X	X	X	X	X	X	X	X	X	X
		60000	X	X	X	X	X	X	X	X	X	X	X	X
		75000	X	X	X	X	X	X	X	X	X	X	X	X
	5 Years	100000	X	X	X	X	X	X	X	X	X	X	X	X
		36000	X	X	X	X	X	X	X	X	X	X	X	X
		48000	X	X	X	X	X	X	X	X	X	X	X	X
		60000	X	X	X	X	X	X	X	X	X	X	X	X
6 Years	75000	X	X	X	X	X	X	X	X	X	X	X	X	
	100000	X	X	X	X	X	X	X	X	X	X	X	X	
	36000	X	X	X	X	X	X	X	X	X	X	X	X	
	48000	X	X	X	X	X	X	X	X	X	X	X	X	
7 Years	60000	X	X	X	X	X	X	X	X	X	X	X	X	
	75000	X	X	X	X	X	X	X	X	X	X	X	X	
	100000	X	X	X	X	X	X	X	X	X	X	X	X	
	48000	X	X	X	X	X	X	X	X	X	X	X	X	

**New Contract Counts**

		1999 - 2003 Expedition											
Coverage		Plan Years											
Time	Mileage	1998	1999	2000	2001	2002	2004	2005	2006	2007	2009	2010	2011
<b>BASECARE</b> 3 Years	48000	1	29	127	75	44	4	0	0	0	0	0	0
	60000	3	30	38	37	24	1	0	0	0	0	0	0
	75000	2	13	55	32	17	2	1	0	0	0	0	0
	100000	1	4	21	22	20	4	2	0	0	0	0	0
4 Years	36000	39	1203	571	0	0	0	0	0	0	0	0	0
	48000	6	40	32	29	31	8	2	0	0	0	0	0
	60000	11	65	60	67	30	2	8	0	0	0	0	0
	75000	1	30	30	52	32	15	2	1	0	0	0	0
5 Years	100000	1	14	33	80	47	8	3	0	0	0	0	0
	36000	0	1	2	15	1	0	0	0	0	0	0	0
	48000	2	4	8	11	13	3	2	1	0	0	0	0
	60000	23	110	290	402	247	27	14	4	0	0	0	0
6 Years	75000	28	182	330	586	468	92	32	4	0	0	0	0
	100000	5	45	128	381	311	80	17	1	0	0	0	0
	36000	1	3	1	2	2	0	1	0	0	0	0	0
	48000	0	3	5	7	8	1	1	2	0	0	0	0
7 Years	60000	9	32	114	112	83	26	14	6	0	0	0	0
	75000	9	49	197	437	549	138	69	15	0	0	0	0
	100000	4	19	81	207	195	60	34	3	0	0	0	0
	48000	0	0	0	0	2	1	0	1	0	0	0	0
7 Years	60000	0	0	0	15	9	4	5	1	0	0	0	0
	75000	0	0	0	20	28	13	8	1	0	0	0	0
	100000	0	0	0	0	15	7	7	1	0	0	0	0

		1999 - 2003 Expedition											
Coverage		Plan Years											
Time	Mileage	1998	1999	2000	2001	2002	2004	2005	2006	2007	2009	2010	2011
<b>EXTRACARE</b> 3 Years	48000	8	75	185	142	66	1	2	0	0	0	0	0
	60000	13	78	133	149	70	8	4	0	0	0	0	0
	75000	17	48	83	92	32	5	2	0	0	0	0	0
	100000	5	25	66	113	82	8	0	0	0	0	0	0
4 Years	36000	41	4	12	0	0	0	0	0	0	0	0	0
	48000	22	100	122	93	93	10	4	2	0	0	0	0
	60000	35	186	240	194	113	21	5	0	0	0	0	0
	75000	28	127	206	277	133	24	10	0	0	0	0	0
5 Years	100000	10	105	266	373	268	42	7	0	0	0	0	0
	36000	1	3	11	20	30	6	1	1	0	0	0	0
	48000	6	11	33	68	39	3	5	3	0	0	0	0
	60000	118	516	1245	2242	1345	214	76	6	1	0	0	0
6 Years	75000	170	963	2532	4409	2870	484	145	12	0	0	0	0
	100000	20	212	799	1812	1477	188	64	3	0	0	0	0
	36000	1	9	29	16	8	3	0	2	0	0	0	0
	48000	5	19	52	76	35	2	0	1	0	0	0	0
7 Years	60000	80	256	748	1006	757	123	50	24	0	0	0	0
	75000	105	424	1243	2723	3394	718	251	41	0	0	0	0
	100000	28	132	735	1685	924	162	82	10	0	0	0	0
	36000	0	0	0	0	4	0	1	0	0	0	0	0
7 Years	48000	0	0	0	0	9	2	2	0	0	0	0	0
	60000	0	0	0	121	55	11	2	1	0	0	0	0
	75000	0	0	0	276	299	97	32	10	0	0	0	0
	100000	0	0	0	0	119	40	36	11	0	0	0	0

**New Contract Coverage**

Coverage		1999 - 2003 Expedition												
Time	Mileage	Plan Years												
		1998	1999	2000	2001	2002	2004	2005	2006	2007	2009	2010	2011	
<b>PREMIUMCARE</b>	<b>3 Years</b>	48000	X	X	X	X	X	X	X	X	X	X	X	X
		60000	X	X	X	X	X	X	X	X	X	X	X	X
		75000	X	X	X	X	X	X	X	X	X	X	X	X
		100000	X	X	X	X	X	X	X	X	X	X	X	X
	<b>4 Years</b>	36000	X	X	X	X	X	X	X	X	X	X	X	X
		48000	X	X	X	X	X	X	X	X	X	X	X	X
		60000	X	X	X	X	X	X	X	X	X	X	X	X
		75000	X	X	X	X	X	X	X	X	X	X	X	X
	<b>5 Years</b>	100000	X	X	X	X	X	X	X	X	X	X	X	X
		36000	X	X	X	X	X	X	X	X	X	X	X	X
		48000	X	X	X	X	X	X	X	X	X	X	X	X
		60000	X	X	X	X	X	X	X	X	X	X	X	X
<b>6 Years</b>	75000	X	X	X	X	X	X	X	X	X	X	X	X	
	100000	X	X	X	X	X	X	X	X	X	X	X	X	
	36000	X	X	X	X	X	X	X	X	X	X	X	X	
	48000	X	X	X	X	X	X	X	X	X	X	X	X	
<b>7 Years</b>	60000	X	X	X	X	X	X	X	X	X	X	X	X	
	75000	X	X	X	X	X	X	X	X	X	X	X	X	
	100000	X	X	X	X	X	X	X	X	X	X	X	X	
	36000	X	X	X	X	X	X	X	X	X	X	X	X	

		New Contract Counts											
		1999 - 2003 Expedition											
Coverage		Plan Years											
Time	Mileage	1998	1999	2000	2001	2002	2004	2005	2006	2007	2009	2010	2011
PREMIUMCARE	3 Years	48000	6	171	363	445	289	22	9	0	0	0	0
		60000	32	282	421	556	451	35	12	0	0	0	0
		75000	28	175	297	414	420	61	10	0	0	0	0
		100000	8	61	243	377	325	44	6	0	0	0	0
	4 Years	36000	2	20	12	0	0	0	0	0	0	0	0
		48000	17	216	309	258	333	39	24	5	0	0	0
		60000	55	403	638	585	669	84	39	1	0	0	0
		75000	48	406	758	1131	972	155	88	2	0	0	0
	5 Years	100000	24	163	645	1263	1109	207	46	3	0	0	0
		36000	1	15	28	56	77	10	8	5	0	0	0
		48000	4	33	77	163	231	45	19	11	0	0	0
		60000	129	854	2432	4448	3930	543	255	86	0	0	0
6 Years	75000	313	1922	6005	12627	14412	2596	1154	118	0	0	0	
	100000	44	398	2422	6343	6894	1251	531	19	1	0	0	
	36000	9	44	122	154	127	33	41	28	0	0	0	
	48000	9	74	200	206	191	46	20	10	0	0	0	
7 Years	60000	190	827	2586	3406	3936	790	460	267	1	0	0	
	75000	206	1156	3741	8252	11493	2375	1428	475	2	0	0	
	100000	70	428	2844	7181	5001	1052	709	96	0	0	0	
	36000	0	0	0	0	48	12	1	5	0	0	0	
7 Years	48000	0	0	0	0	74	13	5	7	0	0	0	
	60000	0	0	0	434	348	62	40	26	0	0	0	
	75000	0	0	0	1404	1430	281	241	117	1	0	0	
	100000	0	0	0	0	964	331	231	78	3	0	0	

Used Contract Coverage

	1999 - 2003 Expedition													
	Coverage		Plan Years											
	Time	Mileage	1998	1999	2000	2001	2002	2004	2005	2006	2007	2009	2010	2011
<b>BASECARE</b>	6 Months	6000	X	X	X	X	X	X	X	X	X	X	X	X
	1 Year	12000	X	X	X	X	X	X	X	X	X	X	X	X
	2 Years	24000	X	X	X	X	X	X	X	X	X	X	X	X
	3 Years	36000	X	X	X	X	X	X	X	X	X	X	X	X
	4 Years	48000	X	X	X	X	X	X	X	X	X	X	X	X
	5 Years	60000	X	X	X	X	X	X	X	X	X	X	X	X

	1999 - 2003 Expedition													
	Coverage		Plan Years											
	Time	Mileage	1998	1999	2000	2001	2002	2004	2005	2006	2007	2009	2010	2011
<b>EXTRACARI</b>	1 Year	12000	X	X	X	X	X	X	X	X	X	X	X	X
	2 Years	24000	X	X	X	X	X	X	X	X	X	X	X	X
	3 Years	36000	X	X	X	X	X	X	X	X	X	X	X	X
	4 Years	48000	X	X	X	X	X	X	X	X	X	X	X	X
	5 Years	60000	X	X	X	X	X	X	X	X	X	X	X	X

	1999 - 2003 Expedition													
	Coverage		Plan Years											
	Time	Mileage	1998	1999	2000	2001	2002	2004	2005	2006	2007	2009	2010	2011
<b>PREMIUMCARE</b>	1 Year	12000	X	X	X	X	X	X	X	X	X	X	X	X
	2 Years	24000	X	X	X	X	X	X	X	X	X	X	X	X
	3 Years	36000	X	X	X	X	X	X	X	X	X	X	X	X
	4 Years	48000	X	X	X	X	X	X	X	X	X	X	X	X
	5 Years	60000	X	X	X	X	X	X	X	X	X	X	X	X

	1999 - 2003 Expedition													
	Coverage		Plan Years											
	Time	Mileage	1998	1999	2000	2001	2002	2004	2005	2006	2007	2009	2010	2011
<b>ROYALSHIELD</b>	3 Months	4000	X	X	X	X	X	X	X	X	X	X	X	X
	6 Months	6000	X	X	X	X	X	X	X	X	X	X	X	X
	1 Year	12000	X	X	X	X	X	X	X	X	X	X	X	X

	1999 - 2003 Expedition													
	Coverage		Plan Years											
	Time	Mileage	1998	1999	2000	2001	2002	2004	2005	2006	2007	2009	2010	2011
<b>ROYALSHIELD</b>	1 Month	1000	X	X	X	X	X	X	X	X	X	X	X	X
	2 Months	3000	X	X	X	X	X	X	X	X	X	X	X	X
	3 Months	4000	X	X	X	X	X	X	X	X	X	X	X	X
	6 Months	6000	X	X	X	X	X	X	X	X	X	X	X	X
	1 Year	12000	X	X	X	X	X	X	X	X	X	X	X	X

**Used Contract Counts**

		1999 - 2003 Expedition												
Coverage		Plan Years												
Time	Mileage	1998	1999	2000	2001	2002	2004	2005	2006	2007	2009	2010	2011	
<b>BASECARE</b>	6 Months	6000	0	0	3	24	96	57	33	24	11	1	0	1
	1 Year	12000	0	0	7	114	256	251	243	123	99	6	2	
	2 Years	24000	0	0	11	585	1348	1136	952	459	300	63	38	27
	3 Years	36000	0	1	38	635	1329	805	584	274	118	79	61	48
	4 Years	48000	0	0	29	407	503	312	207	84	31	57	48	20
5 Years	60000	0	0	0	0	0	0	0	0	0	0	0	0	4

		1999 - 2003 Expedition												
Coverage		Plan Years												
Time	Mileage	1998	1999	2000	2001	2002	2004	2005	2006	2007	2009	2010	2011	
<b>EXTRACARI</b>	1 Year	12000	0	2	0	76	165	120	139	74	44	2	3	1
	2 Years	24000	0	2	18	699	1688	1104	891	467	282	93	58	54
	3 Years	36000	1	4	132	1984	3093	1355	1049	411	127	68	42	19
	4 Years	48000	0	0	0	557	918	422	240	125	36	69	37	7
	5 Years	60000	0	0	0	0	0	0	0	0	0	0	0	1

		1999 - 2003 Expedition												
Coverage		Plan Years												
Time	Mileage	1998	1999	2000	2001	2002	2004	2005	2006	2007	2009	2010	2011	
<b>PREMIUMCARE</b>	1 Year	12000	0	0	0	28	103	85	90	53	30	8	6	4
	2 Years	24000	0	0	0	179	1144	917	810	531	376	112	40	9
	3 Years	36000	0	0	0	1144	2416	1749	1419	784	382	74	24	46
	4 Years	48000	0	0	0	0	793	230	351	3	3	130	72	12
	5 Years	60000	0	0	0	0	0	0	0	0	0	0	0	2

		1999 - 2003 Expedition												
Coverage		Plan Years												
Time	Mileage	1998	1999	2000	2001	2002	2004	2005	2006	2007	2009	2010	2011	
<b>ROYALSHIELD</b>	3 Months	4000	0	2	20	0	0	0	0	0	0	0	0	0
	6 Months	6000	0	0	5	0	0	0	0	0	0	0	0	0
	1 Year	12000	0	0	1	0	0	0	0	0	0	0	0	0

		1999 - 2003 Expedition												
Coverage		Plan Years												
Time	Mileage	1998	1999	2000	2001	2002	2004	2005	2006	2007	2009	2010	2011	
<b>ROYALSHIELD</b>	1 Month	1000	0	0	0	0	0	0	0	0	0	3	2	1
	2 Months	3000	0	0	0	0	0	0	0	0	0	1	0	0
	3 Months	4000	0	0	0	593	1251	559	608	363	230	46	29	20
	6 Months	6000	0	0	0	46	8	0	0	0	0	0	0	0
	1 Year	12000	0	0	0	18	15	0	0	0	0	0	0	0

New Contract Coverage

Coverage		1999 - 2003 F-150											
		Plan Years											
Time	Mileage	1998	1999	2000	2001	2002	2004	2005	2006	2007	2009	2010	2011
36 Years	48000	X	X	X	X	X	X	X	X	X	X	X	X
	60000	X	X	X	X	X	X	X	X	X	X	X	X
	75000	X	X	X	X	X	X	X	X	X	X	X	X
	76000	X	X	X	X	X	X	X	X	X	X	X	X
	100000	X	X	X	X	X	X	X	X	X	X	X	X
4 Years	36000	X	X	X	X	X	X	X	X	X	X	X	X
	48000	X	X	X	X	X	X	X	X	X	X	X	X
	60000	X	X	X	X	X	X	X	X	X	X	X	X
	75000	X	X	X	X	X	X	X	X	X	X	X	X
	100000	X	X	X	X	X	X	X	X	X	X	X	X
5 Years	36000	X	X	X	X	X	X	X	X	X	X	X	X
	48000	X	X	X	X	X	X	X	X	X	X	X	X
	60000	X	X	X	X	X	X	X	X	X	X	X	X
	75000	X	X	X	X	X	X	X	X	X	X	X	X
	100000	X	X	X	X	X	X	X	X	X	X	X	X
6 Years	36000	X	X	X	X	X	X	X	X	X	X	X	X
	48000	X	X	X	X	X	X	X	X	X	X	X	X
	60000	X	X	X	X	X	X	X	X	X	X	X	X
	75000	X	X	X	X	X	X	X	X	X	X	X	X
	100000	X	X	X	X	X	X	X	X	X	X	X	X
7 Years	36000	X	X	X	X	X	X	X	X	X	X	X	X
	48000	X	X	X	X	X	X	X	X	X	X	X	X
	60000	X	X	X	X	X	X	X	X	X	X	X	X
	75000	X	X	X	X	X	X	X	X	X	X	X	X
	100000	X	X	X	X	X	X	X	X	X	X	X	X

Coverage		1999 - 2003 F-150											
		Plan Years											
Time	Mileage	1998	1999	2000	2001	2002	2004	2005	2006	2007	2009	2010	2011
3 Years	48000	X	X	X	X	X	X	X	X	X	X	X	X
	60000	X	X	X	X	X	X	X	X	X	X	X	X
	75000	X	X	X	X	X	X	X	X	X	X	X	X
	100000	X	X	X	X	X	X	X	X	X	X	X	X
	36000	X	X	X	X	X	X	X	X	X	X	X	X
4 Years	48000	X	X	X	X	X	X	X	X	X	X	X	X
	60000	X	X	X	X	X	X	X	X	X	X	X	X
	75000	X	X	X	X	X	X	X	X	X	X	X	X
	100000	X	X	X	X	X	X	X	X	X	X	X	X
	36000	X	X	X	X	X	X	X	X	X	X	X	X
5 Years	48000	X	X	X	X	X	X	X	X	X	X	X	X
	60000	X	X	X	X	X	X	X	X	X	X	X	X
	75000	X	X	X	X	X	X	X	X	X	X	X	X
	100000	X	X	X	X	X	X	X	X	X	X	X	X
	36000	X	X	X	X	X	X	X	X	X	X	X	X
6 Years	48000	X	X	X	X	X	X	X	X	X	X	X	X
	60000	X	X	X	X	X	X	X	X	X	X	X	X
	75000	X	X	X	X	X	X	X	X	X	X	X	X
	100000	X	X	X	X	X	X	X	X	X	X	X	X
	36000	X	X	X	X	X	X	X	X	X	X	X	X
7 Years	48000	X	X	X	X	X	X	X	X	X	X	X	X
	60000	X	X	X	X	X	X	X	X	X	X	X	X
	75000	X	X	X	X	X	X	X	X	X	X	X	X
	100000	X	X	X	X	X	X	X	X	X	X	X	X
	36000	X	X	X	X	X	X	X	X	X	X	X	X

New Contract Counts

		1999 - 2003 F-150											
Coverage		Plan Years											
Time	Mileage	1998	1999	2000	2001	2002	2004	2005	2006	2007	2009	2010	2011
36 Years	48000	8	120	433	288	126	5	1	0	0	0	0	0
	60000	7	69	155	170	83	11	2	0	0	0	0	0
	75000	13	99	152	126	107	8	1	0	0	0	0	0
	76000	0	0	1	2	0	0	0	0	0	0	0	0
	100000	13	132	342	476	425	39	2	0	0	0	0	0
4 Years	36000	15	3256	1877	0	0	0	0	0	0	0	0	0
	48000	6	97	106	104	125	23	9	0	1	0	0	0
	60000	14	143	192	255	202	31	10	1	0	0	0	0
	75000	31	228	278	356	218	55	17	2	0	0	0	0
	100000	29	295	591	826	675	98	25	1	0	0	0	0
5 Years	36000	2	5	21	77	28	4	3	2	0	0	0	0
	48000	2	30	54	86	114	23	12	4	0	0	0	0
	60000	78	772	1358	1773	1432	203	72	14	0	0	0	0
	75000	112	1175	1750	2615	2663	443	144	7	0	0	0	0
	100000	26	376	1070	2275	2346	371	121	7	1	0	0	0
6 Years	36000	6	25	44	49	36	8	7	2	0	0	0	0
	48000	10	52	86	83	87	20	15	6	0	0	0	0
	60000	44	387	569	721	754	168	100	38	0	0	0	0
	75000	41	304	701	1519	2066	623	268	69	0	0	0	0
	100000	6	184	584	1288	1042	290	171	14	0	0	0	0
7 Years	36000	0	0	0	0	21	4	4	0	0	0	0	0
	48000	0	0	0	0	27	12	7	1	0	0	0	0
	60000	0	0	0	130	107	42	24	9	0	0	0	0
	75000	0	0	0	145	209	62	47	8	0	0	0	0
	100000	0	0	0	0	121	56	18	4	0	0	0	0

		1999 - 2003 F-150											
Coverage		Plan Years											
Time	Mileage	1998	1999	2000	2001	2002	2004	2005	2006	2007	2009	2010	2011
3 Years	48000	6	179	512	414	165	4	2	2	0	0	0	0
	60000	16	127	297	329	135	15	1	0	0	0	0	0
	75000	33	234	331	402	203	16	5	2	0	0	0	0
	100000	22	213	505	783	548	52	4	0	0	0	0	0
4 Years	36000	2	34	18	0	0	0	0	0	0	0	0	0
	48000	18	133	192	172	158	32	18	2	0	0	0	0
	60000	36	283	369	455	271	51	6	1	0	0	0	0
	75000	49	420	688	875	521	94	25	0	0	0	0	0
	100000	52	434	885	1499	1199	138	18	0	0	0	0	0
5 Years	36000	1	5	28	55	59	13	3	5	0	0	0	0
	48000	5	56	87	163	152	14	8	4	0	0	0	0
	60000	201	1693	3395	5587	4005	592	164	25	1	0	0	0
	75000	455	3460	6927	11942	9034	1341	396	38	0	0	0	0
6 Years	100000	67	807	2476	5333	5161	733	227	8	0	0	0	0
	36000	4	53	121	152	82	18	14	7	0	0	0	0
	48000	13	111	222	267	178	36	22	6	0	0	0	0
	60000	168	941	2031	3031	2326	489	192	62	0	0	0	0
	75000	219	1101	2855	6965	8478	2087	861	155	2	0	0	0
7 Years	100000	48	273	1378	3618	1991	429	190	20	1	0	0	0
	36000	0	0	0	0	41	8	8	0	0	0	0	0
	48000	0	0	0	0	62	13	7	4	0	0	0	0
	60000	0	0	0	489	296	74	37	14	0	0	0	0
	75000	0	0	0	788	931	234	151	36	1	0	0	0
100000	0	0	0	0	269	119	74	13	0	0	0	0	

		New Contract Coverage												
		1999 - 2003 F-150												
Coverage		Plan Years												
Time	Mileage	1998	1999	2000	2001	2002	2004	2005	2006	2007	2009	2010	2011	
PREMIUMCARE	3 Years	48000	X	X	X	X	X	X	X	X	X	X	X	
		60000	X	X	X	X	X	X	X	X	X	X	X	
		75000	X	X	X	X	X	X	X	X	X	X	X	
	4 Years	100000	X	X	X	X	X	X	X	X	X	X	X	
		36000	X	X	X	X	X	X	X	X	X	X	X	
		48000	X	X	X	X	X	X	X	X	X	X	X	
		60000	X	X	X	X	X	X	X	X	X	X	X	
		75000	X	X	X	X	X	X	X	X	X	X	X	
	5 Years	100000	X	X	X	X	X	X	X	X	X	X	X	
		36000	X	X	X	X	X	X	X	X	X	X	X	
		48000	X	X	X	X	X	X	X	X	X	X	X	
		60000	X	X	X	X	X	X	X	X	X	X	X	
		75000	X	X	X	X	X	X	X	X	X	X	X	
	6 Years	100000	X	X	X	X	X	X	X	X	X	X	X	
		36000	X	X	X	X	X	X	X	X	X	X	X	
48000		X	X	X	X	X	X	X	X	X	X	X		
60000		X	X	X	X	X	X	X	X	X	X	X		
75000		X	X	X	X	X	X	X	X	X	X	X		
7 Years	100000	X	X	X	X	X	X	X	X	X	X	X		
	36000	X	X	X	X	X	X	X	X	X	X	X		
	48000	X	X	X	X	X	X	X	X	X	X	X		
	60000	X	X	X	X	X	X	X	X	X	X	X		
	75000	X	X	X	X	X	X	X	X	X	X	X		

New Contract Counts

		1999 - 2003 F-150											
Coverage		Plan Years											
Time	Mileage	1998	1999	2000	2001	2002	2004	2005	2006	2007	2009	2010	2011
3 Years	48000	10	200	1064	1275	598	19	4	1	0	0	0	0
	60000	26	176	545	723	592	39	6	0	0	0	0	0
	75000	26	259	668	1080	926	107	8	2	0	0	0	0
	100000	24	184	739	1485	1276	137	7	0	0	0	0	0
4 Years	36000	1	67	21	0	0	0	0	0	0	0	0	0
	48000	3	177	326	470	557	75	22	9	0	0	0	0
	60000	26	326	518	853	946	122	24	1	0	0	0	0
	75000	57	684	1243	2137	2002	296	82	3	0	0	0	0
5 Years	100000	44	376	1590	3328	3193	392	73	1	0	0	0	0
	36000	3	32	74	201	228	47	40	22	0	0	0	0
	48000	5	54	136	398	571	93	53	24	0	0	0	0
	60000	143	1936	4523	9106	9844	1345	418	104	0	0	0	0
6 Years	75000	438	4068	9698	21896	30723	4610	1516	171	1	0	0	0
	100000	44	655	3436	10077	11631	1618	519	20	0	0	0	0
	36000	24	182	366	572	605	135	107	64	2	0	0	0
	48000	23	182	457	677	759	185	89	46	1	0	0	0
7 Years	60000	192	1620	4019	6724	9460	1927	1092	449	1	0	0	0
	75000	201	1552	5122	14337	19154	4862	2465	591	4	0	0	0
	100000	50	442	3057	9622	6163	1367	683	86	2	0	0	0
	36000	0	0	0	0	240	62	46	31	0	0	0	0
7 Years	48000	0	0	0	0	364	72	43	17	1	0	0	0
	60000	0	0	0	1367	1352	307	176	104	1	0	0	0
	75000	0	0	0	2035	2347	520	342	136	1	0	0	0
	100000	0	0	0	0	1091	323	243	74	2	0	0	0

Used Contract Coverage

		1999 - 2003 F-150												
Coverage		Plan Years												
Time	Mileage	1998	1999	2000	2001	2002	2004	2005	2006	2007	2009	2010	2011	
<b>BASCARE</b>	6 Months	6000	X	X	X	X	X	X	X	X	X	X	X	
	1 Year	12000	X	X	X	X	X	X	X	X	X	X	X	
	2 Years	24000	X	X	X	X	X	X	X	X	X	X	X	
	3 Years	36000	X	X	X	X	X	X	X	X	X	X	X	
	4 Years	48000	X	X	X	X	X	X	X	X	X	X	X	
	5 Years	60000	X	X	X	X	X	X	X	X	X	X	X	
		1999 - 2003 F-150												
Coverage		Plan Years												
Time	Mileage	1998	1999	2000	2001	2002	2004	2005	2006	2007	2009	2010	2011	
<b>EXTRACARI</b>	1 Year	12000	X	X	X	X	X	X	X	X	X	X	X	
	2 Years	24000	X	X	X	X	X	X	X	X	X	X	X	
	3 Years	36000	X	X	X	X	X	X	X	X	X	X	X	
	4 Years	48000	X	X	X	X	X	X	X	X	X	X	X	
	5 Years	60000	X	X	X	X	X	X	X	X	X	X	X	
			1999 - 2003 F-150											
Coverage		Plan Years												
Time	Mileage	1998	1999	2000	2001	2002	2004	2005	2006	2007	2009	2010	2011	
<b>PREMIUMCARI</b>	1 Year	12000	X	X	X	X	X	X	X	X	X	X	X	
	2 Years	24000	X	X	X	X	X	X	X	X	X	X	X	
	3 Years	36000	X	X	X	X	X	X	X	X	X	X	X	
	4 Years	48000	X	X	X	X	X	X	X	X	X	X	X	
	5 Years	60000	X	X	X	X	X	X	X	X	X	X	X	
	60000	X	X	X	X	X	X	X	X	X	X	X	X	
		1999 - 2003 F-150												
Coverage		Plan Years												
Time	Mileage	1998	1999	2000	2001	2002	2004	2005	2006	2007	2009	2010	2011	
<b>ROYALSHIELD</b>	3 Months	4000	X	X	X	X	X	X	X	X	X	X	X	
	6 Months	6000	X	X	X	X	X	X	X	X	X	X	X	
	1 Year	12000	X	X	X	X	X	X	X	X	X	X	X	
		1999 - 2003 F-150												
Coverage		Plan Years												
Time	Mileage	1998	1999	2000	2001	2002	2004	2005	2006	2007	2009	2010	2011	
<b>ROYALSHIELD</b>	1 Month	1000	X	X	X	X	X	X	X	X	X	X	X	
	2 Months	3000	X	X	X	X	X	X	X	X	X	X	X	
	3 Months	4000	X	X	X	X	X	X	X	X	X	X	X	
	6 Months	6000	X	X	X	X	X	X	X	X	X	X	X	
	1 Year	12000	X	X	X	X	X	X	X	X	X	X	X	

Used Contract Counts

		1999 - 2003 F-150												
Coverage		Plan Years												
Time	Mileage	1998	1999	2000	2001	2002	2004	2005	2006	2007	2009	2010	2011	
BASECARE	6 Months	6000	0	0	7	81	239	152	133	60	37	10	2	2
	1 Year	12000	0	0	8	255	579	439	452	308	243	21	13	12
	2 Years	24000	0	1	38	1271	2757	2239	1877	1131	734	180	136	108
	3 Years	36000	0	1	75	1458	3071	2063	1564	797	402	209	166	134
	4 Years	48000	0	1	88	1149	1317	968	685	334	118	133	105	61
	5 Years	60000	0	0	0	0	0	0	0	0	0	0	0	12

		1999 - 2003 F-150												
Coverage		Plan Years												
Time	Mileage	1998	1999	2000	2001	2002	2004	2005	2006	2007	2009	2010	2011	
EXTRACARE	1 Year	12000	0	1	8	108	257	165	190	115	84	9	6	3
	2 Years	24000	0	2	40	1043	2551	1652	1407	832	481	191	123	101
	3 Years	36000	0	3	176	3390	5183	2871	2112	967	436	165	110	63
	4 Years	48000	0	0	0	1405	2161	1203	813	390	142	120	88	34
	5 Years	60000	0	0	0	0	0	0	0	0	0	0	0	5

		1999 - 2003 F-150												
Coverage		Plan Years												
Time	Mileage	1998	1999	2000	2001	2002	2004	2005	2006	2007	2009	2010	2011	
PREMIUMCARE	1 Year	12000	0	0	0	31	103	104	90	59	56	10	6	8
	2 Years	24000	0	0	0	281	1729	1616	1569	1011	666	143	81	23
	3 Years	36000	0	0	0	923	2202	2335	2094	1178	528	150	79	100
	4 Years	48000	0	0	0	0	1542	455	342	1	1	222	122	41
		60000	0	0	0	1	0	0	0	0	0	0	0	0
5 Years	60000	0	0	0	0	0	0	0	0	0	0	0	28	

		1999 - 2003 F-150												
Coverage		Plan Years												
Time	Mileage	1998	1999	2000	2001	2002	2004	2005	2006	2007	2009	2010	2011	
ROYALSHIELD	3 Months	4000	0	3	36	0	0	0	0	0	0	0	0	
	6 Months	6000	0	0	11	0	0	0	0	0	0	0	0	
	1 Year	12000	0	0	2	0	0	0	0	0	0	0	0	

		1999 - 2003 F-150												
Coverage		Plan Years												
Time	Mileage	1998	1999	2000	2001	2002	2004	2005	2006	2007	2009	2010	2011	
ROYALSHIELD	1 Month	1000	0	0	0	0	0	0	0	0	0	4	2	3
	2 Months	3000	0	0	0	0	0	0	0	0	0	11	3	8
	3 Months	4000	0	0	0	1262	2944	1744	1878	1200	815	160	135	68
	6 Months	6000	0	0	0	96	8	0	0	0	0	0	0	0
	1 Year	12000	0	0	0	19	6	0	0	0	0	0	0	0

**New Contract Coverage**

		1999 - 2003 F-250 HEAVY DUTY											
Coverage		Plan Years											
Time	Mileage	1998	1999	2000	2001	2002	2004	2005	2006	2007	2009	2010	2011
3 Years	48000	X	X	X	X	X	X	X	X	X	X	X	X
	60000	X	X	X	X	X	X	X	X	X	X	X	X
	75000	X	X	X	X	X	X	X	X	X	X	X	X
	100000	X	X	X	X	X	X	X	X	X	X	X	X
4 Years	36000	X	X	X	X	X	X	X	X	X	X	X	X
	48000	X	X	X	X	X	X	X	X	X	X	X	X
	60000	X	X	X	X	X	X	X	X	X	X	X	X
	75000	X	X	X	X	X	X	X	X	X	X	X	X
5 Years	100000	X	X	X	X	X	X	X	X	X	X	X	X
	36000	X	X	X	X	X	X	X	X	X	X	X	X
	48000	X	X	X	X	X	X	X	X	X	X	X	X
	60000	X	X	X	X	X	X	X	X	X	X	X	X
6 Years	75000	X	X	X	X	X	X	X	X	X	X	X	X
	100000	X	X	X	X	X	X	X	X	X	X	X	X
	36000	X	X	X	X	X	X	X	X	X	X	X	X
	48000	X	X	X	X	X	X	X	X	X	X	X	X
7 Years	60000	X	X	X	X	X	X	X	X	X	X	X	X
	75000	X	X	X	X	X	X	X	X	X	X	X	X
	100000	X	X	X	X	X	X	X	X	X	X	X	X
	36000	X	X	X	X	X	X	X	X	X	X	X	X

		1999 - 2003 F-250 HEAVY DUTY											
Coverage		Plan Years											
Time	Mileage	1998	1999	2000	2001	2002	2004	2005	2006	2007	2009	2010	2011
3 Years	48000	X	X	X	X	X	X	X	X	X	X	X	X
	60000	X	X	X	X	X	X	X	X	X	X	X	X
	75000	X	X	X	X	X	X	X	X	X	X	X	X
	100000	X	X	X	X	X	X	X	X	X	X	X	X
4 Years	36000	X	X	X	X	X	X	X	X	X	X	X	X
	48000	X	X	X	X	X	X	X	X	X	X	X	X
	60000	X	X	X	X	X	X	X	X	X	X	X	X
	75000	X	X	X	X	X	X	X	X	X	X	X	X
5 Years	100000	X	X	X	X	X	X	X	X	X	X	X	X
	36000	X	X	X	X	X	X	X	X	X	X	X	X
	48000	X	X	X	X	X	X	X	X	X	X	X	X
	60000	X	X	X	X	X	X	X	X	X	X	X	X
6 Years	75000	X	X	X	X	X	X	X	X	X	X	X	X
	100000	X	X	X	X	X	X	X	X	X	X	X	X
	36000	X	X	X	X	X	X	X	X	X	X	X	X
	48000	X	X	X	X	X	X	X	X	X	X	X	X
7 Years	60000	X	X	X	X	X	X	X	X	X	X	X	X
	75000	X	X	X	X	X	X	X	X	X	X	X	X
	100000	X	X	X	X	X	X	X	X	X	X	X	X
	36000	X	X	X	X	X	X	X	X	X	X	X	X

**New Contract Counts**

		1999 - 2003 F-250 HEAVY DUTY												
Coverage		Plan Years												
Time	Mileage	1998	1999	2000	2001	2002	2004	2005	2006	2007	2009	2010	2011	
<b>BASECARE</b>	3 Years	48000	5	9	23	15	19	0	4	0	0	0	0	0
		60000	25	25	24	52	33	6	1	0	0	0	0	0
		75000	158	86	93	130	147	8	3	0	0	0	0	0
		100000	30	83	134	224	164	18	1	0	0	0	0	0
4 Years	36000	1	213	95	0	0	0	0	0	0	0	0	0	
	48000	4	10	18	26	20	7	1	3	0	0	0	0	
	60000	47	47	49	89	55	15	13	1	0	0	0	0	
	75000	119	99	138	194	220	45	12	0	0	0	0	0	
5 Years	100000	70	125	235	394	320	20	9	0	0	0	0	0	
	36000	2	0	4	7	7	0	0	1	0	0	0	0	
	48000	9	4	9	17	34	14	3	6	0	0	0	0	
	60000	159	121	177	376	334	64	33	6	0	0	0	0	
6 Years	75000	307	255	395	899	776	143	61	6	0	0	0	0	
	100000	67	126	338	825	568	69	22	3	0	0	0	0	
	36000	2	4	6	21	22	2	5	4	0	0	0	0	
	48000	7	10	12	33	27	8	14	7	0	0	0	0	
7 Years	60000	144	103	126	239	210	51	32	22	0	0	0	0	
	75000	149	118	242	481	418	161	87	26	0	0	0	0	
	100000	25	62	196	430	243	63	31	5	1	0	0	0	
	36000	0	0	0	0	5	6	1	4	0	0	0	0	
7 Years	48000	0	0	0	0	10	5	5	4	0	0	0	0	
	60000	0	0	0	51	38	20	9	7	0	0	0	0	
	75000	0	0	0	73	85	33	15	13	0	0	0	0	
	100000	0	0	0	0	39	11	11	2	0	0	0	0	

		1999 - 2003 F-250 HEAVY DUTY												
Coverage		Plan Years												
Time	Mileage	1998	1999	2000	2001	2002	2004	2005	2006	2007	2009	2010	2011	
<b>EXTRACARE</b>	3 Years	48000	9	18	10	20	14	1	0	0	0	0	0	0
		60000	11	48	62	73	30	4	0	0	0	0	0	0
		75000	44	110	131	180	175	23	2	0	0	0	0	0
		100000	42	94	227	399	228	25	4	0	0	0	0	0
4 Years	36000	0	1	5	0	0	0	0	0	0	0	0	0	
	48000	10	14	29	39	33	7	5	2	0	0	0	0	
	60000	29	69	82	105	54	7	1	1	0	0	0	0	
	75000	88	144	192	353	338	52	18	0	0	0	0	0	
5 Years	100000	74	190	414	697	493	68	8	0	0	0	0	0	
	36000	4	1	6	9	14	3	1	1	0	0	0	0	
	48000	3	7	12	26	31	10	6	2	0	0	0	0	
	60000	121	230	371	897	637	82	35	6	0	0	0	0	
6 Years	75000	373	695	1065	2316	2036	302	96	10	0	0	0	0	
	100000	136	265	894	2327	1226	230	83	5	0	0	0	0	
	36000	10	12	19	44	29	1	2	2	0	0	0	0	
	48000	16	32	35	69	58	11	3	4	0	0	0	0	
7 Years	60000	163	222	380	679	520	87	36	17	1	0	0	0	
	75000	173	300	574	1344	1291	317	169	24	1	0	0	0	
	100000	80	173	608	1352	373	106	60	5	0	0	0	0	
	36000	0	0	0	0	17	5	1	1	0	0	0	0	
7 Years	48000	0	0	0	0	16	6	2	2	0	0	0	0	
	60000	0	0	0	129	85	19	14	9	0	0	0	0	
	75000	0	0	0	279	237	59	37	12	0	0	0	0	
	100000	0	0	0	0	100	54	29	13	0	0	0	0	

**New Contract Coverage**

		<b>1999 - 2003 F-250 HEAVY DUTY</b>											
<b>Coverage</b>		<b>Plan Years</b>											
<b>Time</b>	<b>Mileage</b>	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>
<b>PREMIUMCARE</b>	<b>3 Years</b>	<b>48000</b>	X	X	X	X	X	X	X	X	X	X	X
		<b>60000</b>	X	X	X	X	X	X	X	X	X	X	X
		<b>75000</b>	X	X	X	X	X	X	X	X	X	X	X
		<b>100000</b>	X	X	X	X	X	X	X	X	X	X	X
	<b>4 Years</b>	<b>36000</b>	X	X	X	X	X	X	X	X	X	X	X
		<b>48000</b>	X	X	X	X	X	X	X	X	X	X	X
		<b>60000</b>	X	X	X	X	X	X	X	X	X	X	X
		<b>75000</b>	X	X	X	X	X	X	X	X	X	X	X
	<b>5 Years</b>	<b>100000</b>	X	X	X	X	X	X	X	X	X	X	X
		<b>36000</b>	X	X	X	X	X	X	X	X	X	X	X
		<b>48000</b>	X	X	X	X	X	X	X	X	X	X	X
		<b>60000</b>	X	X	X	X	X	X	X	X	X	X	X
<b>6 Years</b>	<b>75000</b>	X	X	X	X	X	X	X	X	X	X	X	
	<b>100000</b>	X	X	X	X	X	X	X	X	X	X	X	
	<b>36000</b>	X	X	X	X	X	X	X	X	X	X	X	
	<b>48000</b>	X	X	X	X	X	X	X	X	X	X	X	
<b>7 Years</b>	<b>60000</b>	X	X	X	X	X	X	X	X	X	X	X	
	<b>75000</b>	X	X	X	X	X	X	X	X	X	X	X	
	<b>100000</b>	X	X	X	X	X	X	X	X	X	X	X	
	<b>36000</b>	X	X	X	X	X	X	X	X	X	X	X	

		<b>New Contract Counts</b>												
		<b>1999 - 2003 F-250 HEAVY DUTY</b>												
<b>Coverage</b>		<b>Plan Years</b>												
<b>Time</b>	<b>Mileage</b>	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	
<b>PREMIUMCARE</b>	<b>3 Years</b>	<b>48000</b>	11	18	37	62	41	1	1	1	0	0	0	0
		<b>60000</b>	19	60	105	159	129	15	3	0	0	0	0	0
		<b>75000</b>	59	147	137	260	337	34	3	0	0	0	0	0
		<b>100000</b>	70	157	521	951	392	47	2	0	0	0	0	0
	<b>4 Years</b>	<b>36000</b>	4	3	3	0	0	0	0	0	0	0	0	0
		<b>48000</b>	7	26	34	69	97	15	7	2	0	0	0	0
		<b>60000</b>	22	119	145	218	215	19	13	0	0	0	0	0
		<b>75000</b>	105	239	315	540	588	65	21	1	0	0	0	0
	<b>5 Years</b>	<b>100000</b>	120	234	795	1763	656	172	27	1	0	0	0	0
		<b>36000</b>	4	7	11	23	33	4	4	6	1	0	0	0
		<b>48000</b>	3	12	18	60	137	17	13	4	0	0	0	0
		<b>60000</b>	121	327	634	1544	1532	211	90	28	0	0	0	0
<b>6 Years</b>	<b>75000</b>	451	1102	1918	4409	5433	1092	406	42	0	0	0	0	
	<b>100000</b>	134	341	1769	4841	1941	409	176	10	0	0	0	0	
	<b>36000</b>	18	34	69	153	128	30	32	26	0	0	0	0	
	<b>48000</b>	30	41	106	165	168	49	40	22	0	0	0	0	
<b>7 Years</b>	<b>60000</b>	230	526	1036	1793	1789	304	194	79	0	0	0	0	
	<b>75000</b>	327	610	1307	2953	2821	647	437	130	2	0	0	0	
	<b>100000</b>	127	330	1820	4238	542	199	134	22	0	0	0	0	
	<b>36000</b>	0	0	0	0	43	8	5	7	1	0	0	0	
<b>7 Years</b>	<b>48000</b>	0	0	0	0	83	5	5	7	1	0	0	0	
	<b>60000</b>	0	0	0	406	330	59	41	23	0	0	0	0	
	<b>75000</b>	0	0	0	861	431	149	126	73	4	0	0	0	
	<b>100000</b>	0	0	0	0	177	68	59	16	0	1	0	0	

Used Contract Coverage

		1999 - 2003 F-250 HEAVY DUTY												
Coverage		Plan Years												
Time	Mileage	1998	1999	2000	2001	2002	2004	2005	2006	2007	2009	2010	2011	
<b>BASECARE</b>	6 Months	6000	X	X	X	X	X	X	X	X	X	X	X	
	1 Year	12000	X	X	X	X	X	X	X	X	X	X	X	
	2 Years	24000	X	X	X	X	X	X	X	X	X	X	X	
	3 Years	36000	X	X	X	X	X	X	X	X	X	X	X	
	4 Years	48000	X	X	X	X	X	X	X	X	X	X	X	
5 Years	60000	X	X	X	X	X	X	X	X	X	X	X		

		1999 - 2003 F-250 HEAVY DUTY												
Coverage		Plan Years												
Time	Mileage	1998	1999	2000	2001	2002	2004	2005	2006	2007	2009	2010	2011	
<b>EXTRACAR</b>	1 Year	12000	X	X	X	X	X	X	X	X	X	X	X	
	2 Years	24000	X	X	X	X	X	X	X	X	X	X	X	
	3 Years	36000	X	X	X	X	X	X	X	X	X	X	X	
	4 Years	48000	X	X	X	X	X	X	X	X	X	X	X	
	5 Years	60000	X	X	X	X	X	X	X	X	X	X	X	

		1999 - 2003 F-250 HEAVY DUTY												
Coverage		Plan Years												
Time	Mileage	1998	1999	2000	2001	2002	2004	2005	2006	2007	2009	2010	2011	
<b>PREMIUMCARE</b>	1 Year	12000	X	X	X	X	X	X	X	X	X	X	X	
	2 Years	24000	X	X	X	X	X	X	X	X	X	X	X	
	3 Years	36000	X	X	X	X	X	X	X	X	X	X	X	
	4 Years	48000	X	X	X	X	X	X	X	X	X	X	X	
	5 Years	60000	X	X	X	X	X	X	X	X	X	X	X	

		1999 - 2003 F-250 HEAVY DUTY												
Coverage		Plan Years												
Time	Mileage	1998	1999	2000	2001	2002	2004	2005	2006	2007	2009	2010	2011	
<b>ROYALSHIELD</b>	3 Months	4000	X	X	X	X	X	X	X	X	X	X	X	
	6 Months	6000	X	X	X	X	X	X	X	X	X	X	X	
	1 Year	12000	X	X	X	X	X	X	X	X	X	X	X	

		1999 - 2003 F-250 HEAVY DUTY												
Coverage		Plan Years												
Time	Mileage	1998	1999	2000	2001	2002	2004	2005	2006	2007	2009	2010	2011	
<b>ROYALSHIELD</b>	1 Month	1000	X	X	X	X	X	X	X	X	X	X	X	
	2 Months	3000	X	X	X	X	X	X	X	X	X	X	X	
	3 Months	4000	X	X	X	X	X	X	X	X	X	X	X	
	6 Months	6000	X	X	X	X	X	X	X	X	X	X	X	
	1 Year	12000	X	X	X	X	X	X	X	X	X	X	X	

**Used Contract Counts**

		1999 - 2003 F-250 HEAVY DUTY												
Coverage		Plan Years												
Time	Mileage	1998	1999	2000	2001	2002	2004	2005	2006	2007	2009	2010	2011	
<b>BASECARE</b>	6 Months	6000	0	0	3	47	57	43	38	19	15	4	0	0
	1 Year	12000	0	2	14	109	163	154	132	92	73	7	5	2
	2 Years	24000	0	4	45	458	622	547	447	314	209	64	52	41
	3 Years	36000	1	5	90	500	622	415	376	207	112	68	55	31
	4 Years	48000	0	3	130	492	440	298	281	159	75	75	79	41
5 Years	60000	0	0	0	0	0	0	0	0	0	0	0	9	

		1999 - 2003 F-250 HEAVY DUTY												
Coverage		Plan Years												
Time	Mileage	1998	1999	2000	2001	2002	2004	2005	2006	2007	2009	2010	2011	
<b>EXTRACAR</b>	1 Year	12000	0	1	13	36	73	61	58	30	34	2	0	2
	2 Years	24000	0	1	48	384	480	322	336	183	126	54	48	43
	3 Years	36000	0	10	231	977	917	520	439	223	107	59	37	36
	4 Years	48000	0	0	0	279	415	257	220	108	75	64	50	30
	5 Years	60000	0	0	0	0	0	0	0	0	0	0	0	4

		1999 - 2003 F-250 HEAVY DUTY												
Coverage		Plan Years												
Time	Mileage	1998	1999	2000	2001	2002	2004	2005	2006	2007	2009	2010	2011	
<b>PREMIUMCARE</b>	1 Year	12000	0	0	0	5	36	25	18	10	15	2	2	3
	2 Years	24000	0	0	0	67	308	319	321	233	197	37	16	8
	3 Years	36000	0	0	0	480	664	595	581	398	251	41	25	32
	4 Years	48000	0	0	0	0	449	190	146	0	0	103	65	16
	5 Years	60000	0	0	0	0	0	0	0	0	0	0	0	16

		1999 - 2003 F-250 HEAVY DUTY												
Coverage		Plan Years												
Time	Mileage	1998	1999	2000	2001	2002	2004	2005	2006	2007	2009	2010	2011	
<b>ROYALSHIELD</b>	3 Months	4000	0	3	47	0	0	0	0	0	0	0	0	
	6 Months	6000	0	0	7	0	0	0	0	0	0	0	0	
	1 Year	12000	0	0	3	0	0	0	0	0	0	0	0	

		1999 - 2003 F-250 HEAVY DUTY												
Coverage		Plan Years												
Time	Mileage	1998	1999	2000	2001	2002	2004	2005	2006	2007	2009	2010	2011	
<b>ROYALSHIELD</b>	1 Month	1000	0	0	0	0	0	0	0	0	2	2	1	
	2 Months	3000	0	0	0	0	0	0	0	0	2	1	3	
	3 Months	4000	0	0	0	487	995	570	630	345	270	42	40	28
	6 Months	6000	0	0	0	43	6	0	0	0	0	0	0	
	1 Year	12000	0	0	0	6	2	0	0	0	0	0	0	

New Contract Coverage

Coverage		1999 - 2003 F-250 LIGHT DUTY												
Plan Years		1998	1999	2000	2001	2002	2004	2005	2006	2007	2009	2010	2011	
Time	Mileage													
3 Years	48000	X	X	X	X	X	X	X	X	X	X	X	X	
	60000	X	X	X	X	X	X	X	X	X	X	X	X	
	75000	X	X	X	X	X	X	X	X	X	X	X	X	
4 Years	100000	X	X	X	X	X	X	X	X	X	X	X	X	
	36000	X	X	X	X	X	X	X	X	X	X	X	X	
	48000	X	X	X	X	X	X	X	X	X	X	X	X	
	60000	X	X	X	X	X	X	X	X	X	X	X	X	
5 Years	75000	X	X	X	X	X	X	X	X	X	X	X	X	
	100000	X	X	X	X	X	X	X	X	X	X	X	X	
	48000	X	X	X	X	X	X	X	X	X	X	X	X	
	60000	X	X	X	X	X	X	X	X	X	X	X	X	
6 Years	75000	X	X	X	X	X	X	X	X	X	X	X	X	
	100000	X	X	X	X	X	X	X	X	X	X	X	X	
	36000	X	X	X	X	X	X	X	X	X	X	X	X	
	48000	X	X	X	X	X	X	X	X	X	X	X	X	
7 Years	60000	X	X	X	X	X	X	X	X	X	X	X	X	
	75000	X	X	X	X	X	X	X	X	X	X	X	X	
	36000	X	X	X	X	X	X	X	X	X	X	X	X	

Coverage		1999 - 2003 F-250 LIGHT DUTY												
Plan Years		1998	1999	2000	2001	2002	2004	2005	2006	2007	2009	2010	2011	
Time	Mileage													
3 Years	48000	X	X	X	X	X	X	X	X	X	X	X	X	
	60000	X	X	X	X	X	X	X	X	X	X	X	X	
	75000	X	X	X	X	X	X	X	X	X	X	X	X	
	100000	X	X	X	X	X	X	X	X	X	X	X	X	
4 Years	48000	X	X	X	X	X	X	X	X	X	X	X	X	
	60000	X	X	X	X	X	X	X	X	X	X	X	X	
	75000	X	X	X	X	X	X	X	X	X	X	X	X	
5 Years	100000	X	X	X	X	X	X	X	X	X	X	X	X	
	48000	X	X	X	X	X	X	X	X	X	X	X	X	
	60000	X	X	X	X	X	X	X	X	X	X	X	X	
6 Years	75000	X	X	X	X	X	X	X	X	X	X	X	X	
	100000	X	X	X	X	X	X	X	X	X	X	X	X	
	36000	X	X	X	X	X	X	X	X	X	X	X	X	
7 Years	48000	X	X	X	X	X	X	X	X	X	X	X	X	
	60000	X	X	X	X	X	X	X	X	X	X	X	X	
	75000	X	X	X	X	X	X	X	X	X	X	X	X	

Coverage		1999 - 2003 F-250 LIGHT DUTY												
Plan Years		1998	1999	2000	2001	2002	2004	2005	2006	2007	2009	2010	2011	
Time	Mileage													
3 Years	48000	X	X	X	X	X	X	X	X	X	X	X	X	
	60000	X	X	X	X	X	X	X	X	X	X	X	X	
	75000	X	X	X	X	X	X	X	X	X	X	X	X	
	100000	X	X	X	X	X	X	X	X	X	X	X	X	
4 Years	36000	X	X	X	X	X	X	X	X	X	X	X	X	
	48000	X	X	X	X	X	X	X	X	X	X	X	X	
	60000	X	X	X	X	X	X	X	X	X	X	X	X	
	75000	X	X	X	X	X	X	X	X	X	X	X	X	
5 Years	100000	X	X	X	X	X	X	X	X	X	X	X	X	
	36000	X	X	X	X	X	X	X	X	X	X	X	X	
	48000	X	X	X	X	X	X	X	X	X	X	X	X	
	60000	X	X	X	X	X	X	X	X	X	X	X	X	
6 Years	75000	X	X	X	X	X	X	X	X	X	X	X	X	
	100000	X	X	X	X	X	X	X	X	X	X	X	X	
	36000	X	X	X	X	X	X	X	X	X	X	X	X	
	48000	X	X	X	X	X	X	X	X	X	X	X	X	
7 Years	60000	X	X	X	X	X	X	X	X	X	X	X	X	
	75000	X	X	X	X	X	X	X	X	X	X	X	X	
	36000	X	X	X	X	X	X	X	X	X	X	X	X	

New Contract Counts

		1999 - 2003 F-250 LIGHT DUTY												
Coverage		Plan Years												
Time	Mileage	1998	1999	2000	2001	2002	2004	2005	2006	2007	2009	2010	2011	
3 Years	48000	0	3	1	0	0	0	0	0	0	0	0	0	
	60000	0	1	3	0	0	0	0	0	0	0	0	0	
	75000	0	12	3	0	0	0	0	0	0	0	0	0	
	100000	0	6	2	0	0	0	0	0	0	0	0	0	
4 Years	36000	0	35	13	0	0	0	0	0	0	0	0	0	
	48000	0	1	0	1	1	0	0	0	0	0	0	0	
	60000	1	1	2	1	0	0	0	0	0	0	0	0	
	75000	1	9	8	2	0	0	0	0	0	0	0	0	
5 Years	100000	0	56	8	3	0	0	0	0	0	0	0	0	
	48000	0	1	1	0	1	0	0	0	0	0	0	0	
	60000	2	20	17	5	1	0	0	0	0	0	0	0	
	75000	3	35	24	12	1	0	0	0	0	0	0	0	
6 Years	100000	0	21	9	6	1	0	0	0	0	0	0	0	
	36000	0	1	2	0	0	0	0	0	0	0	0	0	
	48000	0	1	0	0	0	0	0	0	0	0	0	0	
	60000	0	7	11	3	3	0	0	0	0	0	0	0	
7 Years	75000	1	10	13	20	3	0	0	0	0	0	0	0	
	100000	0	3	6	5	1	0	0	0	0	0	0	0	
	36000	0	0	0	0	1	0	0	0	0	0	0	0	
	60000	0	0	0	0	1	0	0	0	0	0	0	0	
	75000	0	0	0	1	2	0	0	0	0	0	0	0	

		1999 - 2003 F-250 LIGHT DUTY												
Coverage		Plan Years												
Time	Mileage	1998	1999	2000	2001	2002	2004	2005	2006	2007	2009	2010	2011	
3 Years	48000	0	4	0	0	0	0	0	0	0	0	0	0	
	60000	0	3	1	1	1	0	0	0	0	0	0	0	
	75000	1	7	6	0	0	0	0	0	0	0	0	0	
	100000	0	14	8	0	0	0	0	0	0	0	0	0	
4 Years	48000	0	2	3	0	0	0	0	0	0	0	0	0	
	60000	0	7	6	1	0	0	0	0	0	0	0	0	
	75000	2	11	12	1	0	0	0	0	0	0	0	0	
	100000	2	27	11	1	0	0	0	0	0	0	0	0	
5 Years	48000	0	1	0	0	0	0	0	0	0	0	0	0	
	60000	2	35	19	12	2	0	0	0	0	0	0	0	
	75000	7	124	101	22	0	0	0	0	0	0	0	0	
	100000	2	35	28	16	0	0	0	0	0	0	0	0	
6 Years	36000	0	2	2	0	0	0	0	0	0	0	0	0	
	48000	0	8	0	0	1	0	0	0	0	0	0	0	
	60000	4	28	18	8	0	0	0	0	0	0	0	0	
	75000	4	31	25	28	4	0	0	0	0	0	0	0	
7 Years	100000	2	25	24	26	0	0	0	0	0	0	0	0	
	60000	0	0	0	4	0	0	0	0	0	0	0	0	
	75000	0	0	0	4	2	0	0	0	0	0	0	0	

		1999 - 2003 F-250 LIGHT DUTY												
Coverage		Plan Years												
Time	Mileage	1998	1999	2000	2001	2002	2004	2005	2006	2007	2009	2010	2011	
3 Years	48000	0	4	2	1	0	0	0	0	0	0	0	0	
	60000	0	9	2	1	0	0	0	0	0	0	0	0	
	75000	2	23	9	1	0	0	0	0	0	0	0	0	
	100000	0	17	8	1	0	0	0	0	0	0	0	0	
4 Years	36000	1	0	0	0	0	0	0	0	0	0	0	0	
	48000	0	4	1	2	0	0	0	0	0	0	0	0	
	60000	0	13	10	3	0	0	0	0	0	0	0	0	
	75000	1	28	12	4	0	0	0	0	0	0	0	0	
5 Years	100000	0	20	23	4	0	0	0	0	0	0	0	0	
	36000	1	0	0	0	0	0	0	0	0	0	0	0	
	48000	0	1	0	0	0	0	0	0	0	0	0	0	
	60000	3	38	46	14	2	0	0	0	0	0	0	0	
6 Years	75000	5	107	116	63	3	0	0	0	0	0	0	0	
	100000	1	20	42	38	0	0	0	0	0	0	0	0	
	36000	1	6	5	2	2	0	0	0	0	0	0	0	
	48000	3	8	9	3	3	0	0	0	0	0	0	0	
7 Years	60000	7	54	51	21	11	0	0	0	0	0	0	0	
	75000	9	66	50	72	12	0	0	0	0	0	0	0	
	100000	3	30	28	54	3	0	0	0	0	0	0	0	
	60000	0	0	0	7	2	0	0	0	0	0	0	0	
	75000	0	0	0	11	1	0	0	0	0	0	0	0	

Used Contract Coverage

		1999 - 2003 F-250 LIGHT DUTY												
Coverage		Plan Years												
Time	Mileage	1998	1999	2000	2001	2002	2004	2005	2006	2007	2009	2010	2011	
<b>BASECARE</b>	6 Months	6000	X	X	X	X	X	X	X	X	X	X	X	
	1 Year	12000	X	X	X	X	X	X	X	X	X	X	X	
	2 Years	24000	X	X	X	X	X	X	X	X	X	X	X	
	3 Years	36000	X	X	X	X	X	X	X	X	X	X	X	
	4 Years	48000	X	X	X	X	X	X	X	X	X	X	X	

		1999 - 2003 F-250 LIGHT DUTY												
Coverage		Plan Years												
Time	Mileage	1998	1999	2000	2001	2002	2004	2005	2006	2007	2009	2010	2011	
<b>EXTRACARE</b>	1 Year	12000	X	X	X	X	X	X	X	X	X	X	X	
	2 Years	24000	X	X	X	X	X	X	X	X	X	X	X	
	3 Years	36000	X	X	X	X	X	X	X	X	X	X	X	
	4 Years	48000	X	X	X	X	X	X	X	X	X	X	X	

		1999 - 2003 F-250 LIGHT DUTY												
Coverage		Plan Years												
Time	Mileage	1998	1999	2000	2001	2002	2004	2005	2006	2007	2009	2010	2011	
<b>PREMIUMCARE</b>	1 Year	12000	X	X	X	X	X	X	X	X	X	X	X	
	2 Years	24000	X	X	X	X	X	X	X	X	X	X	X	
	3 Years	36000	X	X	X	X	X	X	X	X	X	X	X	

		1999 - 2003 F-250 LIGHT DUTY												
Coverage		Plan Years												
Time	Mileage	1998	1999	2000	2001	2002	2004	2005	2006	2007	2009	2010	2011	
<b>ROYALSHIELD</b>	3 Months	4000	X	X	X	X	X	X	X	X	X	X	X	
	6 Months	6000	X	X	X	X	X	X	X	X	X	X	X	

		1999 - 2003 F-250 LIGHT DUTY												
Coverage		Plan Years												
Time	Mileage	1998	1999	2000	2001	2002	2004	2005	2006	2007	2009	2010	2011	
<b>ROYALSHIELD</b>	3	4000	X	X	X	X	X	X	X	X	X	X	X	
	6	6000	X	X	X	X	X	X	X	X	X	X	X	

Used Contract Counts

		1999 - 2003 F-250 LIGHT DUTY													
		Coverage		Plan Years											
		Time	Mileage	1998	1999	2000	2001	2002	2004	2005	2006	2007	2009	2010	2011
<b>BASECARE</b>	<b>6 Months</b>	<b>6000</b>	0	0	0	1	3	2	0	0	0	0	0	0	0
	<b>1 Year</b>	<b>12000</b>	0	0	0	6	10	3	2	1	0	0	0	0	0
	<b>2 Years</b>	<b>24000</b>	0	0	1	29	44	10	3	2	0	0	0	0	0
	<b>3 Years</b>	<b>36000</b>	0	0	2	37	34	6	2	2	0	1	0	0	0
	<b>4 Years</b>	<b>48000</b>	0	1	3	42	27	5	0	0	0	0	0	0	0

		1999 - 2003 F-250 LIGHT DUTY													
		Coverage		Plan Years											
		Time	Mileage	1998	1999	2000	2001	2002	2004	2005	2006	2007	2009	2010	2011
<b>EXTRACARE</b>	<b>1 Year</b>	<b>12000</b>	0	0	0	4	7	1	3	0	0	0	0	0	0
	<b>2 Years</b>	<b>24000</b>	0	1	1	21	17	6	4	2	0	0	0	0	0
	<b>3 Years</b>	<b>36000</b>	0	0	8	54	30	3	1	0	0	0	0	0	0
	<b>4 Years</b>	<b>48000</b>	0	0	0	13	13	0	0	0	0	0	1	0	0

		1999 - 2003 F-250 LIGHT DUTY													
		Coverage		Plan Years											
		Time	Mileage	1998	1999	2000	2001	2002	2004	2005	2006	2007	2009	2010	2011
<b>PREMIUMCARE</b>	<b>1 Year</b>	<b>12000</b>	0	0	0	1	2	0	0	0	0	0	0	0	0
	<b>2 Years</b>	<b>24000</b>	0	0	0	6	13	3	0	1	0	0	0	0	0
	<b>3 Years</b>	<b>36000</b>	0	0	0	30	23	6	0	0	0	0	0	0	0

		1999 - 2003 F-250 LIGHT DUTY													
		Coverage		Plan Years											
		Time	Mileage	1998	1999	2000	2001	2002	2004	2005	2006	2007	2009	2010	2011
<b>ROYALSHIELD</b>	<b>3 Months</b>	<b>4000</b>	0	0	1	0	0	0	0	0	0	0	0	0	0
	<b>6 Months</b>	<b>6000</b>	0	0	2	0	0	0	0	0	0	0	0	0	0

		1999 - 2003 F-250 LIGHT DUTY													
		Coverage		Plan Years											
		Time	Mileage	1998	1999	2000	2001	2002	2004	2005	2006	2007	2009	2010	2011
<b>ROYALSHIELD</b>	<b>3</b>	<b>4000</b>	0	0	0	23	42	20	6	7	0	0	0	0	0
	<b>6</b>	<b>6000</b>	0	0	0	2	0	0	0	0	0	0	0	0	0

New Contract Coverage

Coverage		1999 - 2003 Navigator Plan Years												
Time	Mileage	1998	1999	2000	2001	2002	2004	2005	2006	2007	2009	2010	2011	
3 Years	48000	X	X	X	X	X	X	X	X	X	X	X	X	
	60000	X	X	X	X	X	X	X	X	X	X	X	X	
	75000	X	X	X	X	X	X	X	X	X	X	X	X	
	100000	X	X	X	X	X	X	X	X	X	X	X	X	
4 Years	36000	X	X	X	X	X	X	X	X	X	X	X	X	
	48000	X	X	X	X	X	X	X	X	X	X	X	X	
	60000	X	X	X	X	X	X	X	X	X	X	X	X	
	75000	X	X	X	X	X	X	X	X	X	X	X	X	
5 Years	100000	X	X	X	X	X	X	X	X	X	X	X	X	
	36000	X	X	X	X	X	X	X	X	X	X	X	X	
	60000	X	X	X	X	X	X	X	X	X	X	X	X	
	75000	X	X	X	X	X	X	X	X	X	X	X	X	
6 Years	100000	X	X	X	X	X	X	X	X	X	X	X	X	
	48000	X	X	X	X	X	X	X	X	X	X	X	X	
	60000	X	X	X	X	X	X	X	X	X	X	X	X	
	75000	X	X	X	X	X	X	X	X	X	X	X	X	
7 Years	100000	X	X	X	X	X	X	X	X	X	X	X	X	
	60000	X	X	X	X	X	X	X	X	X	X	X	X	
	75000	X	X	X	X	X	X	X	X	X	X	X	X	

Coverage		1999 - 2003 Navigator Plan Years												
Time	Mileage	1998	1999	2000	2001	2002	2004	2005	2006	2007	2009	2010	2011	
3 Years	48000	X	X	X	X	X	X	X	X	X	X	X	X	
	60000	X	X	X	X	X	X	X	X	X	X	X	X	
	61000	X	X	X	X	X	X	X	X	X	X	X	X	
	75000	X	X	X	X	X	X	X	X	X	X	X	X	
	100000	X	X	X	X	X	X	X	X	X	X	X	X	
4 Years	48000	X	X	X	X	X	X	X	X	X	X	X	X	
	60000	X	X	X	X	X	X	X	X	X	X	X	X	
	75000	X	X	X	X	X	X	X	X	X	X	X	X	
	100000	X	X	X	X	X	X	X	X	X	X	X	X	
5 Years	48000	X	X	X	X	X	X	X	X	X	X	X	X	
	60000	X	X	X	X	X	X	X	X	X	X	X	X	
	75000	X	X	X	X	X	X	X	X	X	X	X	X	
	100000	X	X	X	X	X	X	X	X	X	X	X	X	
6 Years	36000	X	X	X	X	X	X	X	X	X	X	X	X	
	48000	X	X	X	X	X	X	X	X	X	X	X	X	
	60000	X	X	X	X	X	X	X	X	X	X	X	X	
	75000	X	X	X	X	X	X	X	X	X	X	X	X	
7 Years	100000	X	X	X	X	X	X	X	X	X	X	X	X	
	48000	X	X	X	X	X	X	X	X	X	X	X	X	
	60000	X	X	X	X	X	X	X	X	X	X	X	X	
	75000	X	X	X	X	X	X	X	X	X	X	X	X	

New Contract Counts

Coverage		1999 - 2003 Navigator											
Plan Years		1998	1999	2000	2001	2002	2004	2005	2006	2007	2009	2010	2011
Time	Mileage												
3 Years	48000	0	1	3	1	1	0	0	0	0	0	0	0
	60000	0	1	1	2	0	0	0	0	0	0	0	0
	75000	0	0	0	2	1	0	0	0	0	0	0	0
	100000	0	0	0	0	2	1	0	0	0	0	0	0
4 Years	36000	0	15	82	0	0	0	0	0	0	0	0	0
	48000	1	0	0	1	1	1	1	0	0	0	0	0
	60000	0	2	0	1	2	1	0	0	0	0	0	0
	75000	0	1	1	2	1	0	0	0	0	0	0	0
5 Years	100000	0	1	0	5	3	1	0	0	0	0	0	0
	36000	0	0	46	16	1	0	1	0	0	0	0	0
	60000	0	2	3	2	4	6	3	1	0	0	0	0
	75000	2	3	1	21	25	11	2	2	0	0	0	0
6 Years	100000	0	1	6	20	27	14	4	1	1	0	0	0
	48000	0	1	0	0	1	0	0	0	0	0	0	0
	60000	0	1	5	9	12	5	1	3	0	0	0	0
	75000	1	8	6	22	63	23	16	6	6	0	0	0
7 Years	100000	0	1	8	31	45	21	8	4	0	0	0	0
	60000	0	0	0	0	2	3	0	2	0	0	0	0
	75000	0	0	0	2	14	12	3	1	1	0	0	0
	100000	0	0	0	0	8	6	0	4	0	0	0	0

Coverage		1999 - 2003 Navigator											
Plan Years		1998	1999	2000	2001	2002	2004	2005	2006	2007	2009	2010	2011
Time	Mileage												
3 Years	48000	0	0	1	1	1	0	0	0	0	0	0	0
	60000	0	1	1	4	2	0	0	0	0	0	0	0
	61000	0	0	0	1	0	0	0	0	0	0	0	0
	75000	0	1	4	5	1	0	0	0	0	0	0	0
	100000	0	1	1	8	3	1	1	0	0	0	0	0
4 Years	48000	0	1	0	0	5	0	1	0	0	0	0	0
	60000	2	7	2	7	3	1	2	0	0	0	0	0
	75000	1	4	6	11	10	1	0	0	0	0	0	0
5 Years	100000	0	4	11	30	15	8	0	0	0	0	0	0
	48000	0	0	0	1	0	0	1	0	0	0	0	0
	60000	3	7	11	28	31	19	6	2	0	0	0	0
	75000	3	16	30	107	73	44	31	11	0	0	0	0
6 Years	100000	2	16	32	114	113	34	18	3	0	0	0	0
	36000	0	0	0	1	0	0	0	0	0	0	0	0
	48000	0	0	5	2	2	0	0	0	0	0	0	0
	60000	1	15	25	31	30	20	9	6	1	0	0	0
7 Years	75000	10	19	71	152	221	120	87	26	8	0	0	0
	100000	0	16	66	252	173	73	42	13	0	0	0	0
	48000	0	0	0	0	1	2	0	1	1	0	0	0
7 Years	60000	0	0	0	12	9	4	4	2	0	0	0	0
	75000	0	0	0	56	68	35	22	10	3	0	0	0
	100000	0	0	0	0	43	43	17	10	2	0	0	0

		New Contract Coverage												
		1999 - 2003 Navigator												
Coverage		Plan Years												
Time	Mileage	1998	1999	2000	2001	2002	2004	2005	2006	2007	2009	2010	2011	
3 Years	48000	X	X	X	X	X	X	X	X	X	X	X	X	
	60000	X	X	X	X	X	X	X	X	X	X	X	X	
	75000	X	X	X	X	X	X	X	X	X	X	X	X	
	100000	X	X	X	X	X	X	X	X	X	X	X	X	
4 Years	48000	X	X	X	X	X	X	X	X	X	X	X	X	
	60000	X	X	X	X	X	X	X	X	X	X	X	X	
	75000	X	X	X	X	X	X	X	X	X	X	X	X	
	100000	X	X	X	X	X	X	X	X	X	X	X	X	
5 Years	36000	X	X	X	X	X	X	X	X	X	X	X	X	
	48000	X	X	X	X	X	X	X	X	X	X	X	X	
	60000	X	X	X	X	X	X	X	X	X	X	X	X	
	75000	X	X	X	X	X	X	X	X	X	X	X	X	
6 Years	100000	X	X	X	X	X	X	X	X	X	X	X	X	
	36000	X	X	X	X	X	X	X	X	X	X	X	X	
	48000	X	X	X	X	X	X	X	X	X	X	X	X	
	60000	X	X	X	X	X	X	X	X	X	X	X	X	
7 Years	75000	X	X	X	X	X	X	X	X	X	X	X	X	
	100000	X	X	X	X	X	X	X	X	X	X	X	X	
	36000	X	X	X	X	X	X	X	X	X	X	X	X	
	48000	X	X	X	X	X	X	X	X	X	X	X	X	

		New Contract Counts											
		1999 - 2003 Navigator											
Coverage		Plan Years											
Time	Mileage	1998	1999	2000	2001	2002	2004	2005	2006	2007	2009	2010	2011
PREMIUMCARE	3 Years	48000	1	1	5	3	0	0	0	0	0	0	0
		60000	1	8	23	36	37	5	2	0	0	0	0
		75000	3	14	30	71	45	12	9	0	0	0	0
		100000	0	15	31	70	53	15	3	1	0	0	0
	4 Years	48000	0	1	2	4	4	4	1	0	0	0	0
		60000	1	24	41	26	46	9	7	3	0	0	0
		75000	6	42	54	101	111	20	15	6	1	0	0
		100000	3	33	98	247	232	64	30	0	0	0	0
	5 Years	36000	0	0	0	3	3	2	1	1	1	0	0
		48000	0	0	2	3	12	3	2	2	0	0	0
		60000	4	18	47	104	159	36	18	12	3	0	0
		75000	18	104	220	510	815	311	224	72	9	0	0
6 Years	100000	7	59	260	831	1164	317	265	54	1	0	0	
	36000	2	6	12	24	14	10	9	4	3	0	0	
	48000	3	8	15	22	24	12	7	7	4	0	0	
	60000	14	85	194	203	356	175	135	81	48	0	0	
7 Years	75000	39	184	420	874	1565	732	575	398	90	0	0	
	100000	27	140	627	2074	1957	623	574	296	22	0	0	
	36000	0	0	0	0	17	19	7	5	7	0	0	
	48000	0	0	0	0	35	13	10	14	6	0	0	
7 Years	60000	0	0	0	128	135	86	61	63	25	0	0	
	75000	0	0	0	546	880	369	330	237	110	0	0	
	100000	0	0	0	0	718	307	276	268	78	0	0	

**Used Contract Coverage**

		1999 - 2003 Navigator												
Coverage		Plan Years												
Time	Mileage	1998	1999	2000	2001	2002	2004	2005	2006	2007	2009	2010	2011	
<b>BASECARE</b>	6 Months 6000	X	X	X	X	X	X	X	X	X	X	X	X	
	1 Year 12000	X	X	X	X	X	X	X	X	X	X	X	X	
	2 Years 24000	X	X	X	X	X	X	X	X	X	X	X	X	
	3 Years 36000	X	X	X	X	X	X	X	X	X	X	X	X	
	4 Years 48000	X	X	X	X	X	X	X	X	X	X	X	X	

		1999 - 2003 Navigator												
Coverage		Plan Years												
Time	Mileage	1998	1999	2000	2001	2002	2004	2005	2006	2007	2009	2010	2011	
<b>EXTRACARE</b>	1 Year 12000	X	X	X	X	X	X	X	X	X	X	X	X	
	2 Years 24000	X	X	X	X	X	X	X	X	X	X	X	X	
	3 Years 36000	X	X	X	X	X	X	X	X	X	X	X	X	
	4 Years 48000	X	X	X	X	X	X	X	X	X	X	X	X	

		1999 - 2003 Navigator												
Coverage		Plan Years												
Time	Mileage	1998	1999	2000	2001	2002	2004	2005	2006	2007	2009	2010	2011	
<b>PREMIUMCARE</b>	1 Year 12000	X	X	X	X	X	X	X	X	X	X	X	X	
	2 Years 24000	X	X	X	X	X	X	X	X	X	X	X	X	
	3 Years 36000	X	X	X	X	X	X	X	X	X	X	X	X	
	4 Years 48000	X	X	X	X	X	X	X	X	X	X	X	X	
	5 Years 60000	X	X	X	X	X	X	X	X	X	X	X	X	

		1999 - 2003 Navigator												
Coverage		Plan Years												
Time	Mileage	1998	1999	2000	2001	2002	2004	2005	2006	2007	2009	2010	2011	
<b>ROYALSHIELD</b>	2 Months 3000	X	X	X	X	X	X	X	X	X	X	X	X	
	3 Months 4000	X	X	X	X	X	X	X	X	X	X	X	X	
	6 Months 6000	X	X	X	X	X	X	X	X	X	X	X	X	
	1 Year 12000	X	X	X	X	X	X	X	X	X	X	X	X	

**Used Contract Counts**

		1999 - 2003 Navigator												
Coverage		Plan Years												
Time	Mileage	1998	1999	2000	2001	2002	2004	2005	2006	2007	2009	2010	2011	
<b>BASECARE</b>	6 Months	6000	0	0	0	6	4	10	9	9	2	1	0	0
	1 Year	12000	0	0	0	8	33	30	32	14	22	0	1	0
	2 Years	24000	0	0	1	28	108	129	120	59	45	13	12	7
	3 Years	36000	0	0	1	27	101	63	49	32	25	14	17	8
	4 Years	48000	0	0	1	21	37	36	17	9	6	17	8	9

		1999 - 2003 Navigator												
Coverage		Plan Years												
Time	Mileage	1998	1999	2000	2001	2002	2004	2005	2006	2007	2009	2010	2011	
<b>EXTRACARE</b>	1 Year	12000	0	1	2	8	26	26	31	22	27	1	1	0
	2 Years	24000	1	1	6	80	199	160	154	113	77	47	53	29
	3 Years	36000	0	3	7	129	232	151	111	52	49	35	16	3
	4 Years	48000	0	0	0	18	78	42	49	22	18	35	18	6

		1999 - 2003 Navigator												
Coverage		Plan Years												
Time	Mileage	1998	1999	2000	2001	2002	2004	2005	2006	2007	2009	2010	2011	
<b>PREMIUMCARE</b>	1 Year	12000	0	0	0	2	21	17	24	13	9	12	12	5
	2 Years	24000	0	0	0	25	260	266	253	201	195	99	64	12
	3 Years	36000	0	0	0	160	360	375	326	276	237	51	31	42
	4 Years	48000	0	0	0	0	137	31	49	0	0	91	52	7
	5 Years	60000	0	0	0	0	0	0	0	0	0	0	0	12

		1999 - 2003 Navigator												
Coverage		Plan Years												
Time	Mileage	1998	1999	2000	2001	2002	2004	2005	2006	2007	2009	2010	2011	
<b>ROYALSHIELD</b>	2 Months	3000	0	0	0	0	0	0	0	0	0	0	0	1
	3 Months	4000	0	0	3	48	101	62	90	59	48	12	8	3
	6 Months	6000	0	0	0	3	0	0	0	0	0	0	0	0
	1 Year	12000	0	0	0	1	2	0	0	0	0	0	0	0

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Appendix I1

Model Years	Vehicle Line	Part Number	Description	Base Material Composition	Tubing Specification	Tube Coating System	Supplier	Comment
2001-2003	Blackwood, F-150, F-250 LD	1L34-2234-BA	MC line	Low Carbon Steel Brazed Double Wall Tube	SAE J527	Extruded PA 12 Per WSS-M21P30-A1 over Galfan coated Steel Tube	TI	hex chrome free, new part
2000-2003	F-150, F-250 LD	YL34-2234-AA	MC line	Low Carbon Steel Brazed Double Wall Tube	SAE J527	Extruded PA 12 Per WSS-M21P30-a1 over Galfan coated Steel Tube	TI Bundy	parts changed to add nylon per WERS
		F75A-2234-RA		Low Carbon Steel Brazed Double Wall Tube	SAE J527	ZINC/ALUMINUM COAT TO CONFORM TO ESA-M1A270-A. ALUMINUM RICH ORGANIC COAT PER WSA-M21P26-A	none on print	
1999		F65A-2234-CB		Low Carbon Steel Brazed Double Wall Tube	SAE J527		none on print	1999 part
		F65A-2234-CA		Low Carbon Steel Brazed Double Wall Tube	SAE J527	ZINC/ALUMINUM COAT TO CONFORM TO ESA-M1A270-A. ALUMINUM RICH ORGANIC COAT PER WSA-M21P26-A	none on print	
2000-2003	F-150	YL34-2234-CA	MC line	Low Carbon Steel Brazed Double Wall Tube	SAE J527	Aluminum rich organic coat per WSA-M21P26-A over zinc/aluminum coat to conform to ESA-M1A270-A	TI Bundy	
		F75A-2234-MA		Low Carbon Steel Brazed Double Wall Tube	SAE J527		Bundy	
		XL34-2234-GB		Low Carbon Steel Brazed Double Wall Tube	SAE J527		Bundy	
		XL34-2234-GA		Low Carbon Steel Brazed Double Wall Tube	SAE J527	zinc/aluminum coat to conform to ESA-M1A270-A. Aluminum rich organic coat per WSA-M21P26-A	Bundy	new part

Model Years	Vehicle Line	Part Number	Description	Base Material Composition	Tubing Specification	Tube Coating System	Supplier	Comment
1999-2003	F-150	XL34-2234-JB	MC line	Low Carbon Steel Brazed Double Wall Tube	SAE J527	Aluminum rich organic coat per WSA-M21P26-A over zinc/aluminum coat to conform to ESA-M1A270-A	Ti Bundy	
		XL34-2234-JA		Low Carbon Steel Brazed Double Wall Tube	SAE J527	zinc/aluminum coat to conform to ESA-M1A270-A. Aluminum rich organic coat per WSA-M21P26-A	Ti Bundy	1999 part
		YL34-2234-BD		Low Carbon Steel Brazed Double Wall Tube	SAE J527	corrosion protective coating. Extruded PA12 per WSS-M21P30-A1 over Galfan coated steel tube	Bundy	
		YL34-2234-BC		Low Carbon Steel Brazed Double Wall Tube	SAE J527		Bundy	
		YL34-2234-BB		Low Carbon Steel Brazed Double Wall Tube	SAE J527		Bundy	
		YL34-2234-BA		Low Carbon Steel Brazed Double Wall Tube	SAE J527	corrosion protective coating. Extruded PA12 per WSS-M21P30-A1 over Galfan coated steel tube	Bundy	
		F75A-2234-SA		Low Carbon Steel Brazed Double Wall Tube	SAE J527	zinc/aluminum coat to conform to ESA-M1A270-A. Aluminum rich organic coat per WSA-M21P26-A	None on print	
1999	F-250 LD, Expedition, F-150	F65A-2234-EB	MC line	Low Carbon Steel Brazed Double Wall Tube	SAE J527	ZINC/ALUMINUM COAT TO CONFORM TO ESA-M1A270-A. ALUMINUM RICH ORGANIC COAT PER WSA-M21P26-A	none on print	1999 part
		F65A-2234-EA		Low Carbon Steel Brazed Double Wall Tube	SAE J527			

Model Years	Vehicle Line	Part Number	Description	Base Material Composition	Tubing Specification	Tube Coating System	Supplier	Comment
1999-2003	4x4	XL34-2B523-EB	rear	Low Carbon Steel Brazed Double Wall Tube	SAE J527	Aluminum rich organic coat per WSA-M21P26-A over zinc/aluminum coat to conform to ESA-M1270-A	TI Bundy	
		XL34-2B523-EA		Low Carbon Steel Brazed Double Wall Tube	SAE J527			
		F65A-2B523-BB AND F75A-2B523-GA		Low Carbon Steel Brazed Double Wall Tube	SAE J527	zinc/aluminum coat to conform to ESA-M1A270-A. Aluminum rich organic coat per WSA-M21P26-A	none on print	1999 part
2000-2003	Blackwood, F-150, F-250 LD	YL34-2B523-AC	rear	Low Carbon Steel Brazed Double Wall Tube	SAE J527	corrosion protective coating. Extruded PA12 per WSS-M21P30-A1 over Galfan coated steel tube		
		YL34-2B523-AB		Low Carbon Steel Brazed Double Wall Tube	SAE J527			
		YL34-2B523-AA		Low Carbon Steel Brazed Double Wall Tube	SAE J527	corrosion protective coating. Extruded PA12 per WSS-M21P30-A1 over Galfan coated steel tube		parts changed to add nylon
		XL34-2B523-CC		Low Carbon Steel Brazed Double Wall Tube	SAE J527		Bundy	
		XL34-2B523-CB		Low Carbon Steel Brazed Double Wall Tube	SAE J527		Bundy	
		XL34-2B523-CA		Low Carbon Steel Brazed Double Wall Tube	SAE J527	zinc/aluminum coat to conform to ESA-M1A270-A. Aluminum rich organic coat per WSA-M21P26-A	Bundy	new part

Model Years	Vehicle Line	Part Number	Description	Base Material Composition	Tubing Specification	Tube Coating System	Supplier	Comment
1999		F65A-2B523-CA and CB		Low Carbon Steel Brazed Double Wall Tube	SAE J527	zinc/aluminum coat to conform to ESA-M1A270-A. Aluminum rich organic coat per WSA-M21P26-A	none on print	1999 part - REPLACED BY YL34-2B523-AA
1999		F65A-2B523-DA and DB		Low Carbon Steel Brazed Double Wall Tube	SAE J527	zinc/aluminum coat to conform to ESA-M1A270-A. Aluminum rich organic coat per WSA-M21P26-A	none on print	1999 part - REPLACED BY YL34-2B523-AA
1999		XL14-2B523-AA, AB, AC		Low Carbon Steel Brazed Double Wall Tube	SAE J527	zinc/aluminum coat to conform to ESA-M1A270-A. Aluminum rich organic coat per WSA-M21P26-A	Bundy	1999 part - no usage in WERS
1999	F-150	F75A-2B523-EA	rear	Low Carbon Steel Brazed Double Wall Tube	SAE J527	zinc/aluminum coat to conform to ESA-M1A270-A. Aluminum rich organic coat per WSA-M21P26-A	none on print	1999 part - no replacement part
2001-2003	Blackwood, F-150, F-250 LD	1L34-2263-AB	front brake - RH	Low Carbon Steel Brazed Double Wall Tube	SAE J527	extruded PA12 per WSS-M21P30-A1 over Galfan coated steel tube	Bundy	hex chrome free
		1L34-2263-AA		Low Carbon Steel Brazed Double Wall Tube	SAE J527		Bundy	
		YL34-2263-BC		Low Carbon Steel Brazed Double Wall Tube	SAE J527	extruded PA12 per WSS-M21P30-A1 over Galfan coated steel tube	Bundy	
		YL34-2263-BB		Low Carbon Steel Brazed Double Wall Tube	SAE J527		Bundy	
		YL34-2263-BA		Low Carbon Steel Brazed Double Wall Tube	SAE J527		Bundy	

Model Years	Vehicle Line	Part Number	Description	Base Material Composition	Tubing Specification	Tube Coating System	Supplier	Comment
		XL34-2263-BB		Low Carbon Steel Brazed Double Wall Tube	SAE J527		Bundy	
		XL34-2263-BA		Low Carbon Steel Brazed Double Wall Tube	SAE J527	extruded PA12 over Galfan coated steel tube per WSS-M21P30-A1	Bundy	new part
2002-2003	Blackwood, F-150, F-250 LD	2L34-2263-D	front brake - RH	Low Carbon Steel Brazed Double Wall Tube	SAE J527	no drawing in FordDoc		not in wers
2000-2003	F-150	YL34-2263-CC	front brake - RH	Low Carbon Steel Brazed Double Wall Tube	SAE J527	extruded polyamide 12 per WSS-M21P30-A1 over Galfan coated steel tube	Bundy	
		YL34-2263-CB		Low Carbon Steel Brazed Double Wall Tube	SAE J527		Bundy	
		YL34-2263-CA		Low Carbon Steel Brazed Double Wall Tube	SAE J527	extruded polyamide 12 per WSS-M21P30-A1 over Galfan coated steel tube	Bundy	
		F65A-2263-AB		Low Carbon Steel Brazed Double Wall Tube	SAE J527	zinc/aluminum coat to conform to ESA-M1A270-A. Aluminum rich organic coat per WSA-M21P26-A	Bundy	1999 part
		YL34-2263-DB		Low Carbon Steel Brazed Double Wall Tube	SAE J527	extruded polyamide 12 per WSS-M21P30-A1 over Galfan coated steel tube	Bundy	not replaced
		YL34-2263-DA		Low Carbon Steel Brazed Double Wall Tube	SAE J527	extruded polyamide 12 per WSS-M21P30-A1 over Galfan coated steel tube	Bundy	

Model Years	Vehicle Line	Part Number	Description	Base Material Composition	Tubing Specification	Tube Coating System	Supplier	Comment
1999		F65A-2263-BA		Low Carbon Steel Brazed Double Wall Tube	SAE J527	zinc/aluminum coat to conform to ESA-M1A270-A. Aluminum rich organic coat per WSA-M21P26-A	none	
		2L34-2263-AA		Low Carbon Steel Brazed Double Wall Tube	SAE J527	extruded PA12 per WSS-M21P30-A1 over Galfan coated steel tube	TI	
		YL34-2263-AD		Low Carbon Steel Brazed Double Wall Tube	SAE J527	extruded PA12 per WSS-M21P30-A1 over Galfan coated steel tube	Bundy	
		YL34-2263-AC		Low Carbon Steel Brazed Double Wall Tube	SAE J527	extruded PA12 per WSS-M21P30-A1 over Galfan coated steel tube	Bundy	
		YL34-2263-AB		Low Carbon Steel Brazed Double Wall Tube	SAE J527	extruded PA12 per WSS-M21P30-A1 over Galfan coated steel tube	Bundy	
		YL34-2263-AA		Low Carbon Steel Brazed Double Wall Tube	SAE J527	extruded PA12 per WSS-M21P30-A1 over Galfan coated steel tube	Bundy	
1999		F65A-2263-CA/CB		Low Carbon Steel Brazed Double Wall Tube	SAE J527	zinc/aluminum coat to conform to ESA-M1A270-A. Aluminum rich organic coat per WSA-M21P26-A	none	
1999		F65A-2263-DA		Low Carbon Steel Brazed Double Wall Tube	SAE J527	zinc/aluminum coat to conform to ESA-M1A270-A. Aluminum rich organic coat per WSA-M21P26-A	none	replaced by YL34-2263-BA
2000-2003	F-150	YL34-2264-BE	front brake - LH	Low Carbon Steel Brazed Double Wall Tube	SAE J527	extruded PA12 per WSS-M21P30-A1 over Galfan coated steel tube	none	

Model Years	Vehicle Line	Part Number	Description	Base Material Composition	Tubing Specification	Tube Coating System	Supplier	Comment
		YL34-2264-BD		Low Carbon Steel Brazed Double Wall Tube	SAE J527		none	
		YL34-2264-BC		Low Carbon Steel Brazed Double Wall Tube	SAE J527		none	
		YL34-2264-BB		Low Carbon Steel Brazed Double Wall Tube	SAE J527		none	
		YL34-2264-BA		Low Carbon Steel Brazed Double Wall Tube	SAE J527		none	
		XL34-2264-BB		Low Carbon Steel Brazed Double Wall Tube	SAE J527	extruded PA12 over Galfan coated steel tube per WSS-M21P30-A1	bundy	
		XL34-2264-BA		Low Carbon Steel Brazed Double Wall Tube	SAE J527	extruded PA12 over Galfan coated steel tube per WSS-M21P30-A1	bundy	new part
2000-2003	Blackwood, F-150, F-250 LD	YL34-2264-AF	front brake - LH	Low Carbon Steel Brazed Double Wall Tube	SAE J527	extruded PA12 per WSS-M21P30-A1 over Galfan coated steel tube	none	
		YL34-2264-AE		Low Carbon Steel Brazed Double Wall Tube	SAE J527		none	
		YL34-2264-AD		Low Carbon Steel Brazed Double Wall Tube	SAE J527		none	

Model Years	Vehicle Line	Part Number	Description	Base Material Composition	Tubing Specification	Tube Coating System	Supplier	Comment
		YL34-2264-AC		Low Carbon Steel Brazed Double Wall Tube	SAE J527		none	
		YL34-2264-AB		Low Carbon Steel Brazed Double Wall Tube	SAE J527		none	
		YL34-2264-AA		Low Carbon Steel Brazed Double Wall Tube	SAE J527		none	
		XL34-2264-AB		Low Carbon Steel Brazed Double Wall Tube	SAE J527		bundy	
		XL34-2264-AA		Low Carbon Steel Brazed Double Wall Tube	SAE J527	extruded PA12 over Galfan coated steel tube per WSS-M21P30-A1	bundy	new part
1999		F65A-2264-CA		Low Carbon Steel Brazed Double Wall Tube	SAE J527	zinc/aluminum coat to conform to ESA-M1A270-A. Aluminum rich organic coat per WSA-M21P26-A	bundy	replaced by YL34-2264-AA
1999		F65A-2264-DA		Low Carbon Steel Brazed Double Wall Tube	SAE J527	zinc/aluminum coat to conform to ESA-M1A270-A. Aluminum rich organic coat per WSA-M21P26-A	bundy	replaced by YL34-2264-BA
1999-2003	F-150 Lightning	XL3V-2268-AB	rear brake - LH	Low Carbon Steel Brazed Double Wall Tube	SAE J527	no coating called out	CF Gomma	
		XL3V-2268-AA		Low Carbon Steel Brazed Double Wall Tube	SAE J527	no coating called out	CF Gomma	new part

Model Years	Vehicle Line	Part Number	Description	Base Material Composition	Tubing Specification	Tube Coating System	Supplier	Comment
2002-2003	F-150 Lightning	2L3V-2267-AA	rear brake - RH	Low Carbon Steel Brazed Double Wall Tube	SAE J527	nylon coating 5.21 OD max coating tubing per WSS-M21P30-A1	CF Gomma	new part
2002-2003	F-150 Lightning	2L3V-2268-AA	rear hose assy	Low Carbon Steel Brazed Double Wall Tube	SAE J527	nylon coating 5.21 OD max coating tubing per WSS-M21P30-A1	CF Gomma	new part
2003	Blackwood, F-150	3L34-2267-BA	rear brake - RH	Low Carbon Steel Brazed Double Wall Tube	SAE J527	nylon coating 5.21 OD max coating tubing per WSS-M21P30-A1	CF Gomma	
		2L34-2267-BA		Low Carbon Steel Brazed Double Wall Tube	SAE J527	nylon coating 5.21 OD max coating tubing per WSS-M21P30-A1	CF Gomma	
		1L34-2267-BA		Low Carbon Steel Brazed Double Wall Tube	SAE J527	no coating called out	CF Gomma	new part
2003	F-250 LD	3L34-2267-AA	rear brake - RH	Low Carbon Steel Brazed Double Wall Tube	SAE J527	nylon coating 5.21 OD max coating tubing per WSS-M21P30-A1	CF Gomma	new part
		XL34-2267-BA		Low Carbon Steel Brazed Double Wall Tube	SAE J527	Extruded PA 12 Per WSS-M21P30-a1 over Galvan coated Steel Tube	Bundy	not replaced
1999		F75A-2267-GC		Low Carbon Steel Brazed Double Wall Tube	SAE J527	zinc/aluminum coat to conform to ESA-M1A270-A. Aluminum rich organic coat per WSA-M21P26-A	none on print.	
1999		F75A-2267-DC		Low Carbon Steel Brazed Double Wall Tube	SAE J527	zinc/aluminum coat to conform to ESA-M1A270-A. Aluminum rich organic coat per WSA-M21P26-A	none on print.	not replaced

Model Years	Vehicle Line	Part Number	Description	Base Material Composition	Tubing Specification	Tube Coating System	Supplier	Comment
		3L34-2267-MB		Low Carbon Steel Brazed Double Wall Tube	SAE J527	nylon coating 5.21 OD max coating tubing per WSS-M21P30-A1	none	not replaced
		3L34-2267-MA		Low Carbon Steel Brazed Double Wall Tube	SAE J527	nylon coating 5.21 OD max coating tubing per WSS-M21P30-A1	Dana	
		3L34-2267-AA		Low Carbon Steel Brazed Double Wall Tube	SAE J527	nylon coating 5.21 OD max coating tubing per WSS-M21P30-A1	CF Gomma	
		2L34-2267-AA		Low Carbon Steel Brazed Double Wall Tube	SAE J527	nylon coating 5.21 OD max coating tubing per WSS-M21P30-A1	CF Gomma	
1999		1L34-2267-AA		Low Carbon Steel Brazed Double Wall Tube	SAE J527	no coating called out	CF Gomma	
1999		XL34-2267-AC		Low Carbon Steel Brazed Double Wall Tube	SAE J527	no coating called out	none on print.	Replaced by 1L34-2267-AA
1999		XL34-2267-BA		Low Carbon Steel Brazed Double Wall Tube	SAE J527	extruded PA12 over Galfan coated steel tube per WSS-M21P30-A1	bundy	not replaced
2003	F-150	3L34-2268-BA	rear brake - LH	Low Carbon Steel Brazed Double Wall Tube	SAE J527	nylon coating 5.21 OD max coating tubing per WSS-M21P30-A1	CF Gomma	
		2L34-2268-BA		Low Carbon Steel Brazed Double Wall Tube	SAE J527	nylon coating 5.21 OD max coating tubing per WSS-M21P30-A1	CF Gomma	

Model Years	Vehicle Line	Part Number	Description	Base Material Composition	Tubing Specification	Tube Coating System	Supplier	Comment
		1L34-2268-BA		Low Carbon Steel Brazed Double Wall Tube	SAE J527	no coating called out	CF Gomma	new part
2003	F-250 LD	3L34-2268-AA	rear brake - LH	Low Carbon Steel Brazed Double Wall Tube	SAE J527	nylon coating 5.21 OD max coating tubing per WSS-M21P30-A1	CF Gomma	new part
1999		XL34-2268-BA		Low Carbon Steel Brazed Double Wall Tube	SAE J527	extruded PA12 over Galfan coated steel tube per WSS-M21P30-A1	bundy	not replaced
1999		F75A-2268-DA/DB		Low Carbon Steel Brazed Double Wall Tube	SAE J527	zinc/aluminum coat to conform to ESA-M1A270-A. Aluminum rich organic coat per WSA-M21P26-A	none on print	not replaced
		3L34-2268-MB		Low Carbon Steel Brazed Double Wall Tube	SAE J527	nylon coating 5.21 OD max coating tubing per WSS-M21P30-A1	none	not replaced
		3L34-2268-MA		Low Carbon Steel Brazed Double Wall Tube	SAE J527	nylon coating 5.21 OD max coating tubing per WSS-M21P30-A1	Dana	
		3L34-2268-AA		Low Carbon Steel Brazed Double Wall Tube	SAE J527	nylon coating 5.21 OD max coating tubing per WSS-M21P30-A1	CF Gomma	
		2L34-2268-AA		Low Carbon Steel Brazed Double Wall Tube	SAE J527	nylon coating 5.21 OD max coating tubing per WSS-M21P30-A1	CF Gomma	
		1L34-2268-AA		Low Carbon Steel Brazed Double Wall Tube	SAE J527	no coating called out	CF Gomma	

Model Years	Vehicle Line	Part Number	Description	Base Material Composition	Tubing Specification	Tube Coating System	Supplier	Comment
1999		XL34-2268-AC/AB/AA		Low Carbon Steel Brazed Double Wall Tube	SAE J527	no coating called out	none on print	
1999-2003	F-150, F-250 LD	XL34-2265-GC	rear brake	Low Carbon Steel Brazed Double Wall Tube	SAE J527	zinc/aluminum coat to conform to ESA-M1A270-A. Aluminum rich organic coat per WSA-M21P26-A	bundy	1999 part
		XL34-2265-GB		Low Carbon Steel Brazed Double Wall Tube	SAE J527		bundy	
		XL34-2265-GA		Low Carbon Steel Brazed Double Wall Tube	SAE J527	zinc/aluminum coat to conform to ESA-M1A270-A. Aluminum rich organic coat per WSA-M21P26-A	bundy	
1999-2003	F-150, F-250 LD	XL34-2265-FC	rear brake	Low Carbon Steel Brazed Double Wall Tube	SAE J527	zinc/aluminum coat to conform to ESA-M1A270-A. Aluminum rich organic coat per WSA-M21P26-A	bundy	1999 part
		XL34-2265-FB		Low Carbon Steel Brazed Double Wall Tube	SAE J527		bundy	
		XL34-2265-FA		Low Carbon Steel Brazed Double Wall Tube	SAE J527	zinc/aluminum coat to conform to ESA-M1A270-A. Aluminum rich organic coat per WSA-m21P26	bundy	
2000-2003	Blackwood, F-150, F-250 LD	YL34-2265-AA	rear brake	Low Carbon Steel Brazed Double Wall Tube	SAE J527	zinc/aluminum coat to conform to ESA-M1A270-A. Aluminum rich organic coat per WSA-m21P26	TI bundy	
		XL34-2265-EC		Low Carbon Steel Brazed Double Wall Tube	SAE J527		TI bundy	1999 part

Model Years	Vehicle Line	Part Number	Description	Base Material Composition	Tubing Specification	Tube Coating System	Supplier	Comment
		XL34-2265-EB		Low Carbon Steel Brazed Double Wall Tube	SAE J527		TI bundy	
		XL34-2265-EA		Low Carbon Steel Brazed Double Wall Tube	SAE J527	zinc/aluminum coat to conform to ESA-M1A270-A. Aluminum rich organic coat per WSA-m21P26	TI bundy	
1999		XL14-2265-AD/AC/AB/AA		Low Carbon Steel Brazed Double Wall Tube	SAE J527	zinc/aluminum coat to conform to ESA-M1A270-A. Aluminum rich organic coat per WSA-M21p26	TI bundy	no useage in WERS
<b>Supplier Details:</b>								
Bundy is no longer in business. They became TI Bundy and then just TI.								
TI Automotive, 1272 Doris Road, Auburn Hills, MI 48326								
ITT is no longer in business, they were bought by Cooper.								
Cooper Standard Automotive, 2110 Executive Hills Court, Auburn Hills, MI 48326								
CF Gomma is no longer in business. They did not get bought up by anyone, so there's no current address.								
Dana is no longer in business making tubes/hoses. They were bought by Hitachi Cable.								
Hitachi Automotive Products, 34500 Grand River Ave, Farmington Hills, MI 48335								

Submitted for recognition as an American National Standard

**(R) Brazed Double Wall Low-Carbon Steel Tubing**

**1. Scope**—This SAE Standard covers brazed double wall low-carbon steel tubing intended for general automotive, refrigeration, hydraulic, and other similar applications requiring tubing of a suitable quality for bending, flaring, beading, forming, and brazing.

**2. References**

**2.1 Applicable Publications**—The following publications form a part of this specification to the extent specified herein. Unless otherwise specified, the latest issue of SAE publications shall apply.

2.1.1 SAE PUBLICATION—Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096-0001.

SAE J1677—Tests and Procedures for SAE Low-Carbon Steel and Copper Nickel Tubing

2.1.2 ASTM PUBLICATION—Available from ASTM, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959.

ASTM A 254—Standard Specification for Copper Brazed Steel Tubing

**2.2 Related Publications**—The following publications are provided for information purposes only and are not a required part of this document.

2.2.1 SAE PUBLICATION—Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096-0001.

SAE J409—Product Analysis-Permissible Variations from Specified Chemical Analysis of a Heat or Cast of Steel

SAE J512—Automotive Tube Fittings

SAE J513—Refrigeration Tube Fittings-General Specifications

SAE J514—Hydraulic Tube Fittings

SAE J516—Hydraulic Hose Fittings

SAE J533—Flares for Tubing

SAE J1065—Pressure Ratings for Hydraulic Tubing and Fittings

SAE J1290—Automotive Hydraulic Brake System—Metric Tube Connection

SAE J1453—O-Ring Face Seal

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**SAE J527 Revised NOV2000**

- 3. Manufacture**—The tubing shall be made from a single or double strip of steel shaped into the form of a double-wall tubing, the walls of which are secured and sealed by copper brazing in a controlled atmosphere. The braze shall be uniform with no evidence of a bead on either the inside or outside of the tubing. Typically this type of tubing is available in both coiled and straight condition. Straightness requirements should be agreed upon between supplier and purchaser.
- 4. Dimensions and Tolerances**—The standard nominal diameters and the applicable dimensions and tolerances are shown in Table 1.

**TABLE 1—TUBING DIMENSIONS AND TOLERANCES<sup>(1)</sup>**

Dash Size	Nominal Tubing OD mm	Outside Diameter <sup>(1)</sup> Basic mm	Outside Diameter <sup>(1)</sup> Tolerance ±mm	Wall Thickness Basic mm	Wall Thickness Tolerance <sup>(2)(3)(4)</sup> ±mm
-2	3.18	3.18	0.05	0.64	0.13
-3	4.76	4.78	0.08	0.71	0.08
-4	6.35	6.35	0.08	0.71	0.08
-5	7.94	7.92	0.08	0.71	0.08
-6	9.53	9.53	0.08	0.71	0.08
-7	11.11	11.13	0.10	0.76	0.08
-8	12.70	12.70	0.10	0.89	0.09
-9	14.29	14.27	0.10	0.89	0.09
-10	15.88	15.88	0.10	0.89	0.09

1. The actual outside diameter shall be the average of the maximum and minimum outside diameters at any one cross section through the tubing.
2. The tolerances listed represent the maximum permissible deviation at any point.
3. Other sizes may be specified by agreement between the supplier and the user.
4. For intermediate wall thickness, the tolerance for the next heavier wall thickness shall apply.

**5. Manufacturing Standards**

**5.1 Tubing End Condition**—The tubing will be produced using normal mill cut-off practices. This will include, but is not limited to single-cut ends, double-cut ends, saw-cut ends, and rotary cut ends. Care will be taken to minimize the distortion of the tube ends. Ends that require further processing will be by agreement between the producer and purchaser.

**5.2 Surface Finish**—Surface imperfections such as handling marks, die marks, or shallow pits shall not be considered injurious defects provided such imperfections are not detrimental to the function of the tubing, and these imperfections are within the tolerances specified for diameter and wall thickness. The removal of such surface imperfections is not required. A slight seam lift or separation on the outside bevel edge of the outside wall on double wall tubing is not considered an injurious defect during end forming operations, provided that the seam condition doesn't effect the sealing area of the end form. Sealing surfaces shall be smooth and free from nicks, pit marks, and any other defects that prevent sealing.

**6. Material**—Tubing shall be made from low carbon steel, such as UNS G10080 or UNS G10100.

7. **Mechanical Properties**—The finished tubing shall have mechanical properties as tabulated in Table 2:

TABLE 2—MECHANICAL PROPERTIES

Properties	Values
Yield Strength, min (0.2% offset)	170 MPa
Tensile Strength, min	290 MPa
Elongation in 50 mm	14% min
Hardness (Rockwell 30 T scale), max	65

8. **Performance Requirements**—The finished tubing shall satisfactorily meet the following performance tests. All tests are to be conducted in accordance with the procedures in SAE J1677 or ASTM A 254 as designated.
- 8.1 **Bending Test**—SAE J1677 JAN1996 (Section 5.3)
- 8.2 **Flaring Test**—SAE J1677 JAN1996 (Section 5.5.2)
- 8.3 **Pressure Proof Test**—SAE J1677 JAN1996 (Section 5.8). Performed by agreement between purchaser and producer, (where allowable unit stress of material(s) = 140 MPa (80% of minimum yield strength).
- 8.4 **Nondestructive Electronic Test**—SAE J1677 JAN1996 (Section 5.9)
- 8.5 **Hardness Test**—SAE J1677 JAN1996 (Section 5.6)
- 8.6 **Flattening Test**—SAE J1677 JAN1996 (Section 5.1)
- 8.7 **Tensile Test**—SAE J1677 JAN1996 (Section 5.7)
- 8.8 **Inside Surface Cleanliness**—ASTM A 254 March 1997(Section 8)
9. **Test Certificates**—A certificate of compliance to the performance requirements shall be furnished to the purchaser by the producer if requested in the purchase agreement.
10. **Corrosion Protection**—The inside and outside of the finished tubing shall be protected against corrosion during shipment and normal storage. If a corrosion preventive compound is applied, it shall be such that after normal storage periods it can readily be removed by cleaning agents normally used in manufacturing. Extended corrosion resistance coatings, such as tern coating, galvanizing, epoxy paint, etc., are available and can be supplied at the request of the user.
11. **Packaging**—The tubing is to be packaged in such a way to allow it to be transported and stored with normal care, without being damaged. Any special packaging will be by agreement between the producer and the purchaser.
12. **Notes**
- 12.1 **Marginal Indicia**—The change bar (I) located in the left margin is for the convenience of the user in locating areas where technical revisions have been made to the previous issue of the report. An (R) symbol to the left of the document title indicates a complete revision of the report.

## SAE J527 Revised NOV2000

**Rationale**—Changes to this document include:

1. Scope
  - a. Expanded to better define application of SAE J527.
- 2.1.2 References—Applicable Publications
  - a. Added ASTM A254 document to define how to do Internal Cleanliness Testing which was added to Performance Requirements
- 2.2 References—Related Publications
  - a. Changed the word “is” to are for correct use of grammar.
- 2.2.1 References—Related Publications
  - a. Added SAE J409— Product Analysis-permissible Variations from Specified Chemical Analysis of a Heat or Cast of Steel.
  - b. Added SAE J512—Automotive Tube Fittings
  - c. Added SAE J513—Refrigeration Tube Fittings-General Specifications
  - d. Added SAE J514—Hydraulic Tube Fittings
  - e. Added SAE J516—Hydraulic Hose Fittings
  - f. Added SAE J1065—Pressure Ratings for Hydarulic Tubing and Fittings
  - g. Added SAE J1290—Automotive Hydraulic Brake System—Metric Tube Connection
  - h. Added SAE J1453—O-Ring Face Seal
3. Manufacture
  - a. Expanded to include notification of product availability as either a coiled or straight product.
  - b. Expanded to include need for agreed upon straightness requirements.
4. Dimensions and Tolerances —Table 1
  - a. Added footnote #3 to address non-charted product size availability.
  - b. Added footnote #4 to address intermediate wall thickness tolerance requirements.
5. Manufacturing Standards
  - a. Added this document section to more clearly define the end product requirements.
- 5.1 Manufacturing Standards—Tubing End Condition
  - a. Acceptable tubing cut end condition is defined.

## SAE J527 Revised NOV2000

- 5.2 Manufacturing Standards—Surface Finish
  - a. Expanded the requirements and definition of surface condition in order to address the critical nature of the OD finish.
- 8. Performance Requirements
  - a. Expanded the procedures documents to include ASTM A254 to define how to perform the Inside Surface Cleanliness tests.
- 8.3 Performance Requirements—Pressure Proof Test
  - a. Expanded to include explanation of how allowable stress units are calculated.
  - b. Noted that this testing is done under agreement between customer and supplier.
- 8.5 Performance Requirements—Hardness Test
  - a. Added Hardness Test requirements.
- 8.6 Performance Requirements—Flatting Test
  - a. Added Flatting Test requirement.
- 8.7 Performance Requirements—Tensile Test
  - a. Added Tensile Test requirement.
- 8.8 Performance Requirements—Inside Surface Cleanliness
  - a. Added Inside Cleanliness requirement.
- 10. Corrosion Protection
  - a. Changed the wording to read that extended corrosion resistant coatings “may” be available rather than “are” available.
- 11. Packaging
  - a. Added new section to include fundamental packaging requirements.

**Relationship of SAE Standard to ISO Standard**—Not applicable.

**Application**—SAE J527 Standard covers brazed double wall low-carbon steel tubing intended for general automotive, refrigeration, hydraulic, and other similar applications requiring tubing of a suitable quality for bending, flaring, beading, forming, and brazing.

**SAE J527 Revised NOV2000**

**Reference Section**

SAE J1677—Tests and Procedures for SAE Low-Carbon Steel and Copper Nickel Tubing

ASTM A254—Standard Specification for Copper Brazed Steel Tubing

SAE J409—Product Analysis-Permissible Variations from Specified Chemical Analysis of a Heat or Cast of Steel

SAE J512—Automotive Tube Fittings

SAE J513—Refrigeration Tube Fittings-General Specifications

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SAE J1290—Automotive Hydraulic Brake System—Metric Tube Connection

SAE J1453—O-Ring Face Seal

**Developed by the SAE Fluid Conductors and Connectors Technical Committee SC5—Automotive and Hydraulic Tube and Fittings**

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Appendix I2

Model Years	Vehicle Line	Part Number	Description	Base Material Composition	Tube Coating System	Supplier	Comment
		YC35-2268-AB	REAR BRAKE LH	Low Carbon Steel Brazed Double Wall Tube	Zinc/Aluminum Coated per ESA-MIA270-A & WSA-M21P26-A	none on print	
1999	F250, Excursion,	YC35-2268-AA	REAR BRAKE LH	Low Carbon Steel Brazed Double Wall Tube	Zinc/Aluminum Coated per ESA-MIA270-A & WSA-M21P26-A	none on print	
		XC35-2268-AC		Low Carbon Steel Brazed Double Wall Tube	none on print	bundy	NOT REPLACED - ACTIVE THROUGH 2003 MY
		XC35-2268-AB		Low Carbon Steel Brazed Double Wall Tube	zinc/aluminum coat to conform to ESA-M1A270-A. Aluminum rich organic coat per WSA-M21P26-A	ITT	
1999	F250	XC35-2268-AA	REAR BRAKE LH	Low Carbon Steel Brazed Double Wall Tube	zinc/aluminum coat to conform to ESA-M1A270-A. Aluminum rich organic coat per WSA-M21P26-A	ITT	
1999	F250, Excursion	YC35-2267-A	REAR BRAKE RH	Low Carbon Steel Brazed Double Wall Tube	Zinc/Aluminum Coated per ESA-MIA270-A & WSA-M21P26-A	incomplete drawing	NOT REPLACED - ACTIVE THROUGH 2003 MY
		XC35-2267-AC		Low Carbon Steel Brazed Double Wall Tube	none on print	bundy	
		XC35-2267-AB		Low Carbon Steel Brazed Double Wall Tube	zinc/aluminum coat to conform to ESA-M1A270-A. Aluminum rich organic coat per WSA-M21P26-A.	ITT	
1999	F250	XC35-2267-AA	REAR BRAKE RH	Low Carbon Steel Brazed Double Wall Tube	zinc/aluminum coat to conform to ESA-M1A270-A. Aluminum rich organic coat per WSA-M21P26-A.	none	
		1C34-2C058-AC		Low Carbon Steel Brazed Double Wall Tube	Extruded polyamide 12 over zinc/aluminum alloy coated steel tube per WSA-M21P30-A1	ITT	
		1C34-2C058-AB		Low Carbon Steel Brazed Double Wall Tube			
		F81A-2C058-AD		Low Carbon Steel Brazed Double Wall Tube	Extruded polyamide 12 over zinc/aluminum alloy coated steel tube per WSA-M21P30-A1	ITT	

Model Years	Vehicle Line	Part Number	Description	Base Material Composition	Tube Coating System	Supplier	Comment
		F81A-2C058-AC		Low Carbon Steel Brazed Double Wall Tube			
		F81A-2C058-AB		Low Carbon Steel Brazed Double Wall Tube	Extruded polyamide 12 over zinc/aluminum alloy coated steel tube per WSA-M21P30-A1	ITT	
1999	Excursion	F81A-2C058-AA	MC LINE	Low Carbon Steel Brazed Double Wall Tube	none on drawing - drawing incomplete	none on drawing	
		1C35-2C058-AA		Low Carbon Steel Brazed Double Wall Tube			NOT REPLACED - ACTIVE THROUGH 2003 MY
		XC35-2C058-AE		Low Carbon Steel Brazed Double Wall Tube	none on print	Bundy	
		XC35-2C058-AD		Low Carbon Steel Brazed Double Wall Tube	zinc/aluminum coat to conform to ESA-M1A270-A. Aluminum rich organic coat per WSA-M21P26-A.	ITT	
		XC35-2C058-AC		Low Carbon Steel Brazed Double Wall Tube			
		XC35-2C058-AB		Low Carbon Steel Brazed Double Wall Tube			
1999	F250	XC35-2C058-AA	MC LINE	Low Carbon Steel Brazed Double Wall Tube	zinc/aluminum coat to conform to ESA-M1A270-A. Aluminum rich organic coat per WSA-M21P26-A.	ITT	
		F81A-2B532-BD		Low Carbon Steel Brazed Double Wall Tube	Extruded polyamide 12 over zinc/aluminum alloy coated steel tube per WSA-M21P30-A1	ITT	NOT REPLACED - ACTIVE THROUGH 2003 MY
		F81A-2B532-BC		Low Carbon Steel Brazed Double Wall Tube			
		F81A-2B532-BB		Low Carbon Steel Brazed Double Wall Tube	Extruded polyamide 12 over zinc/aluminum alloy coated steel tube per WSA-M21P30-A1	ITT	
1999	F250, Excursion	F81A-2B532-BA	MC LINE	Low Carbon Steel Brazed Double Wall Tube	none on drawing - drawing incomplete	none on drawing - drawing incomplete	

Model Years	Vehicle Line	Part Number	Description	Base Material Composition	Tube Coating System	Supplier	Comment
		XC35-2B532-AF		Low Carbon Steel Brazed Double Wall Tube	zinc plate thickness minimum 8 microns according to ASTM B-487. Salt spray resistance as below according to ASTM B-117. White corrosion 96 hours. Red Corrosion 384 hours	none on drawing	NOT REPLACED - ACTIVE THROUGH 2003 MY
		XC35-2B532-AE		Low Carbon Steel Brazed Double Wall Tube	none on print	bundy	
		XC35-2B532-AD		Low Carbon Steel Brazed Double Wall Tube	zinc/aluminum coat to conform to ESA-M1A270-A. Aluminum rich organic coat per WSA-M21P26-A.	ITT	
		XC35-2B532-AC		Low Carbon Steel Brazed Double Wall Tube	zinc/aluminum coat to conform to ESA-M1A270-A. Aluminum rich organic coat per WSA-M21P26-A.	ITT	
		XC35-2B532-AB		Low Carbon Steel Brazed Double Wall Tube			
1999	F250,	XC35-2B532-AA	MC LINE	Low Carbon Steel Brazed Double Wall Tube	zinc/aluminum coat to conform to ESA-M1A270-A. Aluminum rich organic coat per WSA-M21P26-A.	ITT	
		1C34-2264-AC		Low Carbon Steel Brazed Double Wall Tube	Extruded polyamide 12 over zinc/aluminum alloy coated steel tube per WSA-M21P30-A1	ITT	NOT REPLACED - ACTIVE THROUGH 2003 MY
		1C34-2264-AB		Low Carbon Steel Brazed Double Wall Tube			
		1C34-2264-AA		Low Carbon Steel Brazed Double Wall Tube	Extruded polyamide 12 over zinc/aluminum alloy coated steel tube per WSA-M21P30-A1	ITT	
		F81A-2264-AC		Low Carbon Steel Brazed Double Wall Tube	Extruded polyamide 12 over zinc/aluminum alloy coated steel tube per WSA-M21P30-A1	ITT	
		F81A-2264-AB		Low Carbon Steel Brazed Double Wall Tube	Extruded polyamide 12 over zinc/aluminum alloy coated steel tube per WSA-M21P30-A1	ITT	

Model Years	Vehicle Line	Part Number	Description	Base Material Composition	Tube Coating System	Supplier	Comment
1999	F250, Excursion	F81A-2264-AA	FRONT BRAKE LH	Low Carbon Steel Brazed Double Wall Tube	drawing not available		
		F81A-2264-FC		Low Carbon Steel Brazed Double Wall Tube	Extruded polyamide 12 over zinc/aluminum alloy coated steel tube per WSA-M21P30-A1	ITT	NOT REPLACED - ACTIVE THROUGH 2003 MY
		F81A-2264-FB		Low Carbon Steel Brazed Double Wall Tube	Extruded polyamide 12 over zinc/aluminum alloy coated steel tube per WSA-M21P30-A1	ITT	
1999	F250, Excursion	F81A-2264-FA	FRONT BRAKE LH	Low Carbon Steel Brazed Double Wall Tube	drawing not available		
		1C35-2264-AA		Low Carbon Steel Brazed Double Wall Tube	none on drawing	none on drawing	NOT REPLACED - ACTIVE THROUGH 2003 MY
		XC35-2264-AC		Low Carbon Steel Brazed Double Wall Tube	none on drawing	bundy	
		XC35-2264-AB		Low Carbon Steel Brazed Double Wall Tube			
1999	F250	XC35-2264-AA	FRONT BRAKE LH	Low Carbon Steel Brazed Double Wall Tube	zinc/aluminum coat to conform to ESA-M1A270-A. Aluminum rich organic coat per WSA-M21P26- A.	ITT	
		XC35-2264-BD		Low Carbon Steel Brazed Double Wall Tube	none on drawing	bundy	NOT REPLACED - ACTIVE THROUGH 2003 MY
		XC35-2264-BC		Low Carbon Steel Brazed Double Wall Tube	zinc/aluminum coat to conform to ESA-M1A270-A. Aluminum rich organic coat per WSA-M21P26- A.	ITT	
		XC35-2264-BB		Low Carbon Steel Brazed Double Wall Tube			
1999	F250	XC35-2264-BA	FRONT BRAKE LH	Low Carbon Steel Brazed Double Wall Tube	zinc/aluminum coat to conform to ESA-M1A270-A. Aluminum rich organic coat per WSA-M21P26- A.	ITT	
		3C34-2263-AC		Low Carbon Steel Brazed Double Wall Tube	Extruded polyamide 12 over zinc/aluminum alloy coated steel tube per WSA-M21P30-A1	ITT	NOT EFFECTED OUT

Model Years	Vehicle Line	Part Number	Description	Base Material Composition	Tube Coating System	Supplier	Comment
		3C34-2263-AB		Low Carbon Steel Brazed Double Wall Tube			
		3C34-2263-AA		Low Carbon Steel Brazed Double Wall Tube			
		1C34-2263-AB		Low Carbon Steel Brazed Double Wall Tube	Extruded polyamide 12 over zinc/aluminum alloy coated steel tube per WSA-M21P30-A1	ITT	
		1C34-2263-AA		Low Carbon Steel Brazed Double Wall Tube			
		F81A-2263-GD		Low Carbon Steel Brazed Double Wall Tube	Extruded polyamide 12 over zinc/aluminum alloy coated steel tube per WSA-M21P30-A1	ITT	
		F81A-2263-GC		Low Carbon Steel Brazed Double Wall Tube			
		F81A-2263-GB		Low Carbon Steel Brazed Double Wall Tube			
1999	F250, Excursion	F81A-2263-GA	FRONT BRAKE RH	Low Carbon Steel Brazed Double Wall Tube	Extruded polyamide 12 over zinc/aluminum alloy coated steel tube per WSA-M21P30-A1	ITT	
		F81A-2263-AC		Low Carbon Steel Brazed Double Wall Tube	Extruded polyamide 12 over zinc/aluminum alloy coated steel tube per WSA-M21P30-A1	NONE ON DRAWING	NOT REPLACED - ACTIVE THROUGH 2003 MY
		F81A-2263-AB		Low Carbon Steel Brazed Double Wall Tube			
1999	F250, Excursion	F81A-2263-AA	FRONT BRAKE RH	Low Carbon Steel Brazed Double Wall Tube	Extruded polyamide 12 over zinc/aluminum alloy coated steel tube per WSA-M21P30-A1	ITT	
		XC35-2263-AD		Low Carbon Steel Brazed Double Wall Tube	none on drawing	NONE ON DRAWING	NOT REPLACED - ACTIVE THROUGH 2003 MY
		XC35-2263-AC		Low Carbon Steel Brazed Double Wall Tube	none on drawing	Bundy	

Model Years	Vehicle Line	Part Number	Description	Base Material Composition	Tube Coating System	Supplier	Comment
		XC35-2263-AB		Low Carbon Steel Brazed Double Wall Tube	zinc/aluminum coat to conform to ESA-M1A270-A. Aluminum rich organic coat per WSA-M21P26-A.	ITT	
1999	F250	XC35-2263-AA	FRONT BRAKE RH	Low Carbon Steel Brazed Double Wall Tube	zinc/aluminum coat to conform to ESA-M1A270-A. Aluminum rich organic coat per WSA-M21P26-A.	ITT	
		1C35-2263-AA		Low Carbon Steel Brazed Double Wall Tube	none on drawing	none on print	NOT REPLACED - ACTIVE THROUGH 2003 MY
		XC35-2263-BD		Low Carbon Steel Brazed Double Wall Tube	none on drawing	Bundy	
		XC35-2263-BC		Low Carbon Steel Brazed Double Wall Tube	zinc/aluminum coat to conform to ESA-M1A270-A. Aluminum rich organic coat per WSA-M21P26-A.	ITT	
		XC35-2263-BB		Low Carbon Steel Brazed Double Wall Tube			
1999	F250	XC35-2263-BA	FRONT BRAKE RH	Low Carbon Steel Brazed Double Wall Tube	zinc/aluminum coat to conform to ESA-M1A270-A. Aluminum rich organic coat per WSA-M21P26-A.	ITT	
		3C34-2B523-AB		Low Carbon Steel Brazed Double Wall Tube	Extruded polyamide 12 over zinc/aluminum alloy coated steel tube per WSA-M21P30-A1	ITT	NOT EFFECTED OUT
		3C34-2B523-AA		Low Carbon Steel Brazed Double Wall Tube			
		1C34-2B253-AB		Low Carbon Steel Brazed Double Wall Tube	Extruded polyamide 12 over zinc/aluminum alloy coated steel tube per WSA-M21P30-A1	ITT	
		1C34-2B253-AA		Low Carbon Steel Brazed Double Wall Tube			
		F81A-2B523-AF		Low Carbon Steel Brazed Double Wall Tube	Extruded polyamide 12 over zinc/aluminum alloy coated steel tube per WSA-M21P30-A1	ITT	

Model Years	Vehicle Line	Part Number	Description	Base Material Composition	Tube Coating System	Supplier	Comment
		F81A-2B523-AE		Low Carbon Steel Brazed Double Wall Tube			
		F81A-2B523-AD		Low Carbon Steel Brazed			
		F81A-2B523-AC		Low Carbon Steel Brazed Double Wall Tube			
		F81A-2B523-AB		Low Carbon Steel Brazed Double Wall Tube			
1999	Excursion	F81A-2B523-AA	REAR BRAKE COMB VLV	Low Carbon Steel Brazed Double Wall Tube	Extruded polyamide 12 over zinc/aluminum alloy coated steel tube per WSA-M21P30-A1	ITT	
		F81A-2B523-FF		Low Carbon Steel Brazed Double Wall Tube	Extruded polyamide 12 over zinc/aluminum alloy coated steel tube per WSA-M21P30-A1	ITT	NOT REPLACED - ACTIVE THROUGH 2003 MY
		F81A-2B523-FE		Low Carbon Steel Brazed Double Wall Tube			
		F81A-2B523-FD		Low Carbon Steel Brazed Double Wall Tube			
		F81A-2B523-FC		Low Carbon Steel Brazed Double Wall Tube			
		F81A-2B523-FB		Low Carbon Steel Brazed Double Wall Tube			
1999	F250, Excursion	F81A-2B523-FA	REAR BRAKE COMB VLV	Low Carbon Steel Brazed Double Wall Tube	Extruded polyamide 12 over zinc/aluminum alloy coated steel tube per WSA-M21P30-A1	ITT	
		XC35-2B523-AF		Low Carbon Steel Brazed Double Wall Tube	drawing not available		
		XC35-2B523-AE		Low Carbon Steel Brazed Double Wall Tube	none on drawing	Bundy	
		XC35-2B523-AD		Low Carbon Steel Brazed Double Wall Tube	none on drawing	Bundy	
		XC35-2B523-AC		Low Carbon Steel Brazed Double Wall Tube	zinc/aluminum coat to conform to ESA-M1A270-A. Aluminum rich organic coat per WSA-M21P26-A.	ITT	
		XC35-2B523-AB		Low Carbon Steel Brazed Double Wall Tube			

Model Years	Vehicle Line	Part Number	Description	Base Material Composition	Tube Coating System	Supplier	Comment
1999	F250	XC35-2B523-AA	BOOSTER OUTLET	Low Carbon Steel Brazed Double Wall Tube	zinc/aluminum coat to conform to ESA-M1A270-A. Aluminum rich organic coat per WSA-M21P26-A.	ITT	
		XC35-2B523-BD		Low Carbon Steel Brazed Double Wall Tube	none on drawing	Bundy	NOT REPLACED - ACTIVE THROUGH 2003 MY
		XC35-2B523-BC		Low Carbon Steel Brazed Double Wall Tube	zinc/aluminum coat to conform to ESA-M1A270-A. Aluminum rich organic coat per WSA-M21P26-A.	ITT	
		XC35-2B523-BB		Low Carbon Steel Brazed Double Wall Tube			
1999	F250	XC35-2B523-BA	BOOSTER OUTLET	Low Carbon Steel Brazed Double Wall Tube	zinc/aluminum coat to conform to ESA-M1A270-A. Aluminum rich organic coat per WSA-M21P26-A.	ITT	
<u>Supplier Details:</u>							
Bundy is no longer in business. They became TI Bundy and then just TI.							
TI Automotive, 1272 Doris Road, Auburn Hills, MI 48326							
ITT is no longer in business, they were bought by Cooper.							
Cooper Standard Automotive, 2110 Executive Hills Court, Auburn Hills, MI 48326							
CF Gomma is no longer in business. They did not get bought up by anyone, so there's no current address.							
Dana is no longer in business making tubes/hoses. They were bought by Hitachi Cable.							
Hitachi Automotive Products, 34500 Grand River Ave, Farmington Hills, MI 48335							

Submitted for recognition as an American National Standard

**(R) Brazed Double Wall Low-Carbon Steel Tubing**

**1. Scope**—This SAE Standard covers brazed double wall low-carbon steel tubing intended for general automotive, refrigeration, hydraulic, and other similar applications requiring tubing of a suitable quality for bending, flaring, beading, forming, and brazing.

**2. References**

**2.1 Applicable Publications**—The following publications form a part of this specification to the extent specified herein. Unless otherwise specified, the latest issue of SAE publications shall apply.

2.1.1 SAE PUBLICATION—Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096-0001.

SAE J1677—Tests and Procedures for SAE Low-Carbon Steel and Copper Nickel Tubing

2.1.2 ASTM PUBLICATION—Available from ASTM, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959.

ASTM A 254—Standard Specification for Copper Brazed Steel Tubing

**2.2 Related Publications**—The following publications are provided for information purposes only and are not a required part of this document.

2.2.1 SAE PUBLICATION—Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096-0001.

SAE J409—Product Analysis-Permissible Variations from Specified Chemical Analysis of a Heat or Cast of Steel

SAE J512—Automotive Tube Fittings

SAE J513—Refrigeration Tube Fittings-General Specifications

SAE J514—Hydraulic Tube Fittings

SAE J516—Hydraulic Hose Fittings

SAE J533—Flares for Tubing

SAE J1065—Pressure Ratings for Hydraulic Tubing and Fittings

SAE J1290—Automotive Hydraulic Brake System—Metric Tube Connection

SAE J1453—O-Ring Face Seal

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**SAE J527 Revised NOV2000**

- 3. Manufacture**—The tubing shall be made from a single or double strip of steel shaped into the form of a double-wall tubing, the walls of which are secured and sealed by copper brazing in a controlled atmosphere. The braze shall be uniform with no evidence of a bead on either the inside or outside of the tubing. Typically this type of tubing is available in both coiled and straight condition. Straightness requirements should be agreed upon between supplier and purchaser.
- 4. Dimensions and Tolerances**—The standard nominal diameters and the applicable dimensions and tolerances are shown in Table 1.

**TABLE 1—TUBING DIMENSIONS AND TOLERANCES<sup>(1)</sup>**

Dash Size	Nominal Tubing OD mm	Outside Diameter <sup>(1)</sup> Basic mm	Outside Diameter <sup>(1)</sup> Tolerance ±mm	Wall Thickness Basic mm	Wall Thickness Tolerance <sup>(2)(3)(4)</sup> ±mm
-2	3.18	3.18	0.05	0.64	0.13
-3	4.76	4.78	0.08	0.71	0.08
-4	6.35	6.35	0.08	0.71	0.08
-5	7.94	7.92	0.08	0.71	0.08
-6	9.53	9.53	0.08	0.71	0.08
-7	11.11	11.13	0.10	0.76	0.08
-8	12.70	12.70	0.10	0.89	0.09
-9	14.29	14.27	0.10	0.89	0.09
-10	15.88	15.88	0.10	0.89	0.09

- The actual outside diameter shall be the average of the maximum and minimum outside diameters at any one cross section through the tubing.
- The tolerances listed represent the maximum permissible deviation at any point.
- Other sizes may be specified by agreement between the supplier and the user.
- For intermediate wall thickness, the tolerance for the next heavier wall thickness shall apply.

**5. Manufacturing Standards**

**5.1 Tubing End Condition**—The tubing will be produced using normal mill cut-off practices. This will include, but is not limited to single-cut ends, double-cut ends, saw-cut ends, and rotary cut ends. Care will be taken to minimize the distortion of the tube ends. Ends that require further processing will be by agreement between the producer and purchaser.

**5.2 Surface Finish**—Surface imperfections such as handling marks, die marks, or shallow pits shall not be considered injurious defects provided such imperfections are not detrimental to the function of the tubing, and these imperfections are within the tolerances specified for diameter and wall thickness. The removal of such surface imperfections is not required. A slight seam lift or separation on the outside bevel edge of the outside wall on double wall tubing is not considered an injurious defect during end forming operations, provided that the seam condition doesn't effect the sealing area of the end form. Sealing surfaces shall be smooth and free from nicks, pit marks, and any other defects that prevent sealing.

**6. Material**—Tubing shall be made from low carbon steel, such as UNS G10080 or UNS G10100.

7. **Mechanical Properties**—The finished tubing shall have mechanical properties as tabulated in Table 2:

TABLE 2—MECHANICAL PROPERTIES

Properties	Values
Yield Strength, min (0.2% offset)	170 MPa
Tensile Strength, min	290 MPa
Elongation in 50 mm	14% min
Hardness (Rockwell 30 T scale), max	65

8. **Performance Requirements**—The finished tubing shall satisfactorily meet the following performance tests. All tests are to be conducted in accordance with the procedures in SAE J1677 or ASTM A 254 as designated.
- 8.1 **Bending Test**—SAE J1677 JAN1996 (Section 5.3)
- 8.2 **Flaring Test**—SAE J1677 JAN1996 (Section 5.5.2)
- 8.3 **Pressure Proof Test**—SAE J1677 JAN1996 (Section 5.8). Performed by agreement between purchaser and producer, (where allowable unit stress of material(s) = 140 MPa (80% of minimum yield strength).
- 8.4 **Nondestructive Electronic Test**—SAE J1677 JAN1996 (Section 5.9)
- 8.5 **Hardness Test**—SAE J1677 JAN1996 (Section 5.6)
- 8.6 **Flattening Test**—SAE J1677 JAN1996 (Section 5.1)
- 8.7 **Tensile Test**—SAE J1677 JAN1996 (Section 5.7)
- 8.8 **Inside Surface Cleanliness**—ASTM A 254 March 1997(Section 8)
9. **Test Certificates**—A certificate of compliance to the performance requirements shall be furnished to the purchaser by the producer if requested in the purchase agreement.
10. **Corrosion Protection**—The inside and outside of the finished tubing shall be protected against corrosion during shipment and normal storage. If a corrosion preventive compound is applied, it shall be such that after normal storage periods it can readily be removed by cleaning agents normally used in manufacturing. Extended corrosion resistance coatings, such as tern coating, galvanizing, epoxy paint, etc., are available and can be supplied at the request of the user.
11. **Packaging**—The tubing is to be packaged in such a way to allow it to be transported and stored with normal care, without being damaged. Any special packaging will be by agreement between the producer and the purchaser.
12. **Notes**
- 12.1 **Marginal Indicia**—The change bar (I) located in the left margin is for the convenience of the user in locating areas where technical revisions have been made to the previous issue of the report. An (R) symbol to the left of the document title indicates a complete revision of the report.

## SAE J527 Revised NOV2000

**Rationale**—Changes to this document include:

1. Scope
  - a. Expanded to better define application of SAE J527.
- 2.1.2 References—Applicable Publications
  - a. Added ASTM A254 document to define how to do Internal Cleanliness Testing which was added to Performance Requirements
- 2.2 References—Related Publications
  - a. Changed the word “is” to are for correct use of grammar.
- 2.2.1 References—Related Publications
  - a. Added SAE J409— Product Analysis-permissible Variations from Specified Chemical Analysis of a Heat or Cast of Steel.
  - b. Added SAE J512—Automotive Tube Fittings
  - c. Added SAE J513—Refrigeration Tube Fittings-General Specifications
  - d. Added SAE J514—Hydraulic Tube Fittings
  - e. Added SAE J516—Hydraulic Hose Fittings
  - f. Added SAE J1065—Pressure Ratings for Hydarulic Tubing and Fittings
  - g. Added SAE J1290—Automotive Hydraulic Brake System—Metric Tube Connection
  - h. Added SAE J1453—O-Ring Face Seal
3. Manufacture
  - a. Expanded to include notification of product availability as either a coiled or straight product.
  - b. Expanded to include need for agreed upon straightness requirements.
4. Dimensions and Tolerances —Table 1
  - a. Added footnote #3 to address non-charted product size availability.
  - b. Added footnote #4 to address intermediate wall thickness tolerance requirements.
5. Manufacturing Standards
  - a. Added this document section to more clearly define the end product requirements.
- 5.1 Manufacturing Standards—Tubing End Condition
  - a. Acceptable tubing cut end condition is defined.

## SAE J527 Revised NOV2000

- 5.2 Manufacturing Standards—Surface Finish
  - a. Expanded the requirements and definition of surface condition in order to address the critical nature of the OD finish.
- 8. Performance Requirements
  - a. Expanded the procedures documents to include ASTM A254 to define how to perform the Inside Surface Cleanliness tests.
- 8.3 Performance Requirements—Pressure Proof Test
  - a. Expanded to include explanation of how allowable stress units are calculated.
  - b. Noted that this testing is done under agreement between customer and supplier.
- 8.5 Performance Requirements—Hardness Test
  - a. Added Hardness Test requirements.
- 8.6 Performance Requirements—Flatting Test
  - a. Added Flatting Test requirement.
- 8.7 Performance Requirements—Tensile Test
  - a. Added Tensile Test requirement.
- 8.8 Performance Requirements—Inside Surface Cleanliness
  - a. Added Inside Cleanliness requirement.
- 10. Corrosion Protection
  - a. Changed the wording to read that extended corrosion resistant coatings “may” be available rather than “are” available.
- 11. Packaging
  - a. Added new section to include fundamental packaging requirements.

**Relationship of SAE Standard to ISO Standard**—Not applicable.

**Application**—SAE J527 Standard covers brazed double wall low-carbon steel tubing intended for general automotive, refrigeration, hydraulic, and other similar applications requiring tubing of a suitable quality for bending, flaring, beading, forming, and brazing.

**SAE J527 Revised NOV2000**

**Reference Section**

SAE J1677—Tests and Procedures for SAE Low-Carbon Steel and Copper Nickel Tubing

ASTM A254—Standard Specification for Copper Brazed Steel Tubing

SAE J409—Product Analysis-Permissible Variations from Specified Chemical Analysis of a Heat or Cast of Steel

SAE J512—Automotive Tube Fittings

SAE J513—Refrigeration Tube Fittings-General Specifications

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SAE J1290—Automotive Hydraulic Brake System—Metric Tube Connection

SAE J1453—O-Ring Face Seal

**Developed by the SAE Fluid Conductors and Connectors Technical Committee SC5—Automotive and Hydraulic Tube and Fittings**

**Sponsored by the SAE Fluid Conductors and Connectors Technical Committee**

EA11-001

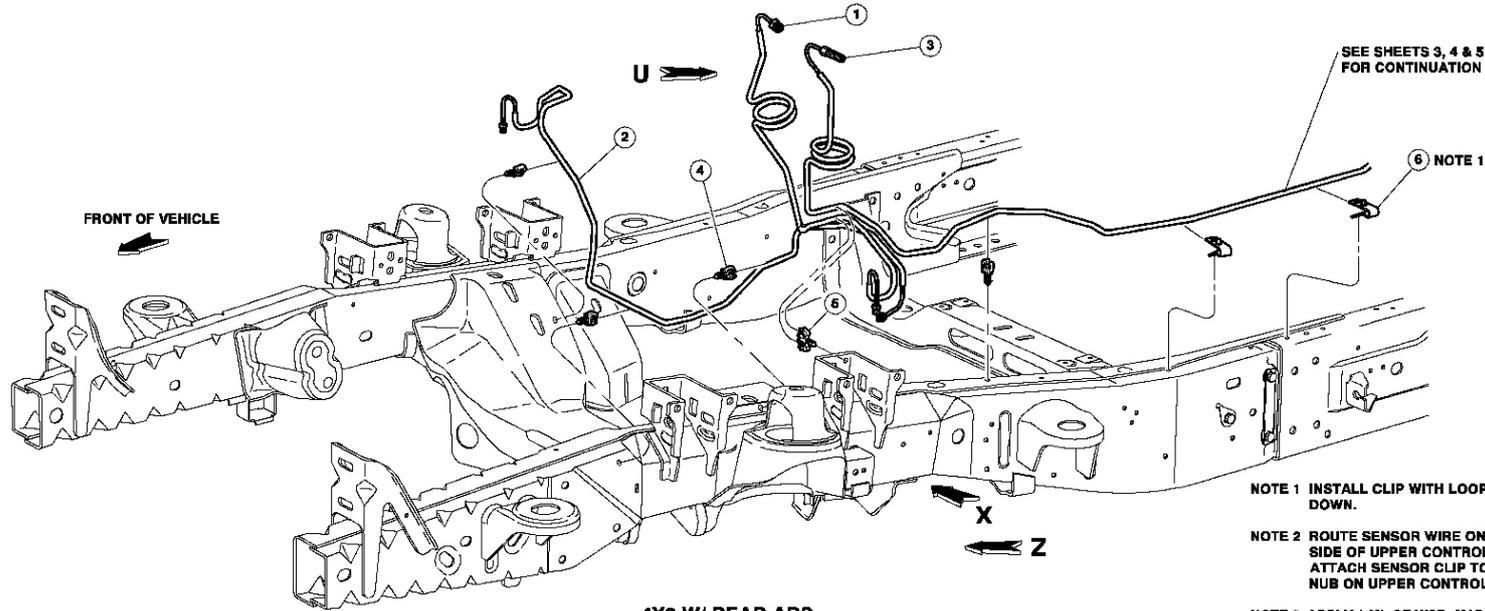
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Appendix L1

# TRUCK CHASSIS INSTALLATION MANUAL

LTRS.		REVISIONS			
DATE	ORIGINATOR	CHECKER	ENGR. APP.	MATL./FSTMR	
<b>NL0010594247-006</b>					
970319	JCARPEN2	JCARPEN2	TSKWIRSK		
<b>NL00E10870777</b>					
980713	JCARPEN2	JCARPEN2	COAKWOOD		



**4X2 W/ REAR ABS  
PN96/PN102 ONLY**

**NOTE 1** INSTALL CLIP WITH LOOP POINTING DOWN.

**NOTE 2** ROUTE SENSOR WIRE ON OUTBOARD SIDE OF UPPER CONTROL ARM. ATTACH SENSOR CLIP TO OUTBOARD NUB ON UPPER CONTROL ARM.

**NOTE 3** APPLY 1 ML OF WSB-M1C239-A LITHIUM GREASE TO SENSOR CAVITY PRIOR TO CONNECTOR HOOK-UP.

**NOTE 4** UNLESS OTHERWISE SPECIFIED TIGHTEN ALL HYDRAULIC TUBE CONNECTIONS AS FOLLOWS:

- A 3/8-24 THREAD 17.5 +/- 2.7 NM
- B 7/16-24 THREAD 17.5 +/- 2.7 NM
- C 1/2-20 THREAD 25.0 +/- 3.8 NM
- D 9/16-18 THREAD 25.0 +/- 3.8 NM
- E M10-1 THREAD 17.5 +/- 2.7 NM
- F M11-1.5 THREAD 17.5 +/- 2.7 NM
- G M12-1 THREAD 17.5 +/- 2.7 NM

**NOTE 5** TUBE MUST BE INSTALLED 79 +/- 7° CLOCKWISE FROM BORE AXIS OF MASTER CYLINDER AS VIEWED FROM RIGHT SIDE OF VEHICLE (PRIMARY OUTLET PORT). PN96 ONLY.

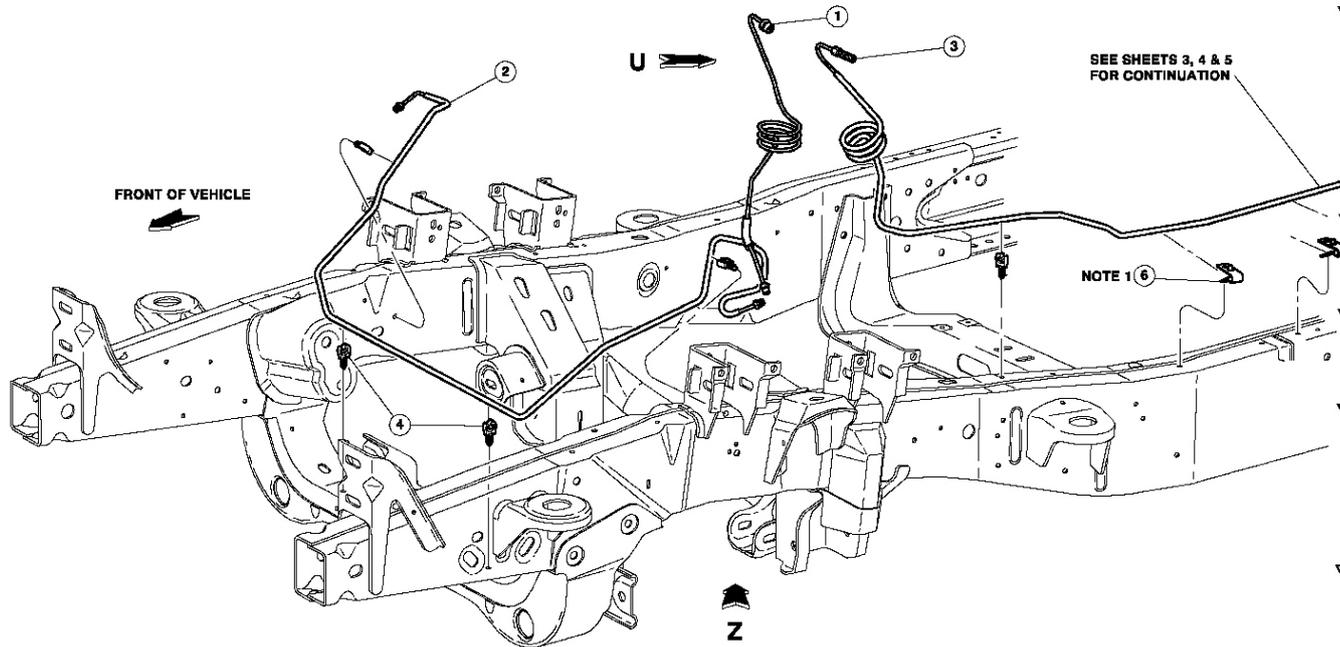
**NOTE 8** TUBE MUST BE INSTALLED 84 +/- 7° CLOCKWISE FROM BORE AXIS OF MASTER CYLINDER AS VIEWED FROM RIGHT SIDE OF VEHICLE (SECONDARY OUTLET PORT). PN96 ONLY.

**NOTE 7** AFTER TORQUING TUBE NUTS FOR BRAKE TUBE ASYS 9 & 10 (VIEW T) THE ANGULAR ALIGNMENT OF THE TUBE ASY'S MUST CONFORM TO ANGLES SHOWN RESPECTIVELY VERIFY WITH CHECKING FIXTURE.

**NOTE 8** FRONT BRAKE TUBE (-2B523-) PIA WITH FUEL ORGANIZER (-9L291-). UN93 ONLY

**NOTE 9** NO SUBSTITUTION ALLOWED AND 100% INSPECTION IS REQUIRED FOR PRESENCE OF PARTS.

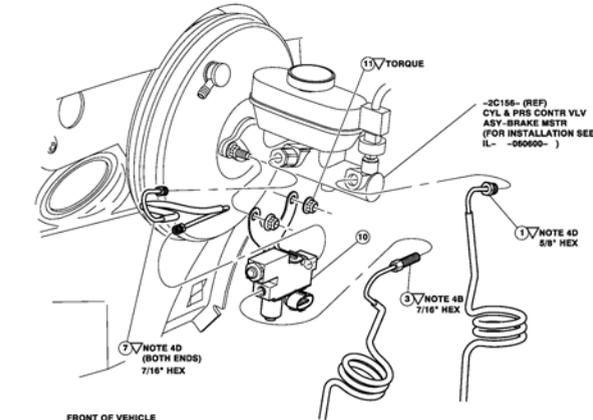
**CONTROL ITEM - THE VALVO IDENTIFIER** CRITICAL CHARACTERISTICS DESIGNATED BY THE CROSS FUNCTIONAL TEAMS DEVELOPING THE PRODUCT. THESE AND ADDITIONAL CRITICAL CHARACTERISTICS IDENTIFIED BY PROCESS REVIEWERS, MUST APPEAR ON THE CONTROL PLANS ACCORDING TO QS 9000. THESE CONTROL PLANS REQUIRE PRODUCT ENGINEERING APPROVAL.



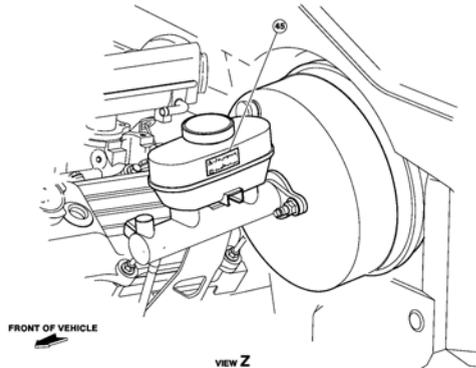
**4X4 W/ REAR ABS  
PN96/PN102 ONLY**

REFERENCE	
DIST. CODE : 3	
PART MUST COMPLY WITH MATERIAL SPECIFICATION WSS-M98P9899-A1 TO HELP SAFEGUARD HEALTH, SAFETY AND THE ENVIRONMENT.	
SUBJECT TO CERTIFICATION / HOMOLOGATION YES <input type="checkbox"/> NO <input type="checkbox"/>	
CAD FILE	
CAD TYPE	X-ATROL
D.C. NODE	N/A
SCALE	N/A
DEPT. NO.	W580
ORIGINAL WHEN RED	
DIMENSIONING & TOLERANCING IN ACCORDANCE WITH ANSI Y14.5M - 1982	
MATERIAL/APPLICATION	
F150/F250/EXPEDITION	
NAME	BRAKE LINES
NO. ▽	IL-XL34-060600-025
SHT	01
OF	18

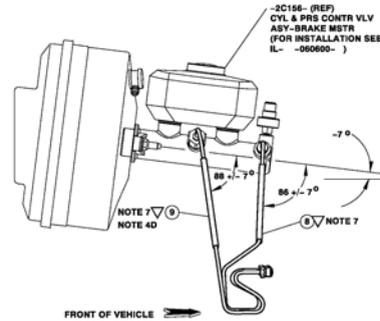
# TRUCK CHASSIS INSTALLATION MANUAL



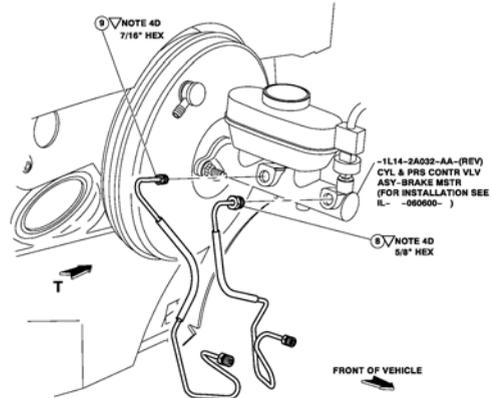
**VIEW U**  
REAR ABS ONLY  
PN96



**VIEW Z**



**VIEW T**  
PN102/UN93 ONLY  
W/AIR SUSPENSION



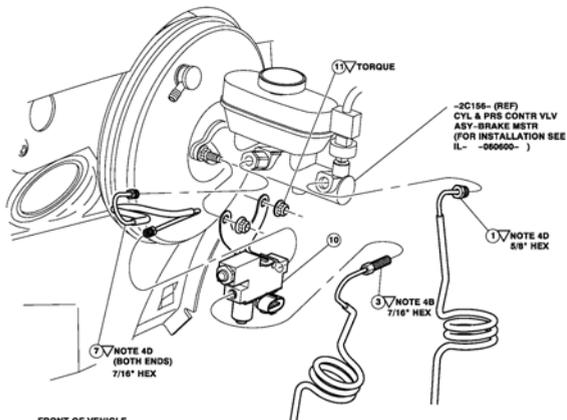
**VIEW U**  
4 WHEEL ABS ONLY

REVISIONS			
CR/DR/KR/DR	CHECKER	ENGR APP	MAT. APP
ML061006001	MQU6ST4	SLUVEHQD	CADY
ML061006790	MQU6ST4	MLUVEHQD	CADY
ML061006791	MQU6ST4	SMILLERA	CADY
ML061006710	MQU6ST4	SMILLERA	CADY
ML061006900	MQU6ST4	SMILLERA	CADY
ML061006900	MQU6ST4	SMILLERA	CADY
ML061006900	MQU6ST4	TCARTY1	CADY
ADDED ITEM 48			
ML0-E-1101800		ML1207	CADY
PKW	ML1EY5	TCARTY1	
REVISED NOTES ON ITEMS 7 & 9			
ML0-E-1106070		SMILLERA	CADY
ML1EY5	ML1EY5	COLASOO1	
REF. PART NO WAS -2C156-			
ML0-E-1119467-000		010613	CADY
BRNO	HW	ASAF4	

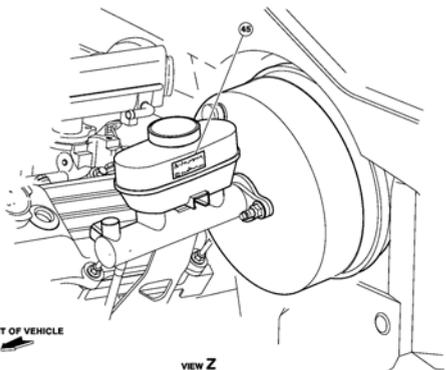
REFERENCE			DWT. CODE: 4	
PART MUST COMPLY WITH MATERIAL SPECIFICATION 483-PROF/888F-T TO HELP SAFEGUARD HEALTH, SAFETY AND THE ENVIRONMENT.				
DRAFTED IN ACCORDANCE WITH F4D ENGINEERING DRAFTING STANDARD CURRENT AT INITIAL RELEASE.				
				3RD ANGLE PROJ. DIMENSIONS IN MILLIMETERS
CAD TYPE	CAD LDC	CAD FILE	DATA	
ATROL	N/A	N/A	10 MASTER	
DRG NO.	DRW	DRRAWING	IL-YL34-060600-001	
DESIGN	DETAIL	TITLE	DWT 10 OF 18	
MOU6ST4	N/A		BRAKE LINES	
CHECKED	SAFETY			
SCALE	DATE	DIVISION	N/A	
N/A		PLANT	N/A	

010615

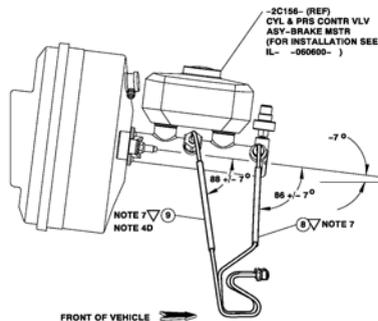
# TRUCK CHASSIS INSTALLATION MANUAL



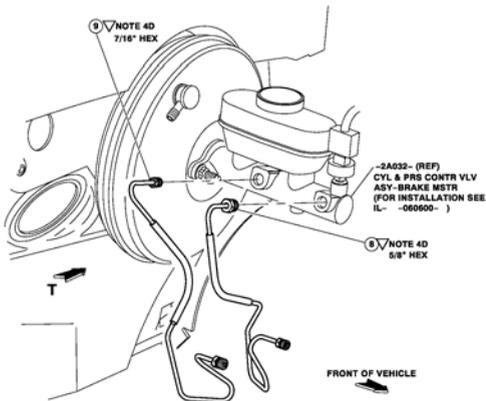
**VIEW U  
REAR ABS ONLY  
PN96**



**VIEW Z**



**VIEW T  
PN102/UN93 ONLY  
W/AIR SUSPENSION**



**VIEW U  
4 WHEEL ABS ONLY**

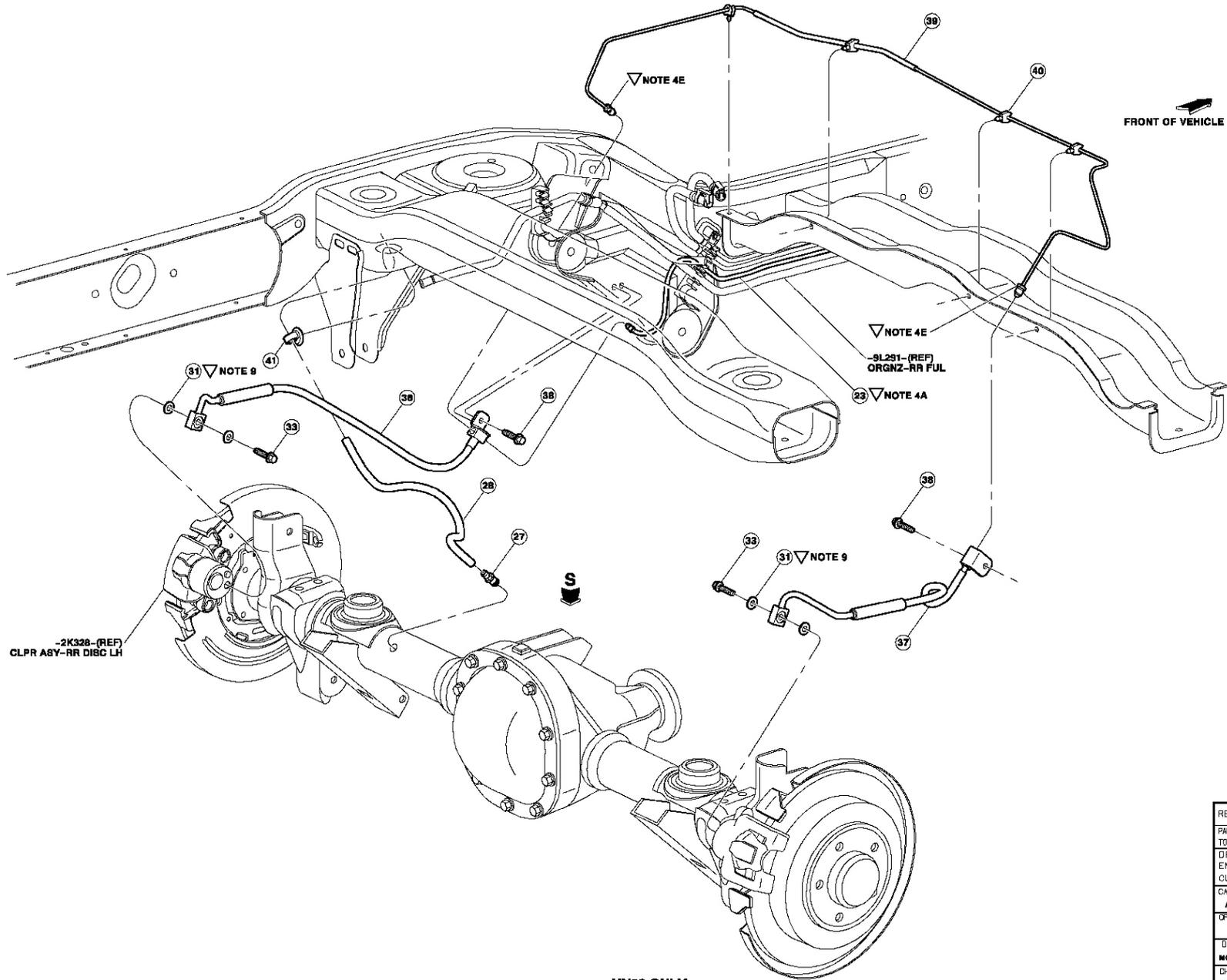
REVISED				
CR/DRN/DR	CHECKER	ENGR	APP	MAT. APP
NL061066700	MOU6ST4	SLV6V00		CADY
NL061067900	MOU6ST4	SLV6V00		CADY
NL061067100	MOU6ST4	SLM6L6R		CADY
NL061067100	MOU6ST4	SLM6L6R		CADY
NL061069000	MOU6ST4	SLM6L6R		CADY
NL061069000	MOU6ST4	TCARTY1		CADY
ADDED ITEM 48				
NL06-E-1119404		W6107		CADY
PKW	MLLEY3	TCARTY1		
REVISED NOTES ON ITEMS 7 & 9				
NL06-E-1198079		W0776		CADY
	MLLEY3	MLLEY3	COLAS001	
REF. PART NO WAS -2C156-				
NL06-E-1119467-000		019613		CADY
BBNO	HW	ASAF4		

REFERENCE		DWT CODE:4	
FIRST REPT CONPLY WITH MATERIAL SPECIFICATION 483-PROF/888F41 TO HELP SAFEGUARD HEALTH, SAFETY AND THE ENVIRONMENT.			
DRAFTED IN ACCORDANCE WITH F4D 3RD ANGLE PROJ. DIMENSIONS IN MILLIMETERS			
CURRENT AT INITIAL RELEASE			
CAD TYPE	CAD LOC.	CAD FILE	DATA
ATROL	N/A	N/A	10 MASTER
DRG NO:	DRW	DRRAWING	10 MASTER
DESIGN	DETAIL	TITLE	10 OF 18
MOU6ST4	N/A		
CHECKED	SAFETY		
MOU6ST4	N/A		
SCALE	DATE	DIVISION	N/A
N/A		PLANT	N/A

010815

3/20/02 3/2/02

# TRUCK CHASSIS INSTALLATION MANUAL



UN93 ONLY  
(W/DISC BRAKES)

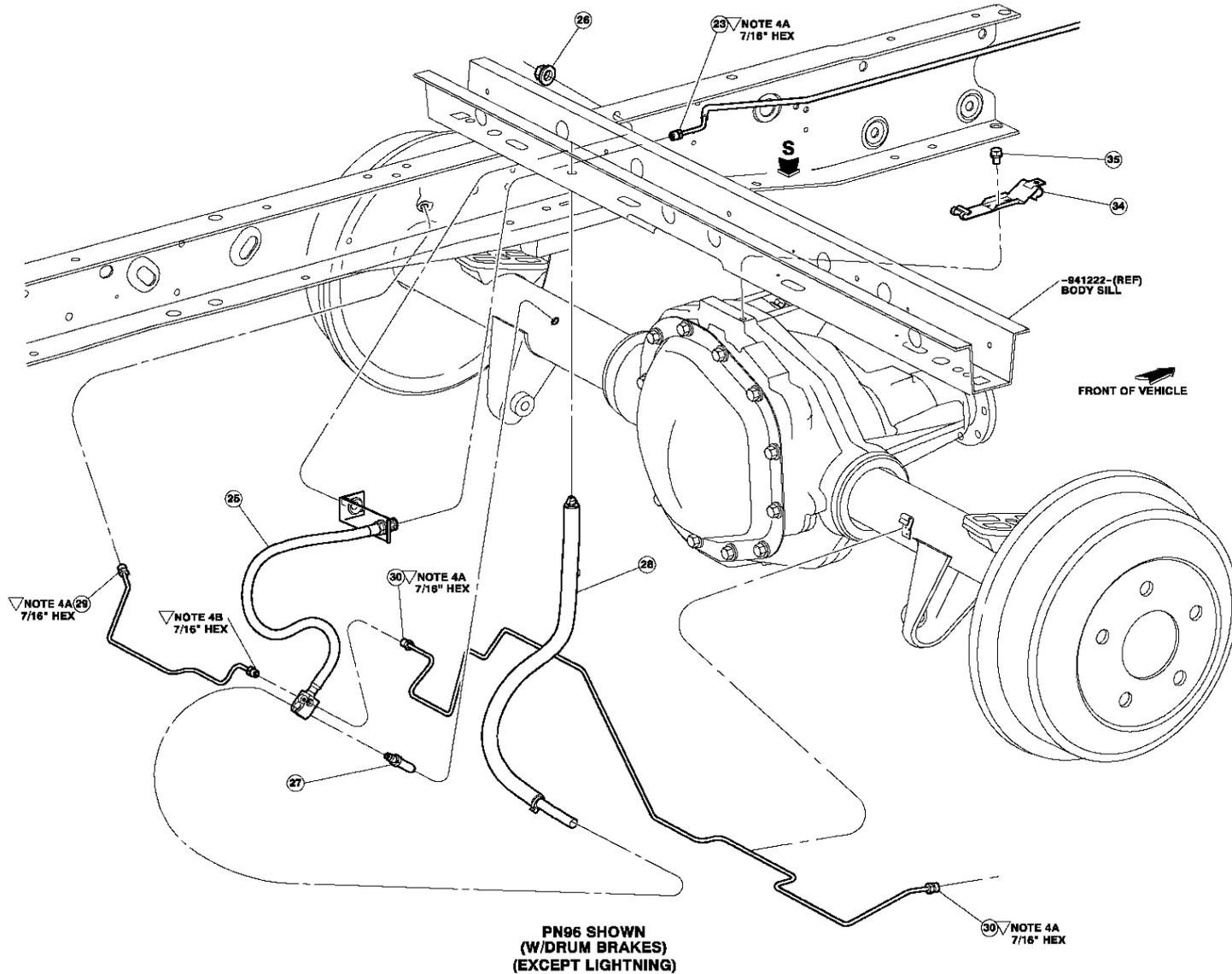
LT RS		REVISIONS		
ORIGINATOR	CHECKER	ENGR APP	MAT L APP	
MLDOE10068841		991105	CAD:Y	
MGUEST4	MGUEST4	RLEVER00		
MLDOE10067002		991105	CAD:Y	
MGUEST4	MGUEST4	BMILLER4		
MLDOE10057125		991105	CAD:Y	
MGUEST4	MGUEST4	BMILLER4		
MLDOE10028040		991105	CAD:Y	
MGUEST4	MGUEST4	TCARTY1		

REFERENCE			DIST. CODE: 4	
PART MUST COMPLY WITH MATERIAL SPECIFICATION USS-MS0P9999-A1 TO HELP SAFEGUARD HEALTH, SAFETY AND THE ENVIRONMENT.				
DRAFTED IN ACCORDANCE WITH F40 ENGINEERING DRAFTING STANDARD CURRENT AT INITIAL RELEASE			3RD ANGLE PROJ DIMENSIONS IN MILLIMETERS	
CAD TYPE	CAD LOC.	CAD FILE	DATA	
ATROL	N/A	N/A	IS MASTER	
OPER. NO.	UNIT	DRAWING	IL-YL34-060600-001	
N/A	N/A	N/A		
DESIGN	DETAIL	TITLE	SHT 07 OF 18	
MGUEST4	N/A	BRAKE LINES		
CHECKED	SAFETY			
MGUEST4	N/A			
SCALE	DATE	DIVISION	N/A	
N/A		PLANT	N/A	

000713

DRW SIZE: A1 (7)

# TRUCK CHASSIS INSTALLATION MANUAL



LT RS		REVISIONS		
ORIGINATOR	CHECKER	ENGR APP	MATL APP	
NLD0E10088841		990226	CAD:Y	
NGUEB74	MGUEB74	RLEVER00		
NLD0E10087002		990226	CAD:Y	
NGUEB74	MGUEB74	BMILLER4		
NLD0E10087125		990226	CAD:Y	
NGUEB74	MGUEB74	BMILLER4		
NLD0E10088040		990226	CAD:Y	
NGUEB74	MGUEB74	TCARTY1		
ITEM 28 REVISED ART				
WPTBE1027418		000303	CAD:Y	
PKEW	MRLEYS			

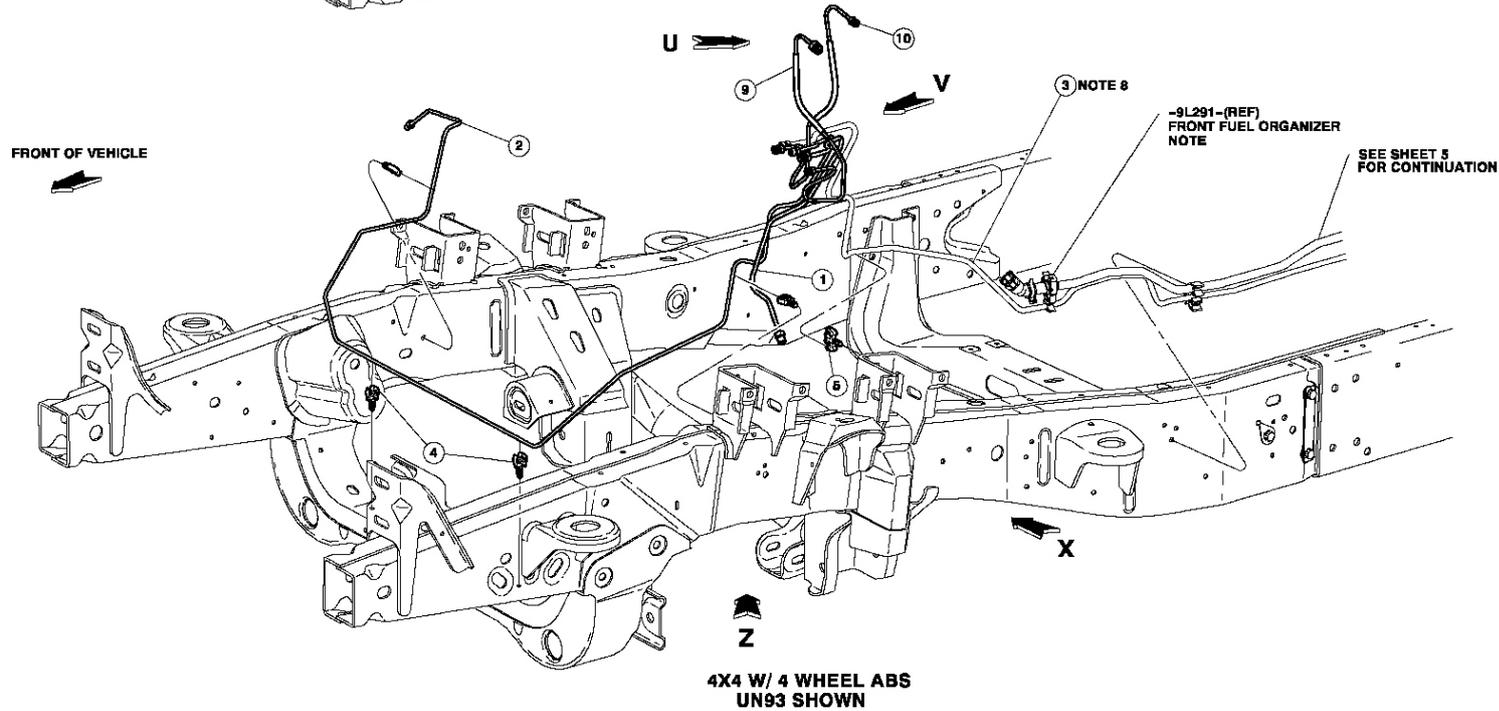
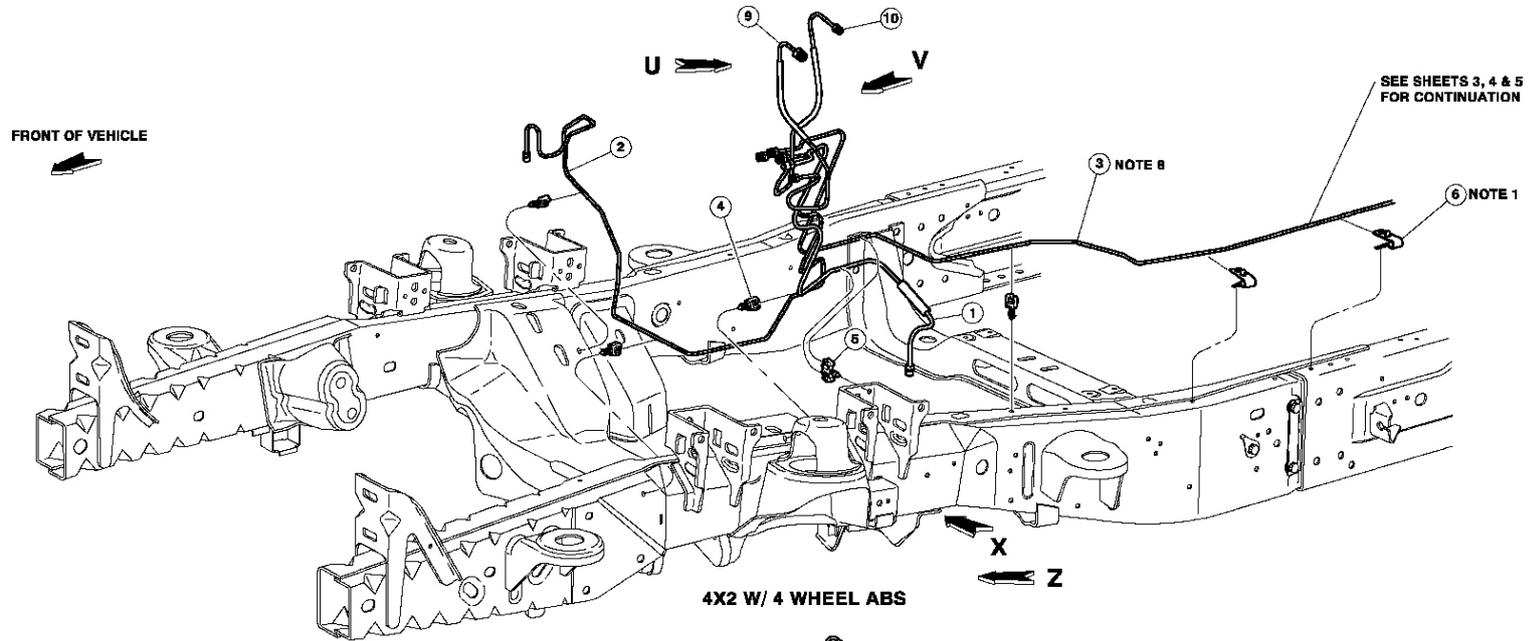
REFERENCE		DIST. CODE: 4	
PART MUST COMPLY WITH MATERIAL SPECIFICATION USS-MS0P8999-A1 TO HELP SAFEGUARD HEALTH, SAFETY AND THE ENVIRONMENT.			
DRAFTED IN ACCORDANCE WITH F40 ENGINEERING DRAFTING STANDARD CURRENT AT INITIAL RELEASE		3RD ANGLE PROJ DIMENSIONS IN MILLIMETERS	
CAD TYPE	CAD LOC.	CAD FILE	DATA
ATROL	N/A	N/A	IS MASTER
OPER. NO.	UNIT	DRAWING	IL-YL34-060800-001
DESIGN	DETAIL	TITLE	SHT 08 OF 18
NGUEB74	N/A	BRAKE LINES	
CHECKED	SAFETY		
NGUEB74	N/A		
SCALE	DATE	DIVISION	N/A
N/A		PLANT	N/A

000713

DRAWN SIZE A1/70

# TRUCK CHASSIS INSTALLATION MANUAL

LT R/S		REVISIONS		
ORIGINATOR	CHECKER	ENGR APP	MATL APP	
NLOOE10805941		890226	CAD:Y	
MGUEST4	MGUEST4	RLEVERGO		
NLOOE10807062		890226	CAD:Y	
MGUEST4	MGUEST4	BMILLER4		
NLOOE10857123		890226	CAD:Y	
MGUEST4	MGUEST4	BMILLER4		
NLOOE10838040		890226	CAD:Y	
MGUEST4	MGUEST4	TCARTY1		
RE-ROUTED ITEM #1 IN BOTH VIEWS				
NLOOE10862638-000		890706	CAD:Y	
MRILEY5	MRILEY5	TCARTY1		
REVISED ITEM #2				
NLOO-E-11017484		000703	CAD:Y	
MRILEY5	MRILEY5	ADEIDRC		



NOTE: ORGANIZER ASY (BRAKE-TUBES) ARE IDENTICAL FOR 4X2 AND 4X4.

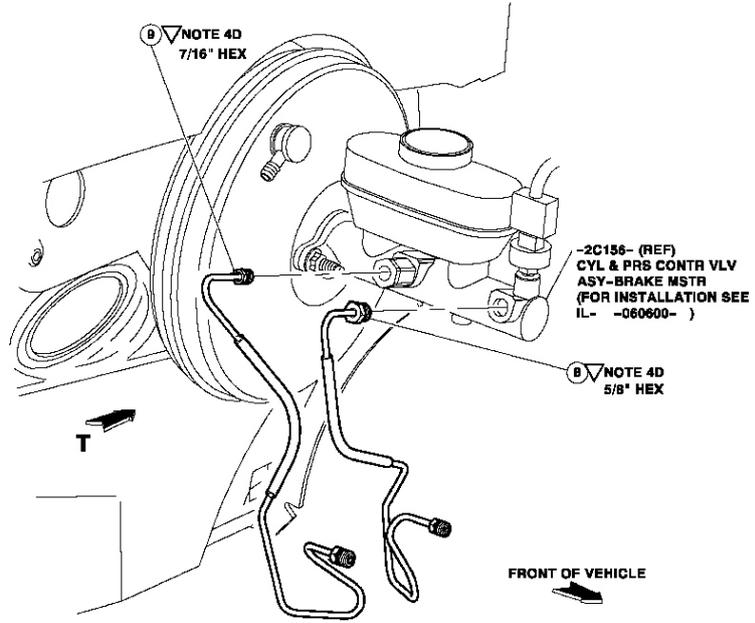
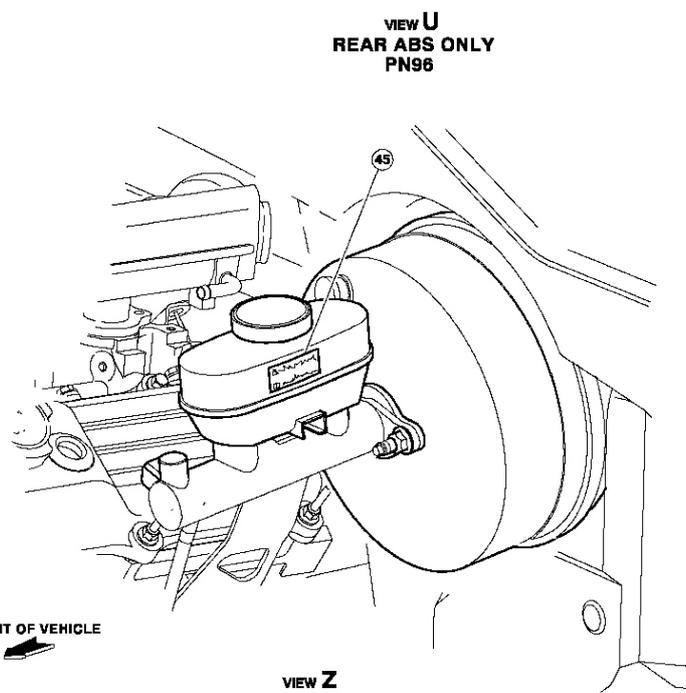
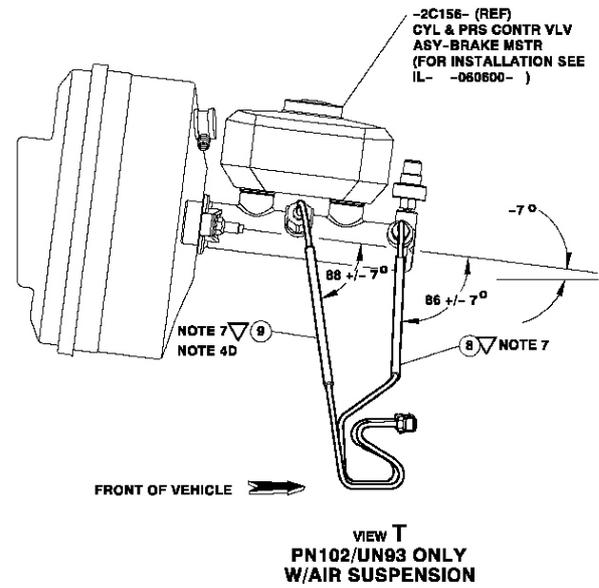
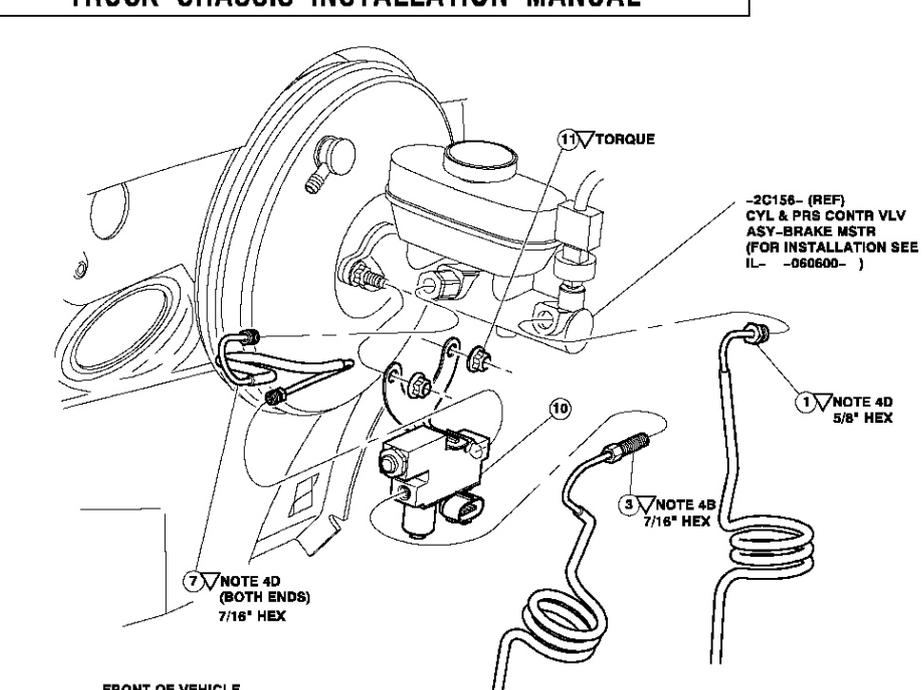
REFERENCE		DIST. CODE: 4	
PART MUST COMPLY WITH MATERIAL SPECIFICATION WSS-N99P9899-A1 TO HELP SAFEGUARD HEALTH, SAFETY AND THE ENVIRONMENT.			
DRAFTED IN ACCORDANCE WITH FAO ENGINEERING DRAFTING STANDARD CURRENT AT INITIAL RELEASE		3RD ANGLE PROJ DIMENSIONS IN MILLIMETERS	
CAD TYPE	CAD LOC.	CAD FILE	DATA
ATROL	N/A	N/A	IS MASTER
OPER. NO.	UNIT	DRAWING	
N/A	N/A	IL-YL34-060600-001	
DESIGN	DETAIL	TITLE	SHT OF
MGUEST4	N/A	BRAKE LINES	02 OF 18
CHECKED	SAFETY		
MGUEST4	N/A		
SCALE	DATE	DIVISION	
N/A		N/A	
		PLANT	
		N/A	

000713

DRW SIZE A1/D0

# TRUCK CHASSIS INSTALLATION MANUAL

LT RS		REVISIONS		
ORIGINATOR	CHECKER	ENGR APP	MATL APP	
NLOOE10898941		890226	CAD:Y	
MGUEST4	MGUEST4	RLEVERGO		
NLOOE1087082		890226	CAD:Y	
MGUEST4	MGUEST4	EMILLER4		
NLOOE10857125		890226	CAD:Y	
MGUEST4	MGUEST4	EMILLER4		
NLOOE10838040		890226	CAD:Y	
MGUEST4	MGUEST4	TCARTY1		
ADDED ITEM 46				
NLOOE-11018804		891207	CAD:Y	
PKEW	NRILEY5	TCARTY1		
REVISED NOTES ON ITEMS 7 & 9				
NLOOE-11082275		000706	CAD:Y	
NRILEY5	NRILEY5	CGLABG01		

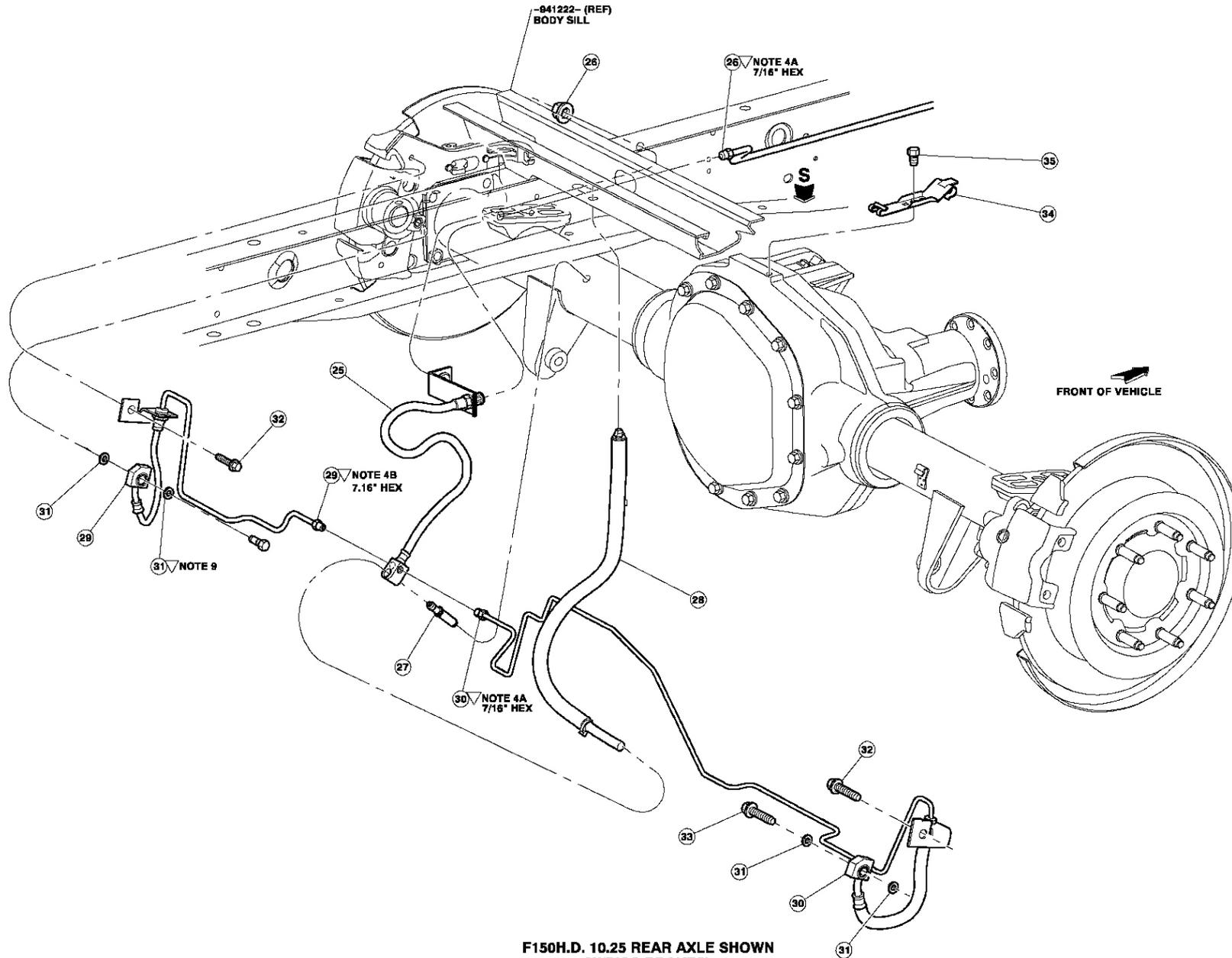


REFERENCE		DIST. CODE: 4	
PART MUST COMPLY WITH MATERIAL SPECIFICATION WSS-H93P9899-A1 TO HELP SAFEGUARD HEALTH, SAFETY AND THE ENVIRONMENT.			
DRAFTED IN ACCORDANCE WITH F40 ENGINEERING DRAFTING STANDARD CURRENT AT INITIAL RELEASE		3RD ANGLE PROJ DIMENSIONS IN MILLIMETERS	
CAD TYPE	CAD LOC.	CAD FILE	DATA
ATROL	N/A	N/A	IS MASTER
OPER. NO.	N/A	DRAWING	IL-YL34-060600-001
DESIGN	DETAIL	TITLE	SHT 10 OF 18
MGUEST4	N/A	BRAKE LINES	
CHECKED	SAFETY		
MGUEST4	N/A		
SCALE	DATE	DIVISION	N/A
N/A		PLANT	N/A

000713

DRW SIZE A170

# TRUCK CHASSIS INSTALLATION MANUAL



**F150H.D. 10.25 REAR AXLE SHOWN  
(W/DISC BRAKES)  
(EXCEPT LIGHTNING)**

LTRS		REVISIONS		
ORIGINATOR	CHECKER	ENGR APP	MATL APP	
NLOOE10898941		890226	CAD:Y	
MGUEST4	MGUEST4	RLEVERGO		
NLOOE1087082		890226	CAD:Y	
MGUEST4	MGUEST4	EMILLER4		
NLOOE10857125		890226	CAD:Y	
MGUEST4	MGUEST4	EMILLER4		
NLOOE10838040		890226	CAD:Y	
MGUEST4	MGUEST4	TCARTY1		
<b>ITEM 28 ART CHANGE ON ITEM</b>				
WPTSE11027419		000303	CAD:Y	
PKEW	NRILEY6			

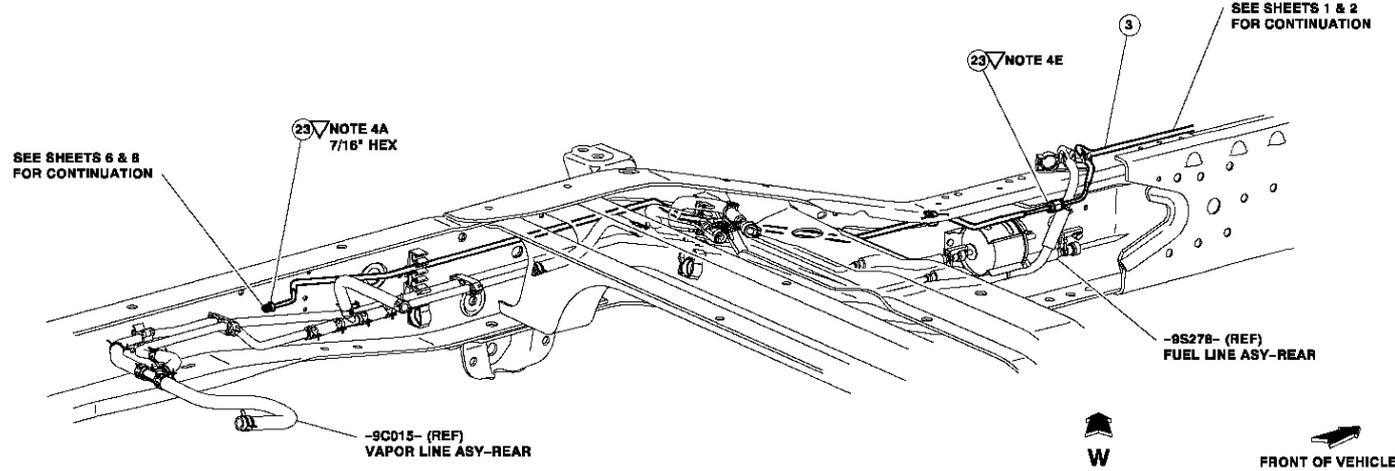
REFERENCE		DIST. CODE: 4	
PART MUST COMPLY WITH MATERIAL SPECIFICATION WSS-H93P9999-A1 TO HELP SAFEGUARD HEALTH, SAFETY AND THE ENVIRONMENT.			
DRAFTED IN ACCORDANCE WITH FAO ENGINEERING DRAFTING STANDARD CURRENT AT INITIAL RELEASE		3RD ANGLE PROJ DIMENSIONS IN MILLIMETERS	
CAD TYPE	CAD LOC.	CAD FILE	DATA
ATROL	N/A	N/A	IS MASTER
OPER. NO.	UNIT	DRAWING <b>IL-YL34-060600-001</b>	
DESIGN	DETAIL	TITLE	SHT 06 OF 18
MGUEST4	N/A	BRAKE LINES	
CHECKED	SAFETY		
MGUEST4	N/A		
SCALE	DATE	DIVISION	N/A
N/A		PLANT	N/A

000713

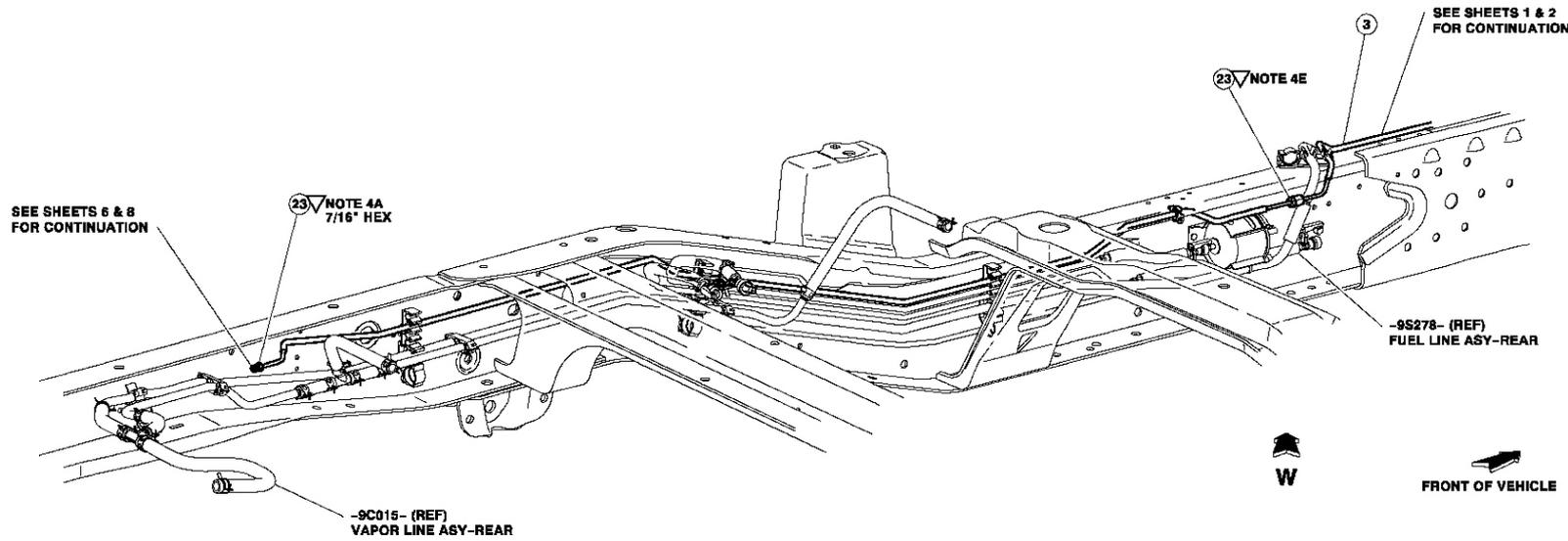
DRW SIZE A1/0

# TRUCK CHASSIS INSTALLATION MANUAL

LT RS		REVISIONS		
ORIGINATOR	CHECKER	ENGR APP	MATL APP	
NLOOE10898941		890226	CAD:Y	
MGUEST4	MGUEST4	RLEVERGO		
NLOOE10897082		890226	CAD:Y	
MGUEST4	MGUEST4	BMILLER4		
NLOOE10857125		890226	CAD:Y	
MGUEST4	MGUEST4	BMILLER4		
NLOOE10838040		890226	CAD:Y	
MGUEST4	MGUEST4	TCARTY1		



**REGULAR CAB SWB (119.9")**



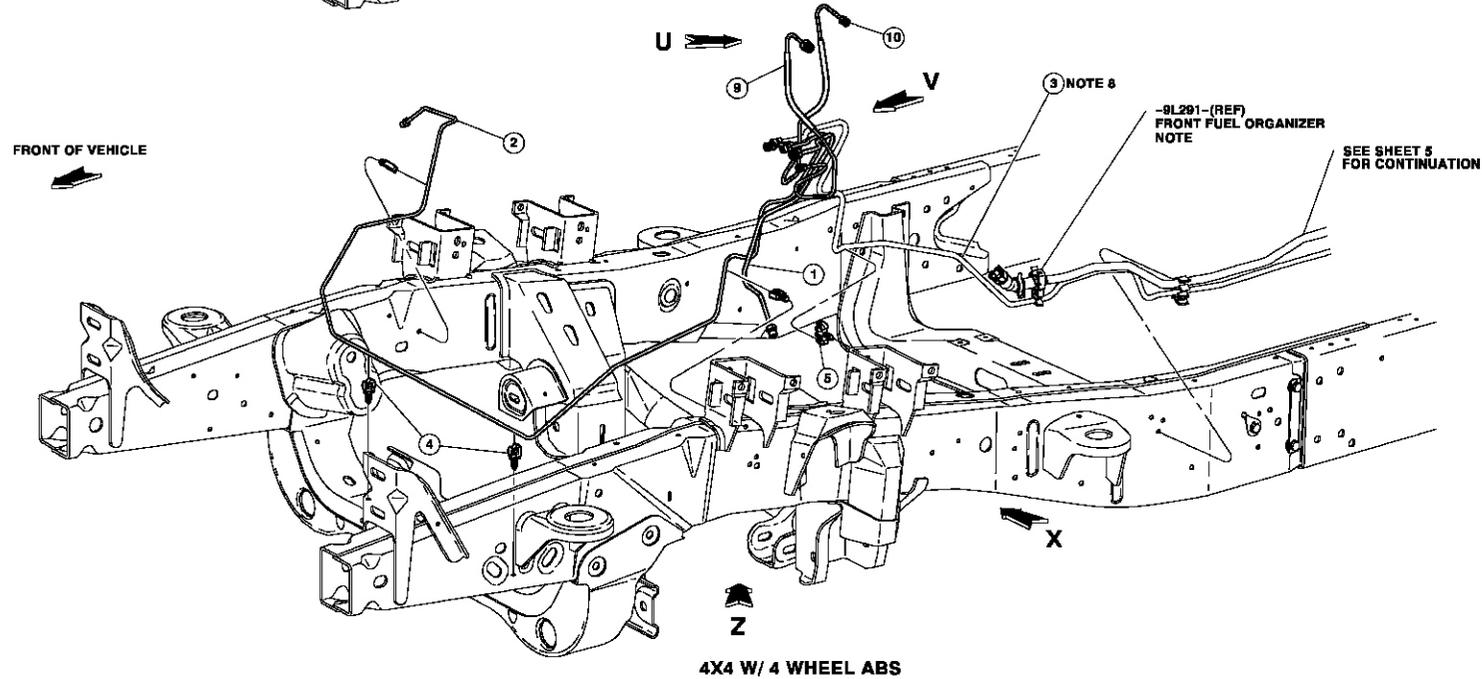
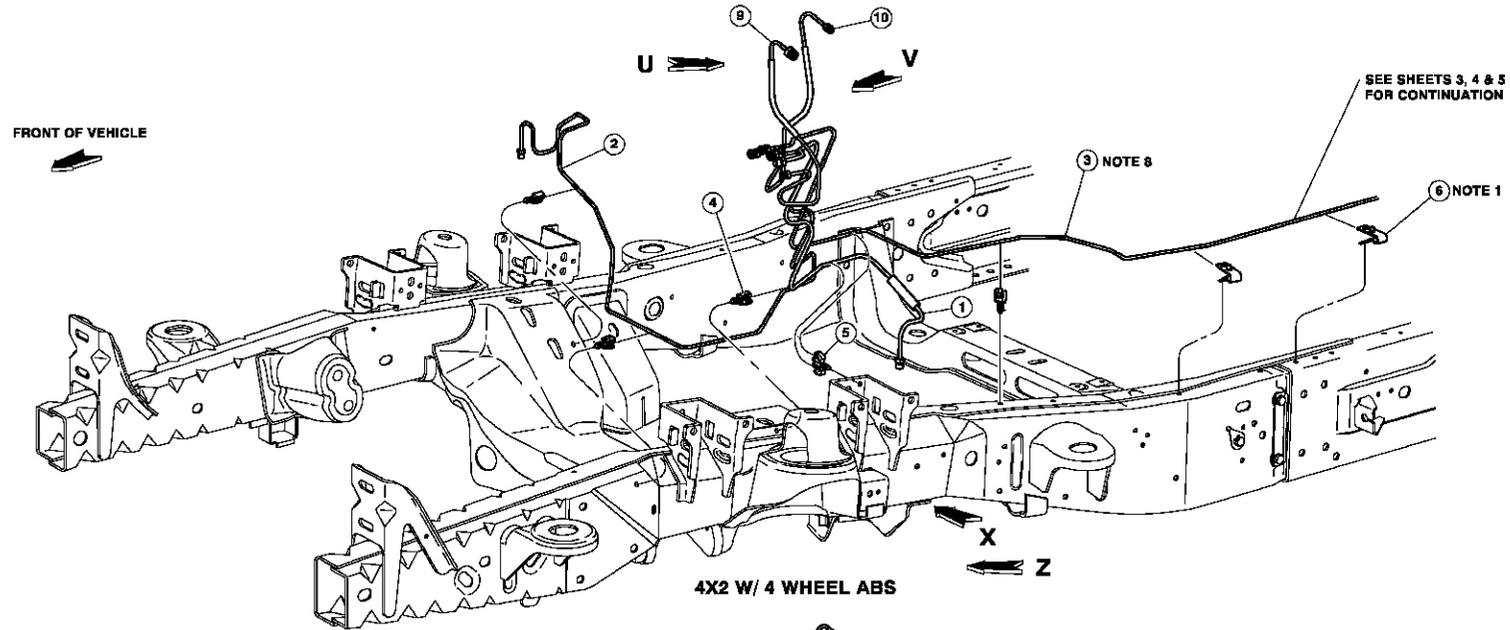
**REGULAR CAB LWB (138.5")**

REFERENCE		DIST. CODE:	
PART MUST COMPLY WITH MATERIAL SPECIFICATION WSS-H93P9999-A1 TO HELP SAFEGUARD HEALTH, SAFETY AND THE ENVIRONMENT.			
DRAFTED IN ACCORDANCE WITH FAO ENGINEERING DRAFTING STANDARD CURRENT AT INITIAL RELEASE		3RD ANGLE PROJ DIMENSIONS IN MILLIMETERS	
CAD TYPE	CAD LOC.	CAD FILE	DATA
ATROL	N/A	N/A	IS MASTER
OPER. NO.	UNIT	DRAWING	
N/A	N/A	IL-YL34-060600-001	
DESIGN	DETAIL	TITLE	SHT 03 OF 18
MGUEST4	N/A	BRAKE LINES	
CHECKED	SAFETY		
MGUEST4	N/A		
SCALE	DATE	DIVISION	N/A
N/A		PLANT	N/A

000713

DRW SIZE A170

# TRUCK CHASSIS INSTALLATION MANUAL



NOTE: ORGANIZER ASY (BRAKE-TUBES) ARE IDENTICAL FOR 4X2 AND 4X4.

LTRS		REVISIONS		
ORIGINATOR	CHECKER	ENGR APP	MATL APP	
NL00E10809041		900228	CAD-Y	
MGUEST4	MGUEST4	RELEVER00		
NL00E10867082		900228	CAD-Y	
MGUEST4	MGUEST4	EMILLER4		
NL00E10857125		900228	CAD-Y	
MGUEST4	MGUEST4	EMILLER4		
NL00E10939040		900228	CAD-Y	
MGUEST4	MGUEST4	TCARTY1		
RE-ROUTED ITEM #1 IN BOTH VIEWS				
NL00E10680338-000		900708	CAD-Y	
MRILEY5	MRILEY5	TCARTY1		
REVISED ITEM #2				
NL00-E-11017484		900703	CAD-Y	
MRILEY5	MRILEY5	ADEIDRC		
WAS SHEET 02 OF 18				
NL00-E-11417480-000				
NL00-E-11001238-058		030305	CAD-Y	
JSTREU	JSTREU	ASAF4		

REFERENCE		DEPT# V210	
PART MUST COMPLY WITH MATERIAL SPECIFICATION WSS-M99P9599-A1 TO HELP SAFEGUARD HEALTH, SAFETY AND THE ENVIRONMENT			
DRAFTED IN ACCORDANCE WITH FORD MOTOR COMPANY ENGINEERING CAD AND DRAFTING STANDARDS CURRENT AT INITIAL RELEASE		3RD ANGLE PROJ DIMENSIONS ARE IN MILLIMETERS	
CAD TYPE	CAD LOC.	CAD FILE	DTMC IS MASTER
ATROL	METAPH	IL-3L34-060600-001-002.dg	
OPER. NO.	UNIT	DRAWING	DATA
N/A	N/A	IL-3L34-060600-001	
DESIGN	DETAIL	TITLE	SHT 02 OF 18
DWASHBU2	N/A	BRAKE LINES	
CHECKED	SAFETY		
DWASHBU2	N/A		
SCALE	DATE	DIVISION	PLANT
N/A	020827		

*Ford Motor Company*

# TRUCK CHASSIS INSTALLATION MANUAL

LTRS		REVISIONS		
ORIGINATOR	CHECKER	ENGR APP	MATL APP	
NLD0E10809041		900228	CAD:Y	
MQUEST4	MQUEST4	RELEVER00		
NLD0E10867082		900228	CAD:Y	
MQUEST4	MQUEST4	EMILLER4		
NLD0E10857125		900228	CAD:Y	
MQUEST4	MQUEST4	EMILLER4		
NLD0E10939040		900228	CAD:Y	
MQUEST4	MQUEST4	TCARTY1		
WAS SHEET 04 OF 18				
NLD0-E-11417488-000				
NLD0-E-11001238-058				
		090305	CAD:Y	
JSTRFU	JSTRFU	ASAF4		

SEE SHEETS 6 & 8 FOR CONTINUATION

23 NOTE 4A  
7/16" HEX

SEE SHEETS 1 & 2 FOR CONTINUATION

23 NOTE 4E

-9S278- (REF)  
FUEL LINE ASY-REAR

-9C015- (REF)  
VAPOR LINE ASY-REAR

FRONT OF VEHICLE

SUPER CAB SWB (138.5")

SEE SHEETS 1 & 2 FOR CONTINUATION

23 NOTE 4E

SEE SHEETS 6 & 8 FOR CONTINUATION

23 NOTE 4A  
7/16" HEX

-9S278- (REF)  
FUEL LINE ASY-REAR

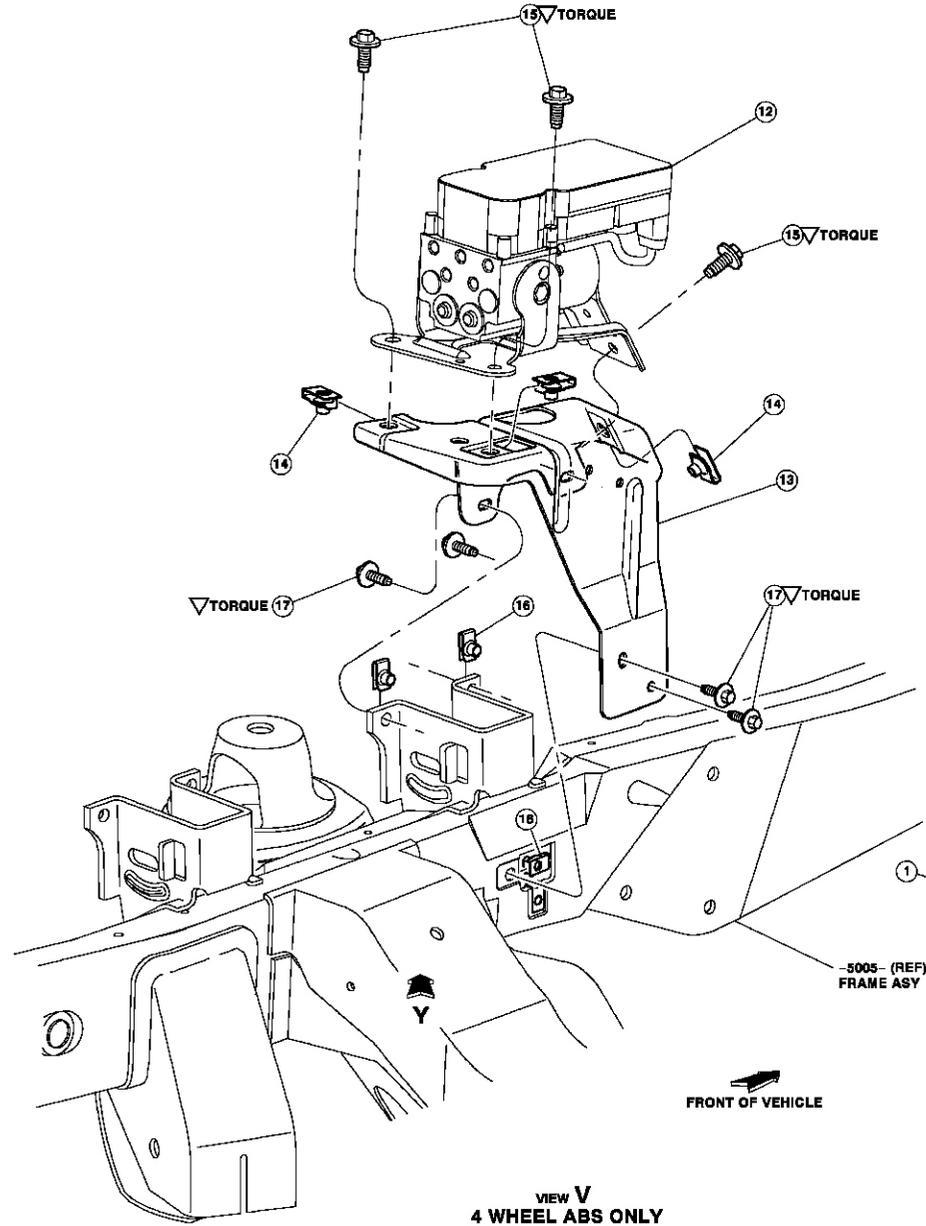
-9C015- (REF)  
VAPOR LINE ASY-REAR

FRONT OF VEHICLE

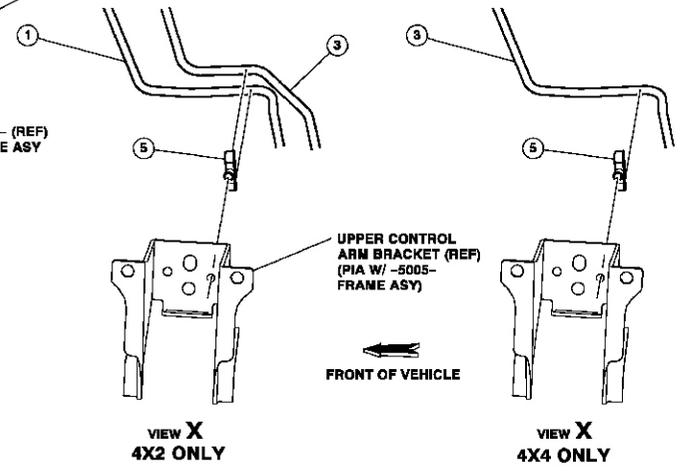
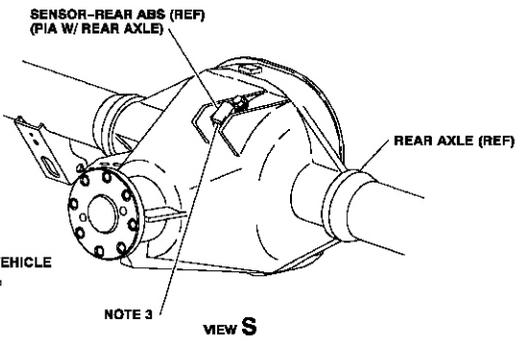
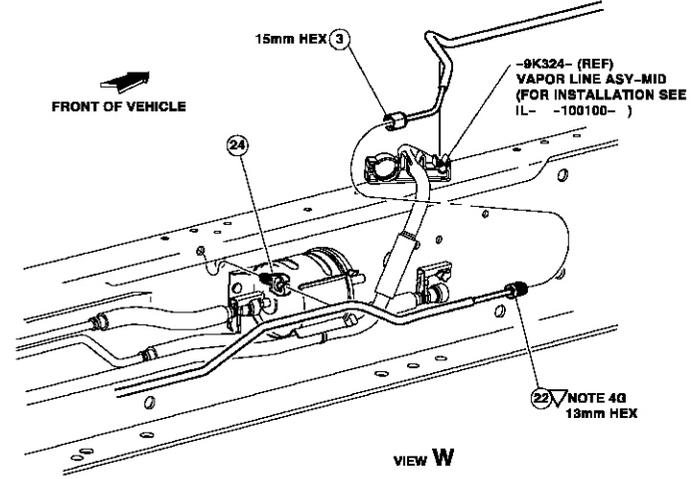
SUPER CAB LWB (157.1")

REFERENCE		DEPT# V316	
PART MUST COMPLY WITH MATERIAL SPECIFICATION WSS-M99P9999-A1 TO HELP SAFEGUARD HEALTH, SAFETY AND THE ENVIRONMENT. CODE:4			
DRAFTED IN ACCORDANCE WITH FORD MOTOR COMPANY ENGINEERING CAD AND DRAFTING STANDARDS CURRENT AT INITIAL RELEASE			3RD ANGLE PROJ DIMENSIONS ARE IN MILLIMETERS
CAD TYPE	CAD LOC.	CAD FILE	DTMC IS MASTER
ATROL	METAPH	IL-3L34-060600-001-004.dg	
OPER. NO.	UNIT	DRAWING	DATA
N/A	N/A	IL-3L34-060600-001	
DESIGN	DETAIL	TITLE	SHT 04 OF 16
DWASHB02	N/A	BRAKE LINES	
CHECKED	SAFETY		
DWASHB02	N/A		
SCALE	DATE	DIVISION	PLANT
N/A	020827		
<i>Ford Motor Company</i>			

# TRUCK CHASSIS INSTALLATION MANUAL



VIEW V  
4 WHEEL ABS ONLY

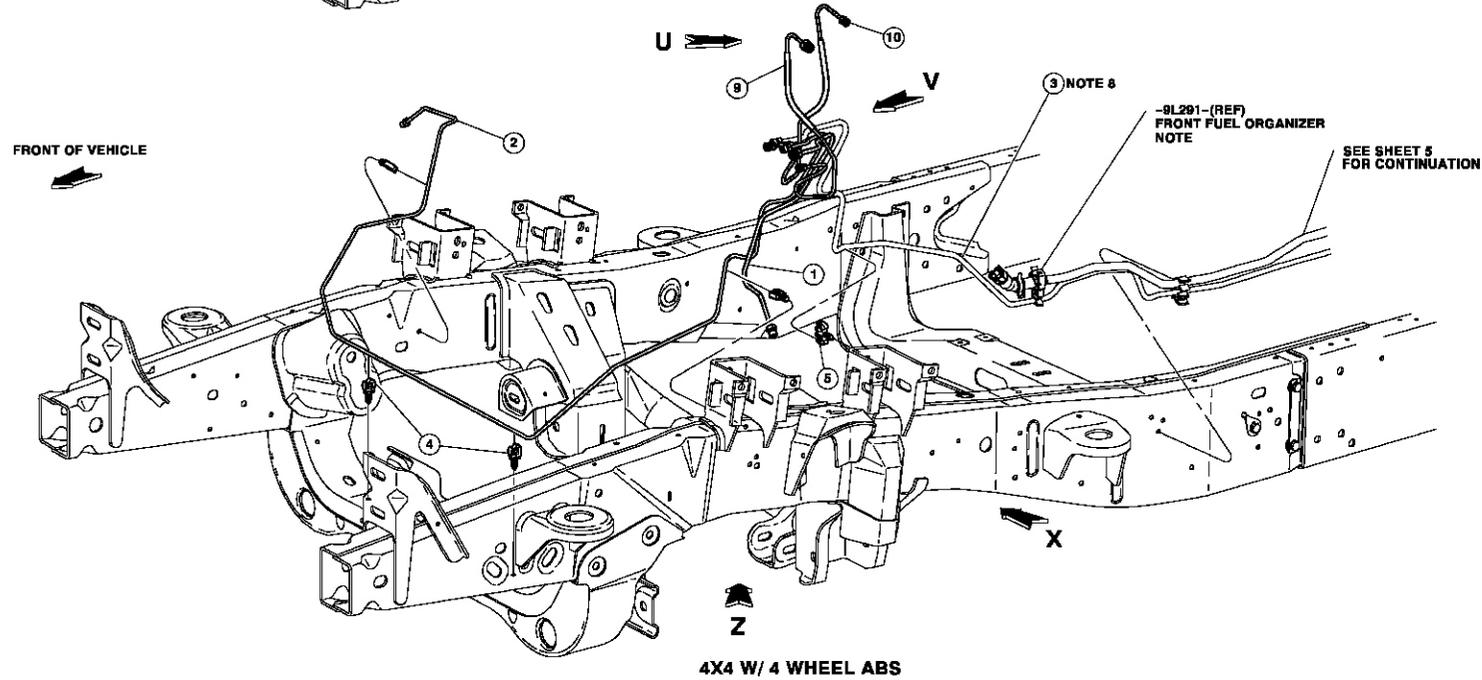
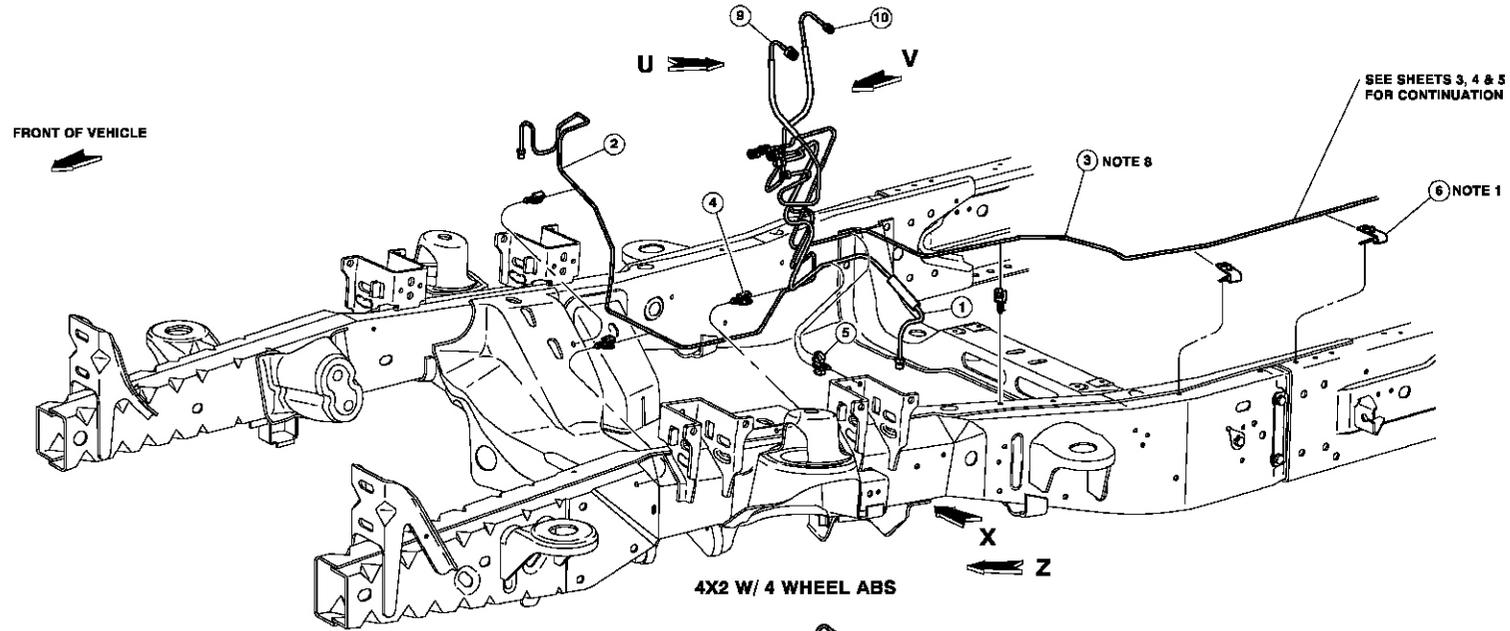


LTRS		REVISIONS		
ORIGINATOR	CHECKER	ENGR APP	MATL APP	
NL00E10809041		900228	CAD:Y	
MGUEST4	MGUEST4	RELEVER00		
NL00E10867082		900228	CAD:Y	
MGUEST4	MGUEST4	EMILLER4		
NL00E10857125		900228	CAD:Y	
MGUEST4	MGUEST4	EMILLER4		
NL00E10939040		900228	CAD:Y	
MGUEST4	MGUEST4	TCARTY1		
WAS SHEET 11 OF 18				
NL00-E-11417488-000				
NL00-E-11001238-058				
JBTREU	JBTREU	ASAF4	CAD:Y	

REFERENCE				DEPT# V310	
PART MUST COMPLY WITH MATERIAL SPECIFICATION WSS-M99P9999-A1 TO HELP SAFEGUARD HEALTH, SAFETY AND THE ENVIRONMENT					
DRAFTED IN ACCORDANCE WITH FORD MOTOR COMPANY ENGINEERING CAD AND DRAFTING STANDARDS CURRENT AT INITIAL RELEASE				3RD ANGLE PROJ DIMENSIONS ARE IN MILLIMETERS	
CAD TYPE	CAD LOC.	CAD FILE	DTMC IS MASTER		
ATROL	METAPH	IL-3L34-060600-001-000.dg			
OPER. NO.	UNIT	DRAWING	DATA		
N/A	N/A	IL-3L34-060600-001			
DESIGN	DETAIL	TITLE	SHT 08 OF 15		
DWASHB02	N/A	BRAKE LINES			
CHECKED	SAFETY				
DWASHB02	N/A				
SCALE	DATE	DIVISION	PLANT		
N/A	020827				

*Ford Motor Company*

# TRUCK CHASSIS INSTALLATION MANUAL

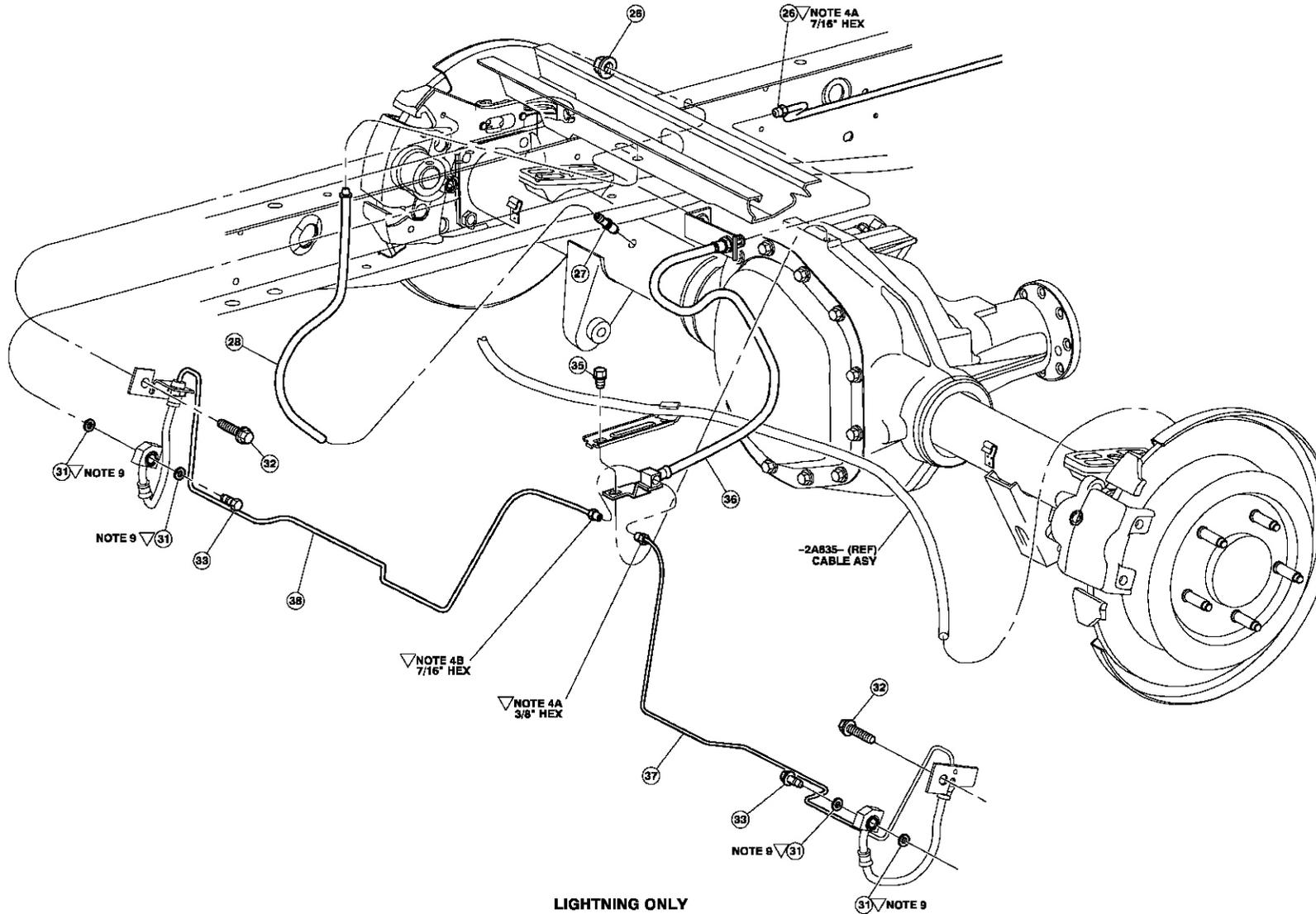


NOTE: ORGANIZER ASY (BRAKE-TUBES) ARE IDENTICAL FOR 4X2 AND 4X4.

LTRS		REVISIONS		
ORIGINATOR	CHECKER	ENGR APP	MATL APP	
NL00E10809041		900228	CAD-Y	
MGUEST4	MGUEST4	RELEVER00		
NL00E10867082		900228	CAD-Y	
MGUEST4	MGUEST4	EMILLER4		
NL00E10857125		900228	CAD-Y	
MGUEST4	MGUEST4	EMILLER4		
NL00E10939040		900228	CAD-Y	
MGUEST4	MGUEST4	TCARTY1		
RE-ROUTED ITEM #1 IN BOTH VIEWS				
NL00E10680338-000		900708	CAD-Y	
MRILEY5	MRILEY5	TCARTY1		
REVISED ITEM #2				
NL00-E-11017484		900703	CAD-Y	
MRILEY5	MRILEY5	ADEIDRC		
WAS SHEET 02 OF 18				
NL00-E-11417480-000				
NL00-E-11001238-058		030305	CAD-Y	
JSTREU	JSTREU	ASAF4		

REFERENCE		DEPT# V210	
PART MUST COMPLY WITH MATERIAL SPECIFICATION WSS-M99P9599-A1 TO HELP SAFEGUARD HEALTH, SAFETY AND THE ENVIRONMENT			
DRAFTED IN ACCORDANCE WITH FORD MOTOR COMPANY ENGINEERING CAD AND DRAFTING STANDARDS CURRENT AT INITIAL RELEASE		3RD ANGLE PROJ DIMENSIONS ARE IN MILLIMETERS	
CAD TYPE	CAD LOC.	CAD FILE	DTMC IS MASTER
ATROL	METAPH	IL-3L34-060600-001-002.dg	
OPER. NO.	UNIT	DRAWING	DATA
N/A	N/A	IL-3L34-060600-001	
DESIGN	DETAIL	TITLE	SHT 02 OF 18
DWASHBU2	N/A	BRAKE LINES	
CHECKED	SAFETY		
DWASHBU2	N/A		
SCALE	DATE	DIVISION	PLANT
N/A	020827		
<i>Ford Motor Company</i>			

# TRUCK CHASSIS INSTALLATION MANUAL

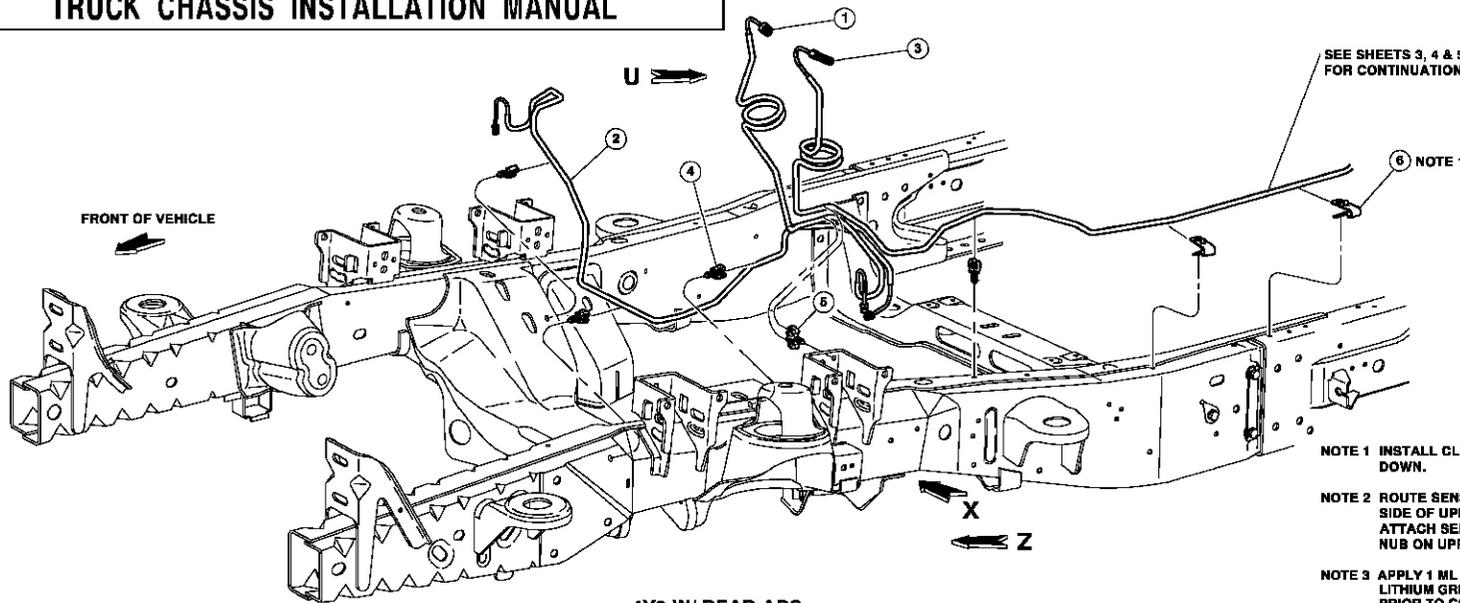


**LIGHTNING ONLY**

LTRS		REVISIONS		
ORIGINATOR	CHECKER	ENGR APP	MATL APP	
NLD0E10809041		800228	CAD:Y	
MGUEST4	MGUEST4	RELEVER00		
NLD0E10867082		800228	CAD:Y	
MGUEST4	MGUEST4	EMILLER4		
NLD0E10837125		800228	CAD:Y	
MGUEST4	MGUEST4	EMILLER4		
NLD0E10939040		800228	CAD:Y	
MGUEST4	MGUEST4	TCARTY1		
WAS SHEETS 07 OF 15				
NLD0-E-11417480-000				
NLD0-E-11001238-058		000305	CAD:Y	
JSTREU	JSTREU	ASAF4		

REFERENCE		DEPT# V316	
PART MUST COMPLY WITH MATERIAL SPECIFICATION WSS-M99P9999-A1 TO HELP SAFEGUARD HEALTH, SAFETY AND THE ENVIRONMENT			
DRAFTED IN ACCORDANCE WITH FORD MOTOR COMPANY ENGINEERING CAD AND DRAFTING STANDARDS CURRENT AT INITIAL RELEASE		3RD ANGLE PROJ DIMENSIONS ARE IN MILLIMETERS	
CAD TYPE	CAD LOC.	CAD FILE	DTMC IS MASTER
ATROL	METAPH	IL-3L34-060600-001-007.dg	
OPER. NO.	UNIT	DRAWING	DATA
N/A	N/A	IL-3L34-060600-001	
DESIGN	DETAIL	TITLE	SHT 07 OF 15
DWASHBL02	N/A	BRAKE LINES	
CHECKED	SAFETY		
DWASHBL02	N/A		
SCALE	DATE	DIVISION	
N/A	020827	PLANT	
<i>Ford Motor Company</i>			

# TRUCK CHASSIS INSTALLATION MANUAL



4X2 W/ REAR ABS  
PN96 ONLY

- NOTE 1 INSTALL CLIP WITH LOOP POINTING DOWN.
- NOTE 2 ROUTE SENSOR WIRE ON OUTBOARD SIDE OF UPPER CONTROL ARM. ATTACH SENSOR CLIP TO OUTBOARD NUB ON UPPER CONTROL ARM.
- NOTE 3 APPLY 1 ML OF WSB-M1C239-A LITHIUM GREASE TO SENSOR CAVITY PRIOR TO CONNECTOR HOOK-UP.

▽ NOTE 4 UNLESS OTHERWISE SPECIFIED TIGHTEN ALL HYDRAULIC TUBE CONNECTIONS AS FOLLOWS:

A	3/8-24 THREAD	17.0 +/- 3.0 NM
B	7/16-24 THREAD	17.0 +/- 3.0 NM
C	1/2-20 THREAD	23.0 +/- 3.0 NM
D	7/16-24 THREAD	22.5 +/- 3.4 NM
E	M10-1 THREAD	17.5 +/- 2.7 NM
F	M11-1.5 THREAD	17.5 +/- 2.7 NM
G	M12-1 THREAD	17.5 +/- 2.7 NM

▽ NOTE 5 TUBE MUST BE INSTALLED 79 +/- 7° CLOCKWISE FROM BORE AXIS OF MASTER CYLINDER AS VIEWED FROM RIGHT SIDE OF VEHICLE (PRIMARY OUTLET PORT). PN96 ONLY.

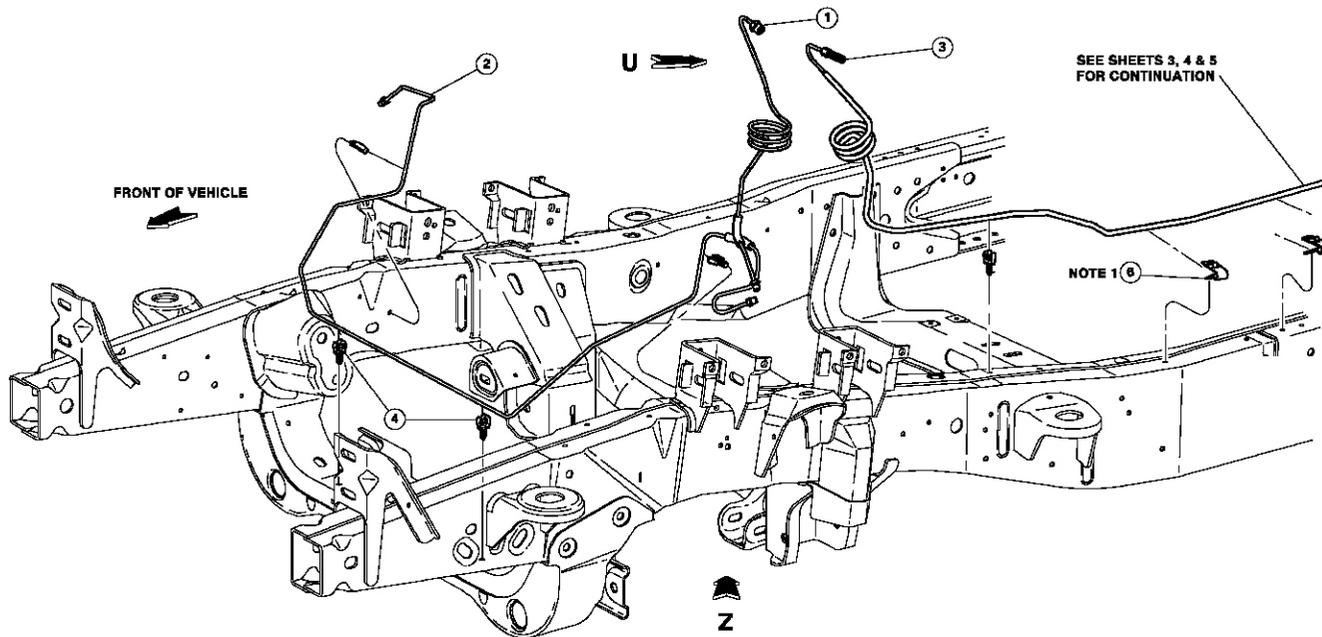
▽ NOTE 6 TUBE MUST BE INSTALLED 64 +/- 7° CLOCKWISE FROM BORE AXIS OF MASTER CYLINDER AS VIEWED FROM RIGHT SIDE OF VEHICLE (SECONDARY OUTLET PORT). PN96 ONLY.

▽ NOTE 7 AFTER TORQUING TUBE NUTS FOR BRAKE TUBE ASY'S 9 & 10 (VIEW T) THE ANGULAR ALIGNMENT OF THE TUBE ASY'S MUST CONFORM TO ANGLES SHOWN RESPECTIVELY. VERIFY WITH CHECKING FIXTURE.

NOTE 8 FRONT BRAKE TUBE (-2B523-) PIA WITH FUEL ORGANIZER (-9L291-). UN93 ONLY

▽ NOTE 9 NO SUBSTITUTION ALLOWED AND 100% INSPECTION IS REQUIRED FOR PRESENCE OF PARTS.

▽ CONTROL ITEM - THE ▽ SYMBOL ALSO IDENTIFIES PRODUCT ENGINEERING DESIGNATED CRITICAL CHARACTERISTICS. THESE, AND ADDITIONAL CRITICAL CHARACTERISTICS IDENTIFIED BY PROCESS REVIEWS, MUST APPEAR ON THE Q3000 CONTROL PLAN (B) WHICH REQUIRE PRODUCT ENGINEERING APPROVAL.



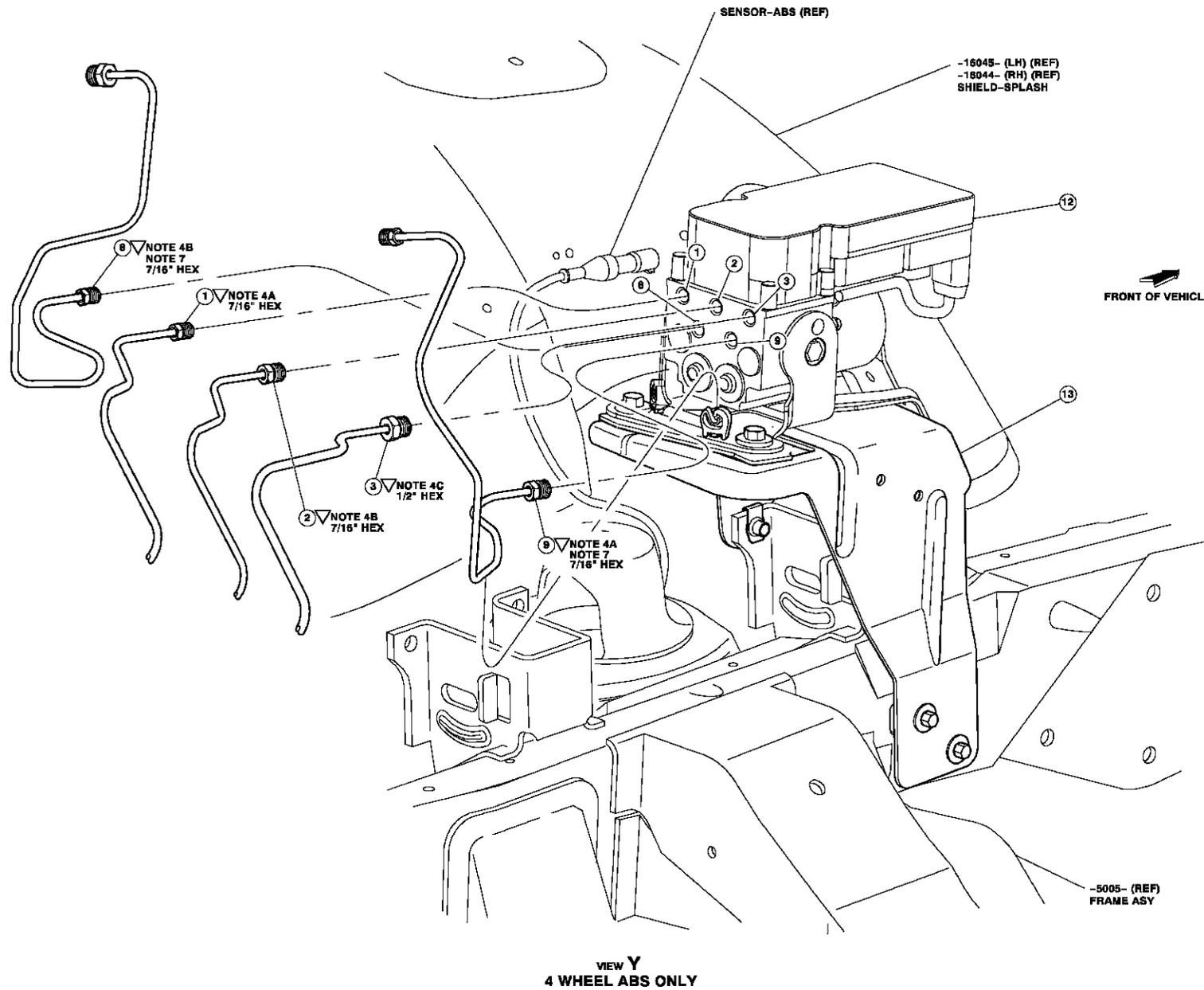
4X4 W/ REAR ABS  
PN96 ONLY

LTRS		REVISIONS		
ORIGINATOR	CHECKER	ENGR APP	MATL APP	
NL00E10809041		900228		CAD-Y
MQUEST4	MQUEST4	RILEYRD		
NL00E10867082		900228		CAD-Y
MQUEST4	MQUEST4	EMILLER4		
NL00E10857125		900228		CAD-Y
MQUEST4	MQUEST4	EMILLER4		
NL00E10939040		900228		CAD-Y
MQUEST4	MQUEST4	TCARTY1		
REVISED ITEM #2				
NL00-E-11017484		000703		CAD-Y
MRILEY5	MRILEY5	ADEIDRC		
ADDED NOTE 40				
NL00-E-11002275		000706		CAD-Y
MRILEY5	MRILEY5	CGLARGO1		
WAS SHEETS 01 OF 19				
NL00-E-11417489-000				
NL00-E-11001238-000		030305		CAD-Y
JSTREU	JSTREU	ASAF4		

REFERENCE		DEPT# V310	
PART MUST COMPLY WITH MATERIAL SPECIFICATION WSS-M99P9999-A1 TO HELP SAFEGUARD HEALTH, SAFETY AND THE ENVIRONMENT			
DRAFTED IN ACCORDANCE WITH FORD MOTOR COMPANY ENGINEERING CAD AND DRAFTING STANDARDS CURRENT AT INITIAL RELEASE		3RD ANGLE PROJ DIMENSIONS ARE IN MILLIMETERS	
CAD TYPE	CAD LOC.	CAD FILE	DTMC IS MASTER
ATROL	METAPH	IL-3L34-060600-001.dg	
OPER. NO.	UNIT	DRAWING	DATA
N/A	N/A	▽ IL-3L34-060600-001	
DESIGN	DETAIL	TITLE	SHT 01 OF 15
DWASHBL02	N/A	BRAKE LINES	
CHECKED	SAFETY		
DWASHBL02	N/A		
SCALE	DATE	DIVISION	
N/A	020827	PLANT	
<i>Ford Motor Company</i>			

# TRUCK CHASSIS INSTALLATION MANUAL

LTRS		REVISIONS		
ORIGINATOR	CHECKER	ENGR APP	MATL APP	
NLD0E10809041		900228	CAD:Y	
MGUEST4	MGUEST4	RELEVER00		
NLD0E10867082		900228	CAD:Y	
MGUEST4	MGUEST4	EMILLER4		
NLD0E10857125		900228	CAD:Y	
MGUEST4	MGUEST4	EMILLER4		
NLD0E10939040		900228	CAD:Y	
MGUEST4	MGUEST4	TCARTY1		
WAS SHEET 12 OF 18				
NLD0-E-11417480-000				
NLD0-E-11001238-058		000005	CAD:Y	
J8TREU	J8TREU	ASABA		



REFERENCE		DEPT# V210	
PART MUST COMPLY WITH MATERIAL SPECIFICATION WSS-M99P9999-A1 TO HELP SAFEGUARD HEALTH, SAFETY AND THE ENVIRONMENT			
DRAFTED IN ACCORDANCE WITH FORD MOTOR COMPANY ENGINEERING CAD AND DRAFTING STANDARDS CURRENT AT INITIAL RELEASE			3RD ANGLE PROJ DIMENSIONS ARE IN MILLIMETERS
CAD TYPE	CAD LOC.	CAD FILE	DTMC IS MASTER
ATROL	METAPH	IL-3L34-060600-001-010.dg	
OPER. NO.	UNIT	DRAWING	DATA
N/A	N/A	IL-3L34-060600-001	
DESIGN	DETAIL	TITLE	SHT 10 OF 18
DWASHBL02	N/A	BRAKE LINES	
CHECKED	SAFETY		
DWASHBL2	N/A		
SCALE	DATE	DIVISION	PLANT
N/A	020827		

*Ford Motor Company*

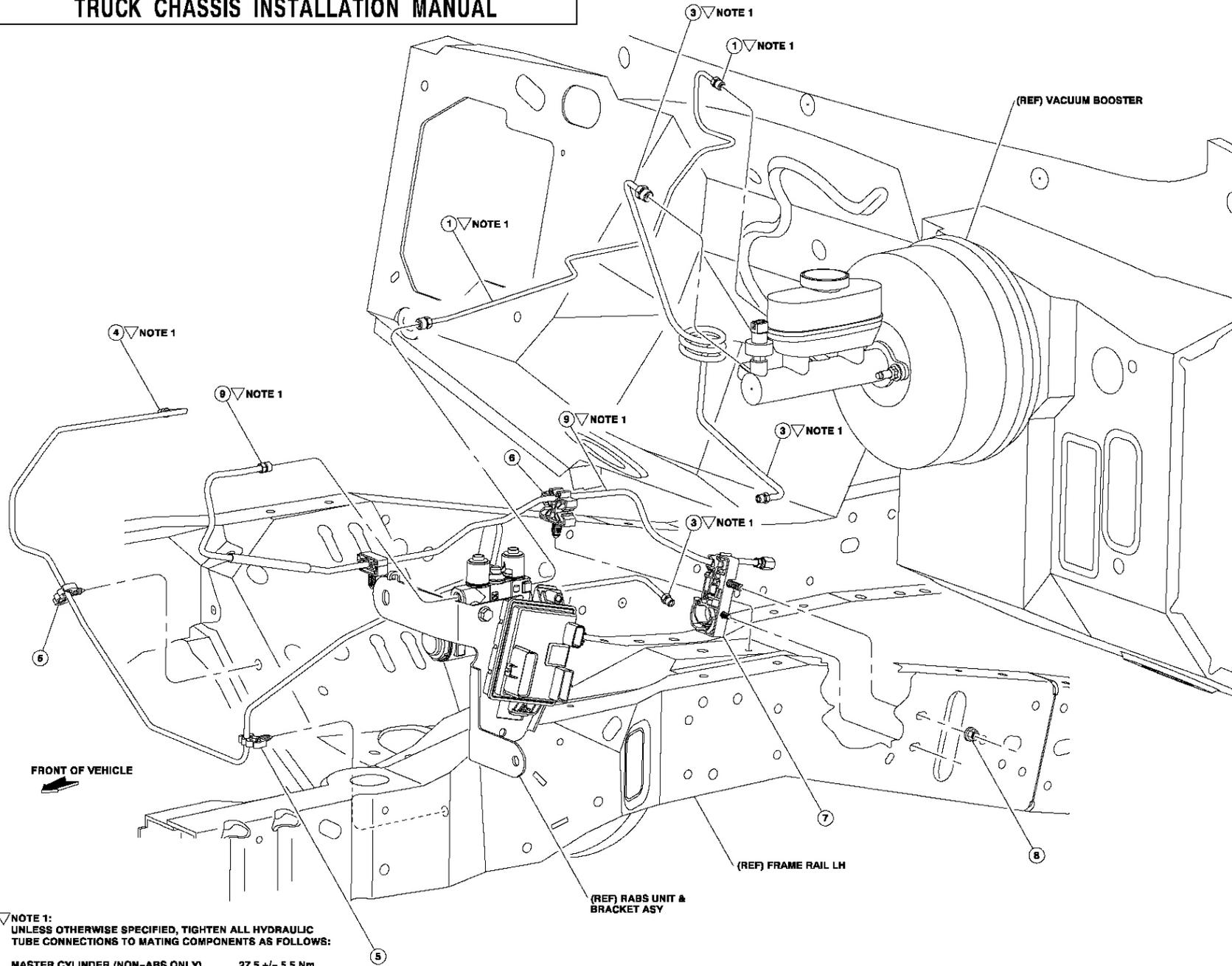
EA11-001

FORD

9-28-2011

Appendix L2

# TRUCK CHASSIS INSTALLATION MANUAL



**NOTE 1:**  
UNLESS OTHERWISE SPECIFIED, TIGHTEN ALL HYDRAULIC TUBE CONNECTIONS TO MATING COMPONENTS AS FOLLOWS:

MASTER CYLINDER (NON-ABS ONLY)	27.5 +/- 5.5 Nm
MASTER CYLINDER	20 +/- 4 Nm
ANTI-LOCK CONTROL MODULE	25 +/- 5 Nm
BRAKE HOSE	17.5 +/- 3.5 Nm
REAR BRAKE TUBE UNION	17.5 +/- 3.5 Nm

**NOTE 2:**  
POSITION SPECIFIED BRAKE TUBES ON VEHICLE PRIOR TO REMOVAL OF PROTECTIVE CAP. REMOVE CAP PRIOR TO FITTING CONNECTION.

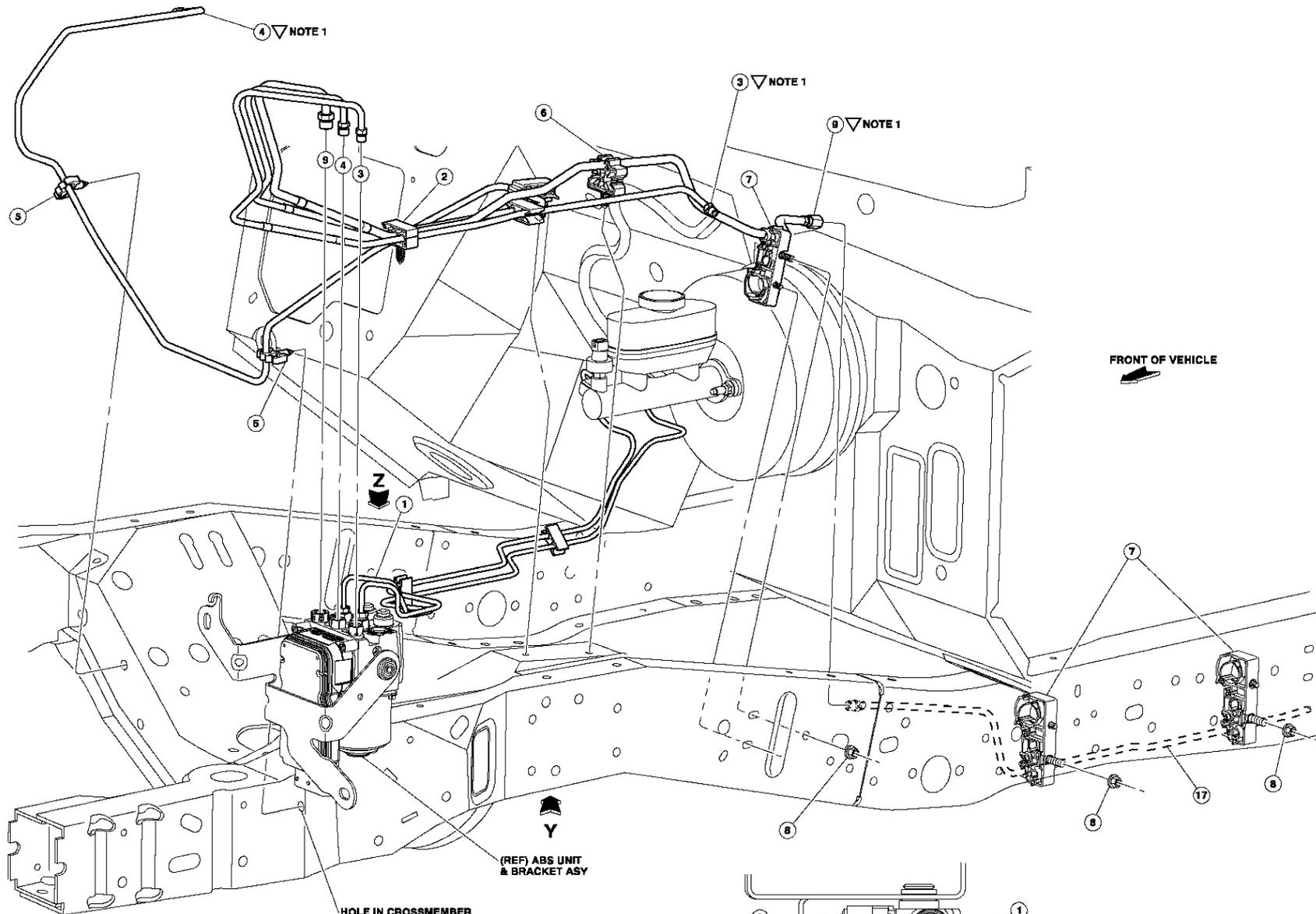
**VIEW-RABS**

**CONTROL ITEM - THE ALSO IDENTIFIER**  
CRITICAL CHARACTERISTICS DESIGNATED BY THE CROSS FUNCTIONAL TEAMS DEVELOPING THE PRODUCT, THESE, AND ADDITIONAL CRITICAL CHARACTERISTICS IDENTIFIED BY PROCESS REVIEWERS, MUST APPEAR ON THE CONTROL PLANS ACCORDING TO QS 9000. THESE CONTROL PLANS REQUIRE PRODUCT ENGINEERING APPROVAL.

LTRS.		REVISIONS			
DATE	ORIGINATOR	CHECKER	ENGR. APP.	MATL./FSTMR	
NL00-I-10652044					
NL00-I-10600664					
NL00-I-10579508					
000811	MRILEY6	EWAKEMAN			
TORQUE CHANGED ON ANTI-LOCK MODULE TO 20 Nm					
NL00-E-110542208					
000427	PKEW	MRILEY6			
TORQUE FOR MSTR CYL. WAS 25 +/- 5					
TORQUE FOR ANTI-LOCK CNTRL MOD. WAS 20					
NL00-E-00683612					
000811	MRILEY6	MRILEY6	PWILLI73		

DIST. CODE : 4		REFERENCE
PART MUST COMPLY WITH MATERIAL SPECIFICATION WSS-M90P9899-A1 TO HELP SAFEGUARD HEALTH, SAFETY AND THE ENVIRONMENT.		
SUBJECT TO CERTIFICATION/HOMOLOGATION YES <input type="checkbox"/> NO <input type="checkbox"/>		
CAD FILE		
CAD TYPE	X-ATROL	<b>PRODUCT ENGINEERING</b> 3rd ANGLE PROJECTION DIMENSIONS IN MILLIMETERS
D.C. NODE	N/A	
SCALE	N/A	
DEPT. NO.	W580	
ORIGINAL WHEN RED		DIMENSIONING & TOLERANCING IN ACCORDANCE WITH ANSI Y14.5M - 1982
MATERIAL/APPLICATION		
N.A./S.A. HVY-F SERIES - LD P131 & U137		
NAME	FRONT BRAKE LINES	SHT 06 OF 09
NO. ▽	IL-F81A-060600-L03	

# TRUCK CHASSIS INSTALLATION MANUAL

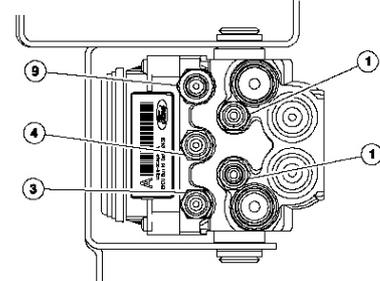


**NOTE 1:**  
UNLESS OTHERWISE SPECIFIED, TIGHTEN ALL HYDRAULIC TUBE CONNECTIONS TO MATING COMPONENTS AS FOLLOWS:

MASTER CYLINDER (NON-ABS ONLY)	27.5 +/- 5.5 Nm
MASTER CYLINDER	20 +/- 4 Nm
ANTI-LOCK CONTROL MODULE	25 +/- 5 Nm
BRAKE HOSE	17.5 +/- 3.5 Nm
REAR BRAKE TUBE UNION	17.5 +/- 3.5 Nm

**NOTE 2:**  
POSITION SPECIFIED BRAKE TUBES ON VEHICLE PRIOR TO REMOVAL OF PROTECTIVE CAP. REMOVE CAP PRIOR TO FITTING CONNECTION.

**VIEW - ABS**



**VIEW Z**

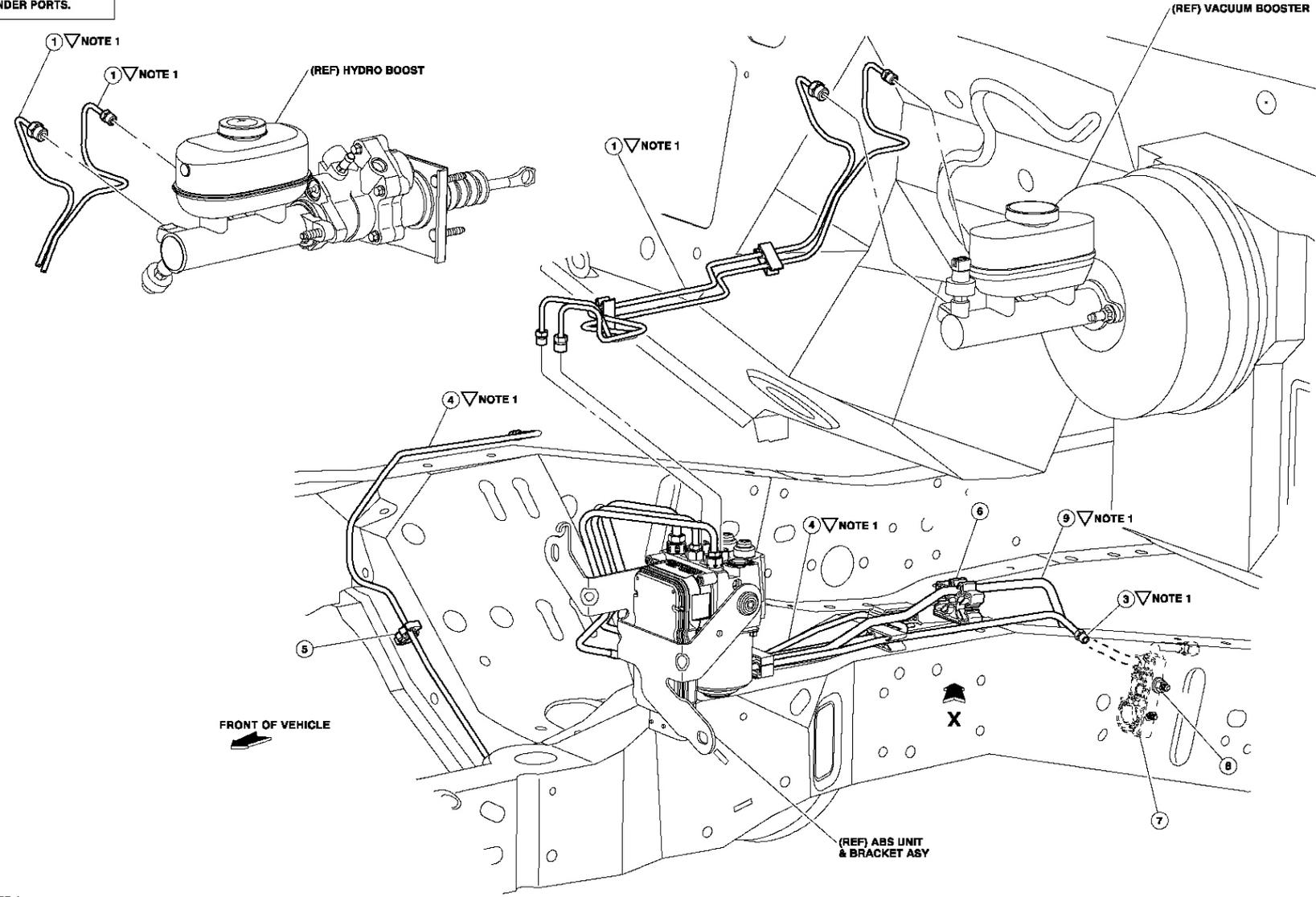
▽ CONTROL ITEM - THE ▽ SYMBOL ALSO IDENTIFIES PRODUCT ENGINEERING DESIGNATED CRITICAL CHARACTERISTICS. THESE, AND ADDITIONAL CRITICAL CHARACTERISTICS IDENTIFIED BY PROCESS REVIEWS, MUST APPEAR ON THE Q3000 CONTROL PLAN(S) WHICH REQUIRE PRODUCT ENGINEERING APPROVAL.

LTRS.		REVISIONS			
DATE	ORIGINATOR	CHECKER	ENGR. APP.	MATL / FSTMR	
NL00-I-10652044					
NL00-I-10609664					
NL00-I-10579509					
000811	MRILEY5	MRILEY5			
ITEMS 3, 4 & 9 REVISED					
NL00-E-109678780014					
000420	MRILEY5	MRILEY5	PREA1		
TORQUE CHANGED ON ANTI-LOCK CONTROL MODULE					
NL00-E-11054208					
000427	PKEW	MRILEY5			
TORQUE FOR MSTR CYL WAS 25 +/- 5					
TORQUE FOR ANIT-LOCK CNTRL MOD. WAS 20					
NL00-E-00893812					
000811	MRILEY5	MRILEY5	PWILU73		

DIST. CODE :		REFERENCE
PART MUST COMPLY WITH MATERIAL SPECIFICATION WSS-M90P9899-A1 TO HELP SAFEGUARD HEALTH, SAFETY AND THE ENVIRONMENT.		
SUBJECT TO CERTIFICATION / HOMOLOGATION YES <input type="checkbox"/> NO <input type="checkbox"/>		
CAD FILE		
CAD TYPE	X-ATROL	PRODUCT ENGINEERING
D.C. NODE	N/A	
SCALE	N/A	3rd ANGLE PROJECTION
DEPT. NO.	W580	DIMENSIONS IN MILLIMETERS
ORIGINAL WHEN RED		DIMENSIONING & TOLERANCING IN ACCORDANCE WITH ANSI Y14.5M - 1982
MATERIAL / APPLICATION		
N.A./S.A. HVY - F SERIES - LD P131 & U137		
NAME	FRONT BRAKE LINES	SHT 02 OF 08
NO. ▽	IL-F81A-060600-L03	

# TRUCK CHASSIS INSTALLATION MANUAL

**NOTE:**  
TUBES MUST BE FLEXED  
TO ALIGN WITH MASTER  
CYLINDER PORTS.



▽ NOTE 1:  
UNLESS OTHERWISE SPECIFIED, TIGHTEN ALL HYDRAULIC  
TUBE CONNECTIONS TO MATING COMPONENTS AS FOLLOWS:

MASTER CYLINDER (NON-ABS ONLY)	27.5 +/- 5.5 Nm
MASTER CYLINDER	20 +/- 4 Nm
ANTI-LOCK CONTROL MODULE	25 +/- 5 Nm
BRAKE HOSE	17.5 +/- 3.5 Nm
REAR BRAKE TUBE UNION	17.5 +/- 3.5 Nm

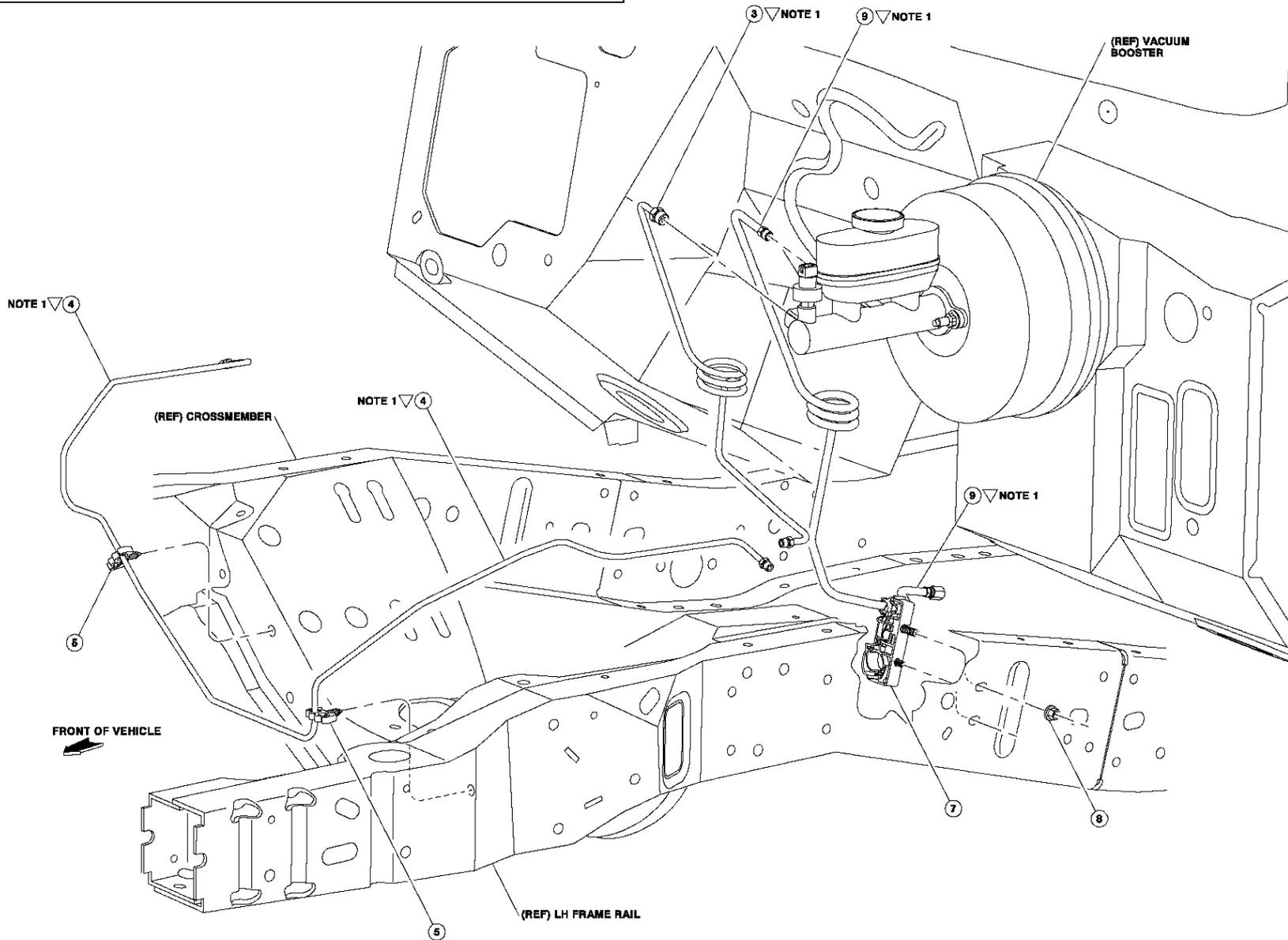
**NOTE 2:**  
POSITION SPECIFIED BRAKE TUBES ON VEHICLE PRIOR TO  
REMOVAL OF PROTECTIVE CAP. REMOVE CAP PRIOR TO  
FITTING CONNECTION.

▽ CONTROL ITEM - THE ▽ SYMBOL ALSO  
IDENTIFIES PRODUCT ENGINEERING DESIGNAT-  
ED CRITICAL CHARACTERISTICS. THESE, AND  
ADDITIONAL CRITICAL CHARACTERISTICS  
IDENTIFIED BY PROCESS REVIEWS, MUST AP-  
PEAR ON THE Q3000 CONTROL PLANS WHICH  
REQUIRE PRODUCT ENGINEERING APPROVAL.

LTRS.		REVISIONS			
DATE	ORIGINATOR	CHECKER	ENGR. APP.	MATL./FSTNR	
NL00-I-10652044					
NL00-I-10600664					
NL00-I-10579509					
000811	MRILEY5	MRILEY5			
ITEM 1 REVISED					
NL00-E-10967878-014					
000420	MRILEY5	MRILEY5	PREA1		
TORQUE CHANGED ON ANTI-LOCK CONTROL MODULE					
NL00-E-11054208					
000427	PKEW	MRILEY5			
TORQUE FOR MSTR CYL. WAS 25 +/- 5					
TORQUE FOR ANTI-LOCK CNTRL MOD. WAS 20					
NL00-E-00893812					
000811	MRILEY5	MRILEY5	PWILU73		

DIST. CODE :		REFERENDE
PART MUST COMPLY WITH MATERIAL SPECIFICATION WSS-M98P9899-A1 TO HELP SAFEGUARD HEALTH, SAFETY AND THE ENVIRONMENT.		
SUBJECT TO CERTIFICATION/HOMOLOGATION YES <input type="checkbox"/> NO <input type="checkbox"/>		
CAD FILE		
CAD TYPE	X-ATROL	PRODUCT ENGINEERING
D.C. NODE	N/A	
SCALE	N/A	3rd ANGLE PROJECTION
DEPT. NO.	W580	DIMENSIONS IN MILLIMETERS
ORIGINAL WHEN RED		DIMENSIONING & TOLERANCING IN ACCORDANCE WITH ANSI Y14.5M - 1982
MATERIAL/APPLICATION		
N.A./S.A. HVY - F SERIES - LD P131 & U137		
NAME	FRONT BRAKE LINES	SHT 03 OF 08
NO. ▽	IL-F81A-060600-L03	

# TRUCK CHASSIS INSTALLATION MANUAL



**NOTE 1:**  
UNLESS OTHERWISE SPECIFIED, TIGHTEN ALL HYDRAULIC TUBE CONNECTIONS TO MATING COMPONENTS AS FOLLOWS:

MASTER CYLINDER (NON-ABS ONLY)	27.5 +/- 5.5 Nm
MASTER CYLINDER	20 +/- 4 Nm
ANTI-LOCK CONTROL MODULE	25 +/- 5 Nm
BRAKE HOSE	17.5 +/- 3.5 Nm
REAR BRAKE TUBE UNION	17.5 +/- 3.5 Nm

**NOTE 2:**  
POSITION SPECIFIED BRAKE TUBES ON VEHICLE PRIOR TO REMOVAL OF PROTECTIVE CAP. REMOVE CAP PRIOR TO FITTING CONNECTION.

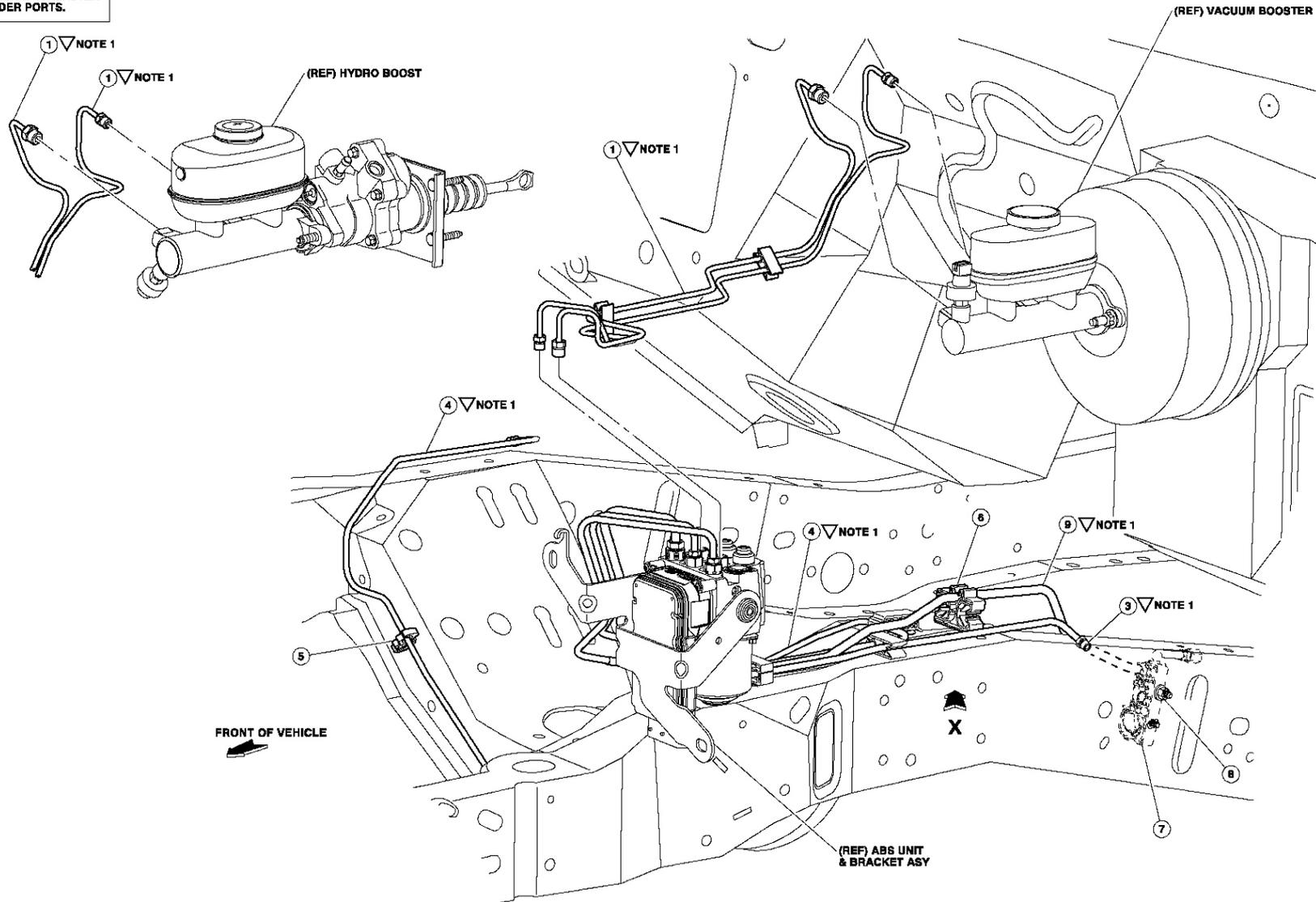
**VIEW-NON ABS**

▽ CONTROL ITEM - THE △ ALSO IDENTIFIES CRITICAL CHARACTERISTICS DESIGNATED BY THE CROSS FUNCTIONAL TEAMS DEVELOPING THE PRODUCT. THESE, AND ADDITIONAL CRITICAL CHARACTERISTICS IDENTIFIED BY PROCESS REVIEWS, MUST APPEAR ON THE CONTROL PLANS ACCORDING TO QS 9000. THESE CONTROL PLANS REQUIRE PRODUCT ENGINEERING APPROVAL.

LTRS.		REVISIONS			
DATE	ORIGINATOR	CHECKER	ENGR. APP.	MATL./FSTNR	
NL00-I-10652044					
NL00-I-10600664					
NL00-I-10579508					
000811	MRILEY6	EWAKEMAN			
TORQUE CHANGED ON ANTI-LOCK MODULE TO 20 Nm					
NL00-E-11054208					
000427	PKEW	MRILEY6			
TORQUE FOR MSTR CYL. WAS 25 +/- 5					
TORQUE FOR ANTI-LOCK CNTRL MOD. WAS 20					
NL00-E-00693612					
000811	MRILEY6	MRILEY6	PWILLI73		
REFERENDE					
DIST. CODE : 4					
PART MUST COMPLY WITH MATERIAL SPECIFICATION WSS-M90P9899-A1 TO HELP SAFEGUARD HEALTH, SAFETY AND THE ENVIRONMENT.					
SUBJECT TO CERTIFICATION /HOMOLOGATION YES <input type="checkbox"/> NO <input type="checkbox"/>					
CAD FILE					
CAD TYPE	X-ATROL	<b>PRODUCT ENGINEERING</b>			
D.C. NODE	N/A				
SCALE	N/A	3rd ANGLE PROJECTION			
DEPT. NO.	W580	DIMENSIONS IN MILLIMETERS			
ORIGINAL WHEN RED		DIMENSIONING & TOLERANCING IN ACCORDANCE WITH ANSI Y14.5M - 1982			
MATERIAL/APPLICATION					
N.A./S.A. HVY-F SERIES - LD P131 & U137					
NAME	FRONT BRAKE LINES				SHT 05 OF 08
NO. ▽	IL-F81A-060600-L03				

# TRUCK CHASSIS INSTALLATION MANUAL

**NOTE:**  
TUBES MUST BE FLEXED  
TO ALIGN WITH MASTER  
CYLINDER PORTS.



**NOTE 1:**  
UNLESS OTHERWISE SPECIFIED, TIGHTEN ALL HYDRAULIC  
TUBE CONNECTIONS TO MATING COMPONENTS AS FOLLOWS:

MASTER CYLINDER (NON-ABS ONLY)	27.5 +/- 5.5 Nm
MASTER CYLINDER	20 +/- 4 Nm
ANTI-LOCK CONTROL MODULE	25 +/- 5 Nm
BRAKE HOSE	17.5 +/- 3.5 Nm
REAR BRAKE TUBE UNION	17.5 +/- 3.5 Nm

**NOTE 2:**  
POSITION SPECIFIED BRAKE TUBES ON VEHICLE PRIOR TO  
REMOVAL OF PROTECTIVE CAP. REMOVE CAP PRIOR TO  
FITTING CONNECTION.

**VIEW Y**  
**VIEW - ABS**

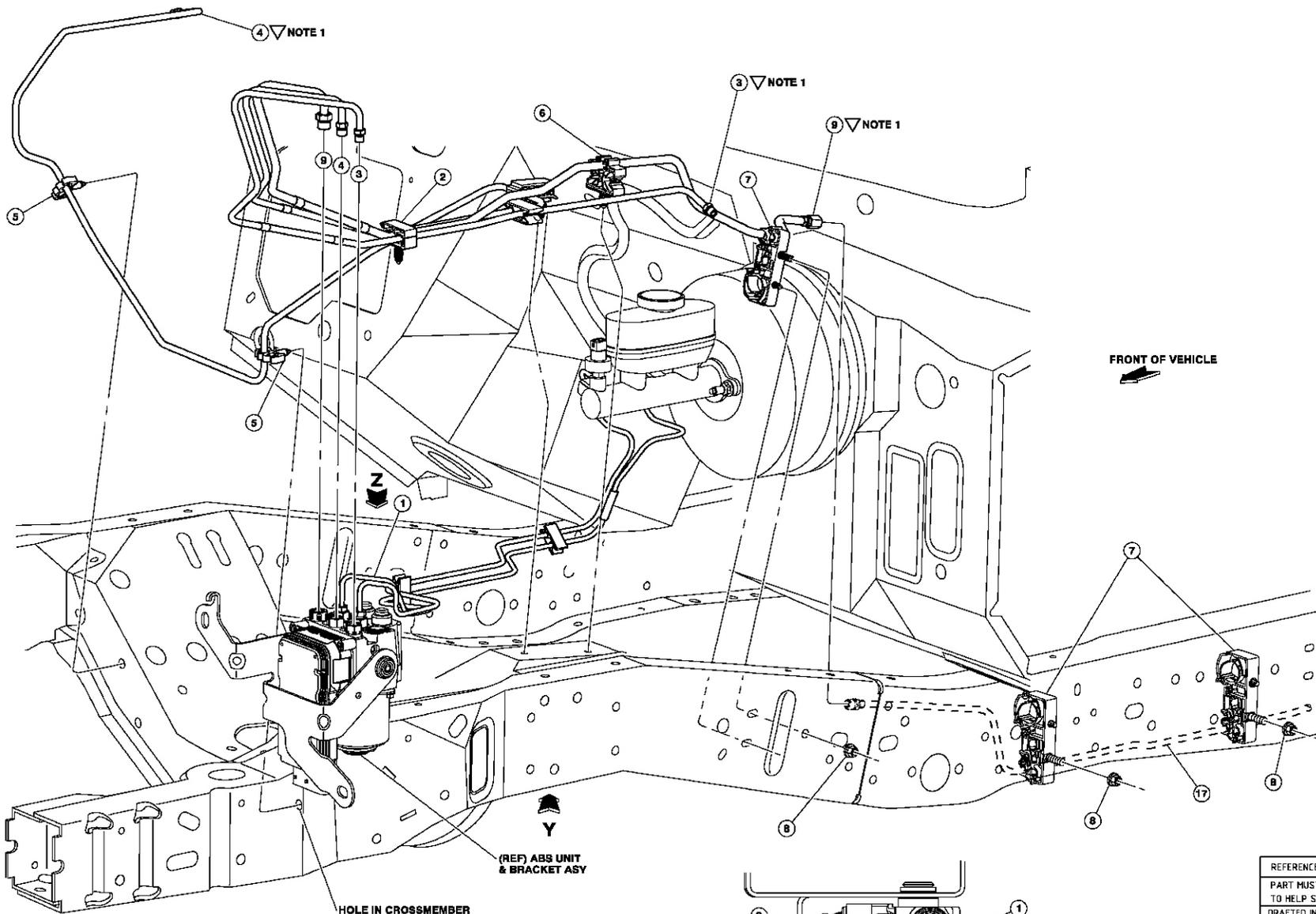
▽ CONTROL ITEM - THE ▽ SYMBOL ALSO  
IDENTIFIES PRODUCT ENGINEERING DESIGNAT-  
ED CRITICAL CHARACTERISTICS. THERE, AND  
ADDITIONAL CRITICAL CHARACTERISTICS  
IDENTIFIED BY PROCESS REVIEW, MUST AP-  
PEAR ON THE Q6000 CONTROL PLAN(S) WHICH  
REQUIRE PRODUCT ENGINEERING APPROVAL.

LTRS.		REVISIONS			
DATE	ORIGINATOR	CHECKER	ENGR. APP.	MATL./FSTNR	
NL00-I-10652044					
NL00-I-10609664					
NL00-I-10575508					
000811	MRILEY5	MRILEY5			
ITEM 1 REVISED					
NL00-E-10967878-014					
000420	MRILEY5	MRILEY5	PREA1		
TORQUE CHANGED ON ANTI-LOCK CONTROL MODULE					
NL00-E-11064208					
000427	PKEW	MRILEY6			
TORQUE FOR MSTR CYL. WAS 25 +/- 5					
TORQUE FOR ANTI-LOCK CNTRL MOD. WAS 20					
NL00-E-00893812					
000811	MRILEY5	MRILEY5	PWILLI73		

DIST. CODE :		REFERENCE
PART MUST COMPLY WITH MATERIAL SPECIFICATION WSS-M98P9899-A1 TO HELP SAFEGUARD HEALTH, SAFETY AND THE ENVIRONMENT.		
SUBJECT TO CERTIFICATION/HOMOLOGATION YES <input type="checkbox"/> NO <input type="checkbox"/>		
CAD FILE		
CAD TYPE	X-ATROL	PRODUCT ENGINEERING
D.C. NODE	N/A	
SCALE	N/A	3 <sup>rd</sup> ANGLE PROJECTION
DEPT. NO.	W580	DIMENSIONS IN MILLIMETERS
DIMENSIONING & TOLERANCING IN ACCORDANCE WITH ANSI Y14.5M - 1982		
ORIGINAL WHEN RED		
MATERIAL/APPLICATION		
N.A./S.A. HVY - F SERIES - LD P131 & U137		
NAME	FRONT BRAKE LINES	SHT 03 OF 08
NO. ▽	IL-F81A-060600-L03	

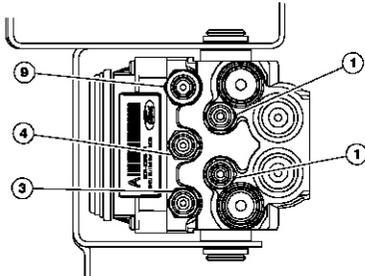
# TRUCK CHASSIS INSTALLATION MANUAL

REVISIONS			
ORIGINATOR	CHECKER	ENGR APP	MATL APP
TORQUE FOR MSTR CYL. WAS 25 +/- 5 TORQUE FOR ANTI-LOCK CNTRL MOD. WAS 20 NLOO-E-00883612 000611 CAD:Y			
M RILEYS	M RILEYS	P WILLIAMS	
ITEM 1 REVISED NLOO-E-11583700-000 040910 CAD:Y			
JSTREU	JSTREU	JHUANG	



FRONT OF VEHICLE  
➔

VIEW - ABS



VIEW Z

NOTE 1:  
UNLESS OTHERWISE SPECIFIED, TIGHTEN ALL HYDRAULIC  
TUBE CONNECTIONS TO MATING COMPONENTS AS FOLLOWS:

MASTER CYLINDER (NON-ABS ONLY)	27.5 +/- 5.5 Nm
MASTER CYLINDER	20 +/- 4 Nm
ANTI-LOCK CONTROL MODULE	25 +/- 5 Nm
BRAKE HOSE	17.5 +/- 3.5 Nm
REAR BRAKE TUBE UNION	17.5 +/- 3.5 Nm

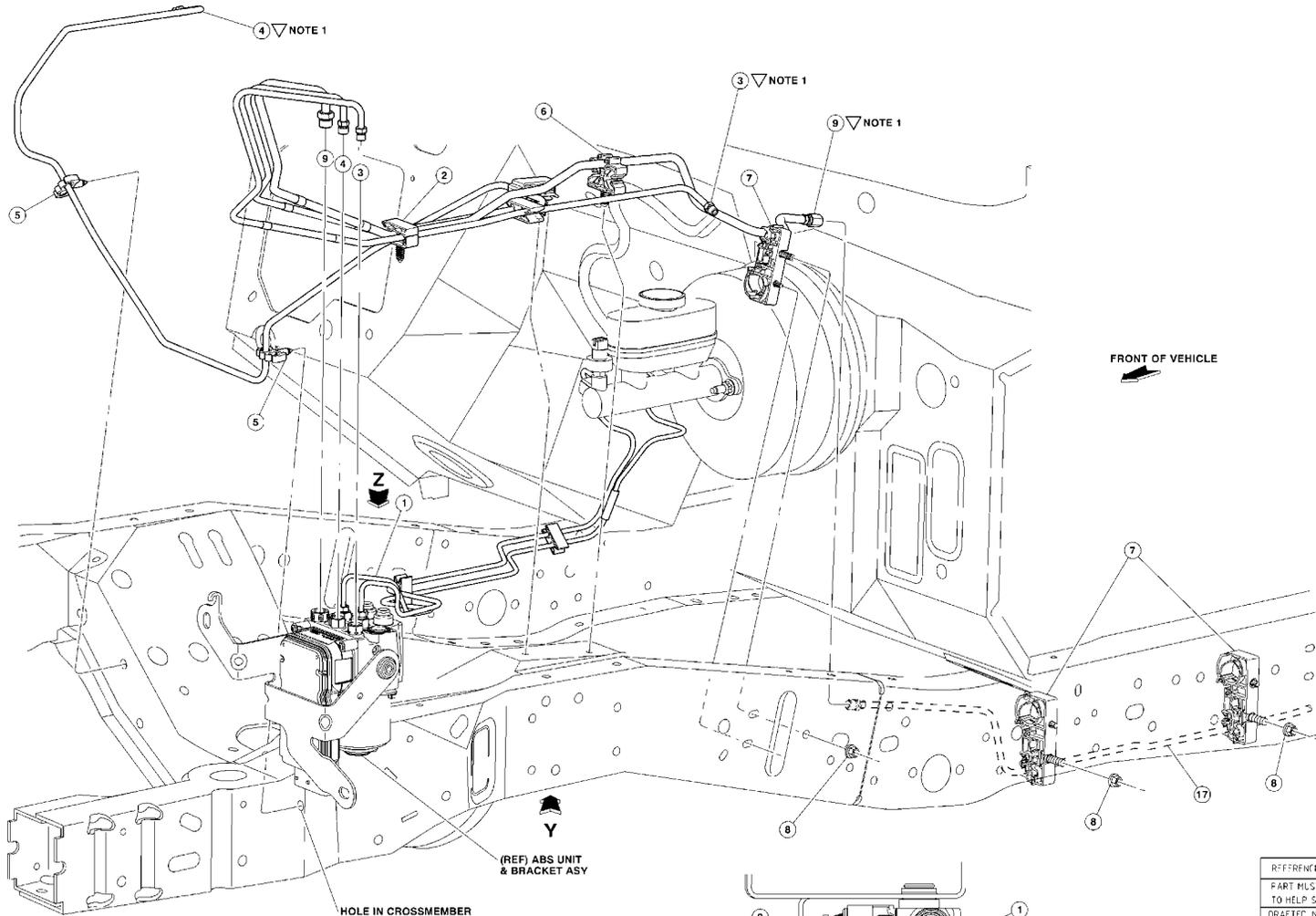
NOTE 2:  
POSITION SPECIFIED BRAKE TUBES ON VEHICLE PRIOR TO  
REMOVAL OF PROTECTIVE CAP. REMOVE CAP PRIOR TO  
FITTING CONNECTION.

CONTROL ITEM - THE ▽ SYMBOL ALSO  
IDENTIFIES PRODUCT ENGINEERING DESIGNATED  
CRITICAL CHARACTERISTICS. THESE, AND  
ADDITIONAL CRITICAL CHARACTERISTICS  
IDENTIFIED BY PROCESS REVIEWS, MUST AP-  
PEAR ON THE Q9000 CONTROL PLAN(S) WHICH  
REQUIRE PRODUCT ENGINEERING APPROVAL.

REFERENCE				DEPT# V210	
PART MUST COMPLY WITH MATERIAL SPECIFICATION WSS-M99P9999-A1 TO HELP SAFEGUARD HEALTH, SAFETY AND THE ENVIRONMENT					
DRAFTED IN ACCORDANCE WITH FORD MOTOR COMPANY ENGINEERING CAD AND DRAFTING STANDARDS CURRENT AT INITIAL RELEASE				3RD ANGLE PROJ DIMENSIONS ARE IN MILLIMETERS	
CAD TYPE	CAD LOC.	CAD FILE		DTMC	IS MASTER
ATROL	METAPH	IL-3C34-060600-L03-D02			
OPER. NO.	UNIT	DRAWING	▽IL-3C34-060600-L03	DATA	
N/A	N/A				
DESIGN	DETAIL	TITLE	P131A127	SHT	02
M RILEYS	N/A	FRONT BRAKE LINES		OF	05
CHECKED	SAFETY				
M RILEYS	N/A				
SCALE	DATE	DIVISION			
N/A	020012	PLANT			
<i>Ford Motor Company</i>					

# TRUCK CHASSIS INSTALLATION MANUAL

LTRS		REVISIONS	
ORIGINATOR	CHECKER	ENGR APP	MATL APP
TORQUE FOR MSTR CYL WAS 25 +/- 5 TORQUE FOR ANTI-LOCK CNTRL MOD WAS 20 N100-E-0089912			
MRILEYS	MRILEYS	PWILLI73	CAD:Y
ITEM 1 REVISED		040910	CAD:Y
N100-E-11583790-000			
JSTREU	JSTREU	JHUANG	

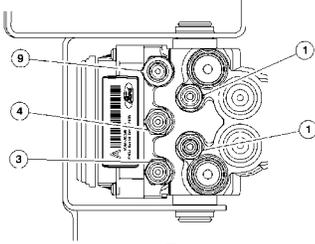


**NOTE 1:**  
UNLESS OTHERWISE SPECIFIED, TIGHTEN ALL HYDRAULIC TUBE CONNECTIONS TO MATING COMPONENTS AS FOLLOWS:

MASTER CYLINDER (NON-ABS ONLY)	27.5 +/- 5.5 Nm
MASTER CYLINDER	20 +/- 4 Nm
ANTI-LOCK CONTROL MODULE	25 +/- 5 Nm
BRAKE HOSE	17.5 +/- 3.5 Nm
REAR BRAKE TUBE UNION	17.5 +/- 3.5 Nm

**NOTE 2:**  
POSITION SPECIFIED BRAKE TUBES ON VEHICLE PRIOR TO REMOVAL OF PROTECTIVE CAP. REMOVE CAP PRIOR TO FITTING CONNECTION.

**VIEW - ABS**



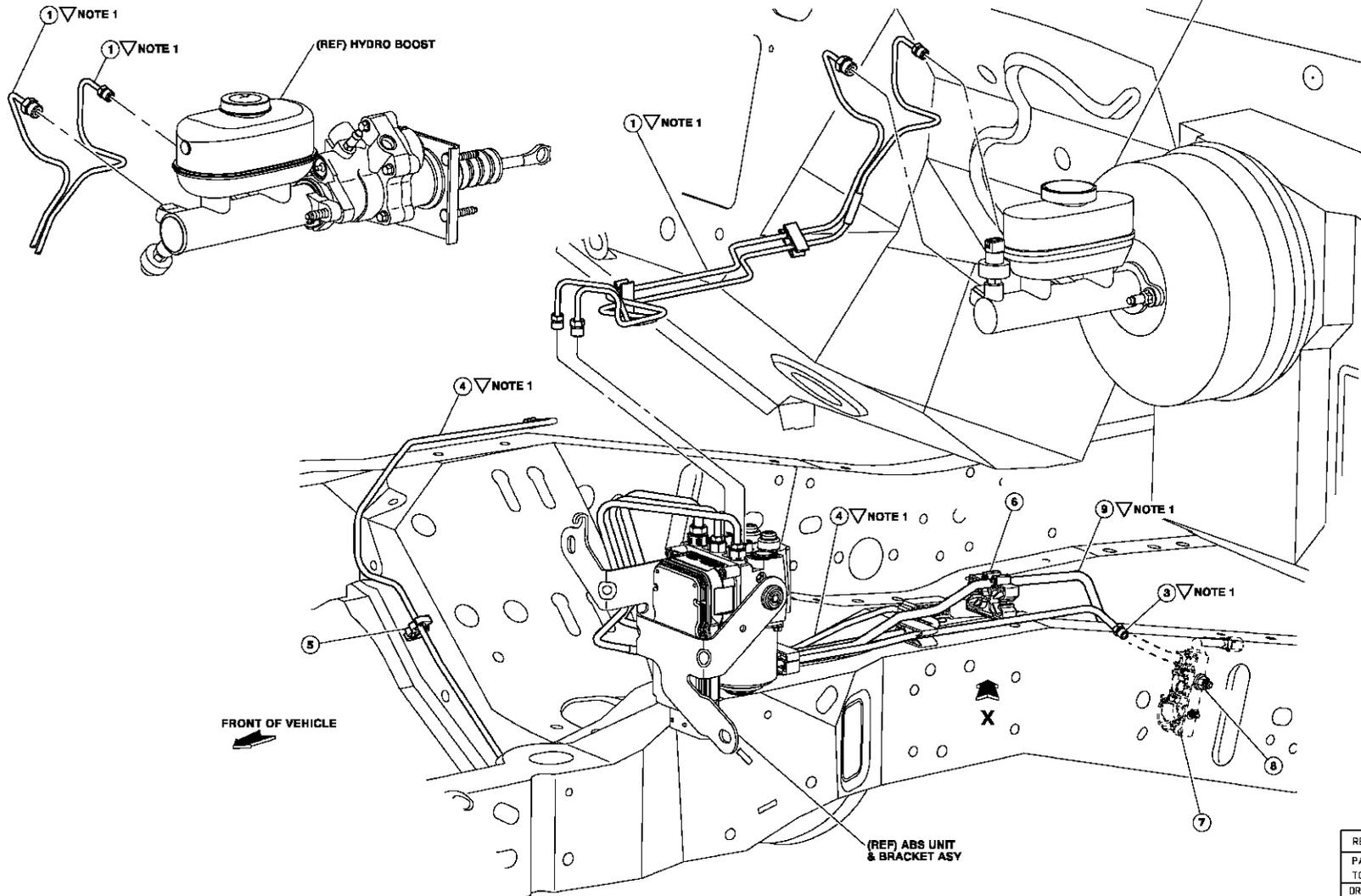
**VIEW Z**

**CONTROL ITEM - THE ▽ SYMBOL ALSO IDENTIFIES PRODUCT ENGINEERING DESIGNATED CRITICAL CHARACTERISTICS. THESE AND ADDITIONAL CRITICAL CHARACTERISTICS IDENTIFIED BY PROCESS REVIEWS MUST APPEAR ON THE Q3000 CONTROL PLAN(S) WHICH REQUIRE PRODUCT ENGINEERING APPROVAL.**

REFERENCE		DEPTH V315	
PART MUST COMPLY WITH MATERIAL SPECIFICATION WSS-Y99P959-A1 TO HELP SAFEGUARD HEALTH, SAFETY AND THE ENVIRONMENT			
DRAFTED IN ACCORDANCE WITH FORD MOTOR COMPANY ENGINEERING CAD AND DRAFTING STANDARDS CURRENT AT INITIAL RELEASE		3RD ANGLE PROJ DIMENSIONS ARE IN MILLIMETERS	
CAD TYPE: ATROL	CAD FILE: METAPH	CAD FILE: IL-3C34-060600-L03-002	DTMC IS MASTER
CPR. NO. N/A	UNIT N/A	DRAWING ▽IL-3C34-060600-L03	DATA
DESIGN MRILEYS	DETAIL N/A	TITLE P131/U137 FRONT BRAKE LINES	SHT 02 OF 09
CHECKED MRILEYS	SAFETY N/A		
SCALE: N/A	DATE: 020912	DNV:DN	P:ANT
<i>Ford Motor Company</i>			

# TRUCK CHASSIS INSTALLATION MANUAL

**NOTE:**  
TUBES MUST BE FLEXED  
TO ALIGN WITH MASTER  
CYLINDER PORTS.



**NOTE 1:**  
UNLESS OTHERWISE SPECIFIED, TIGHTEN ALL HYDRAULIC  
TUBE CONNECTIONS TO MATING COMPONENTS AS FOLLOWS:

MASTER CYLINDER (NON-ABS ONLY)	27.5 +/- 5.5 Nm
MASTER CYLINDER	20 +/- 4 Nm
ANTI-LOCK CONTROL MODULE	25 +/- 5 Nm
BRAKE HOSE	17.5 +/- 3.5 Nm
REAR BRAKE TUBE UNION	17.5 +/- 3.5 Nm

**NOTE 2:**  
POSITION SPECIFIED BRAKE TUBES ON VEHICLE PRIOR TO  
REMOVAL OF PROTECTIVE CAP. REMOVE CAP PRIOR TO  
FITTING CONNECTION.

VIEW Y  
VIEW - ABS

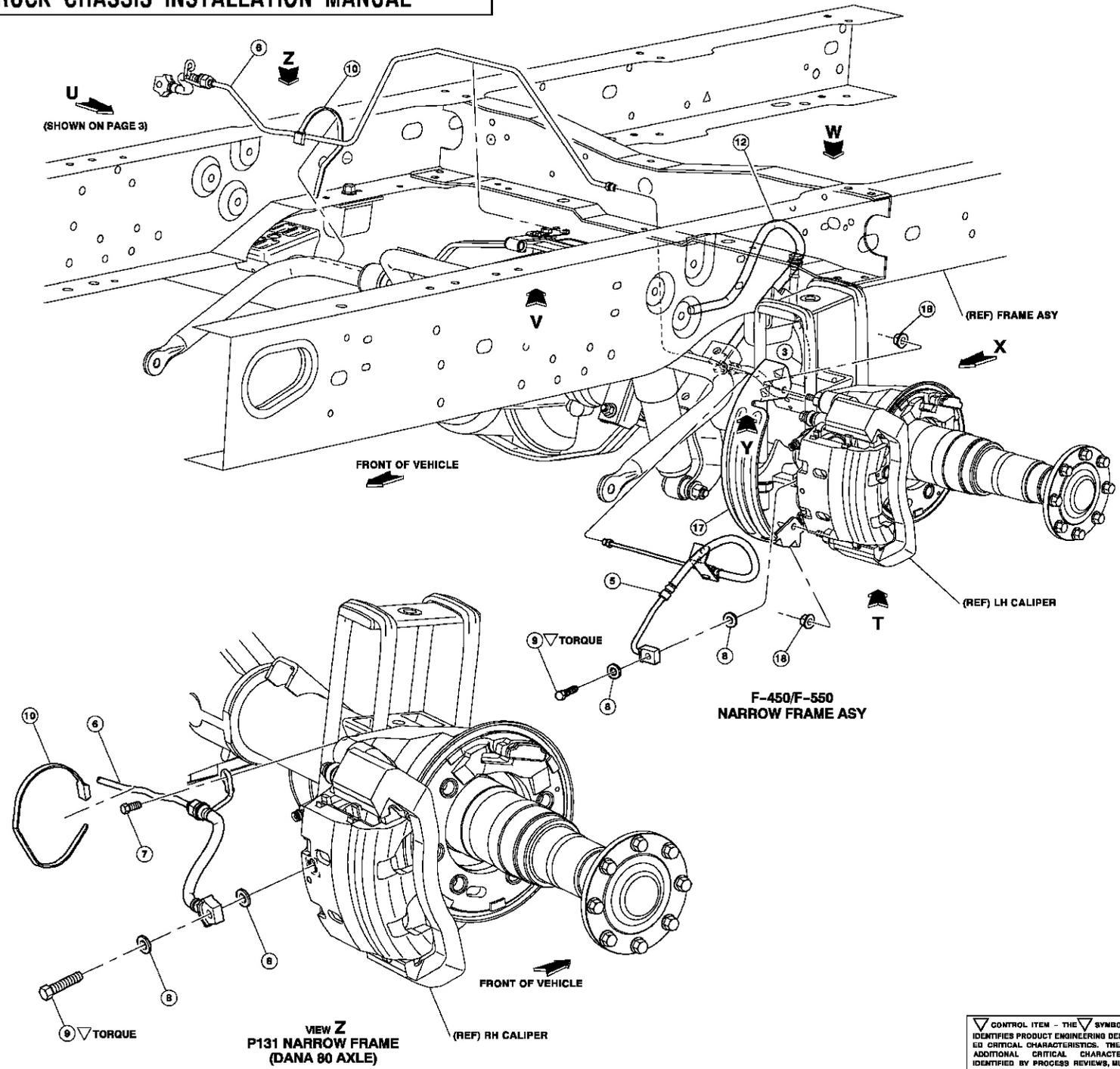
**CONTROL ITEM - THE SYMBOL ALSO IDENTIFIES PRODUCT ENGINEERING DESIGNATED CRITICAL CHARACTERISTICS. THESE, AND ADDITIONAL CRITICAL CHARACTERISTICS IDENTIFIED BY PROCESS REVIEWS, MUST APPEAR ON THE Q9000 CONTROL PLAN(S) WHICH REQUIRE PRODUCT ENGINEERING APPROVAL.**

LTRS		REVISIONS		
ORIGINATOR	CHECKER	ENGR APP	MATL APP	
TORQUE FOR MSTR CYL WAS 25 +/- 5				
TORQUE FOR ANTI-LOCK CNTRL MOD WAS 20				
NLOO-E-00883612		000611	CAD:Y	
MRILEYS	MRILEYS	PWILLI73		
ITEM 1 REVISED				
NLOO-E-11583700-000		040910	CAD:Y	
JSTREU	JSTREU	JHUANG		

REFERENCE		DEPT# V210	
PART MUST COMPLY WITH MATERIAL SPECIFICATION WSS-M99P9999-A1 TO HELP SAFEGUARD HEALTH, SAFETY AND THE ENVIRONMENT			
DRAFTED IN ACCORDANCE WITH FORD MOTOR COMPANY ENGINEERING CAD AND DRAFTING STANDARDS CURRENT AT INITIAL RELEASE		3RD ANGLE PROJ DIMENSIONS ARE IN MILLIMETERS	
CAD TYPE	CAD LOC.	CAD FILE	DTMC IS MASTER
ATROL	METAPH	IL-3C34-060600-L03-D03	
OPER. NO.	UNIT	DRAWING	DATA
N/A	N/A	∇IL-3C34-060600-L03	
DESIGN	DETAIL	TITLE	SHT 03 OF 05
MRILEYS	N/A	P131A127 FRONT BRAKE LINES	
CHECKED	SAFETY		
MRILEYS	N/A		
SCALE	DATE	DIVISION	
N/A	020012	PLANT	
<i>Ford Motor Company</i>			

# TRUCK CHASSIS INSTALLATION MANUAL

LTRS		REVISIONS		
ORIGINATOR	CHECKER	ENGR APP	MATL APP	
REVISED CALIPER & SHIELD HL00-E-10827780		002131	CAD-Y	
MRILEYS	MRILEYS	FBARB081		



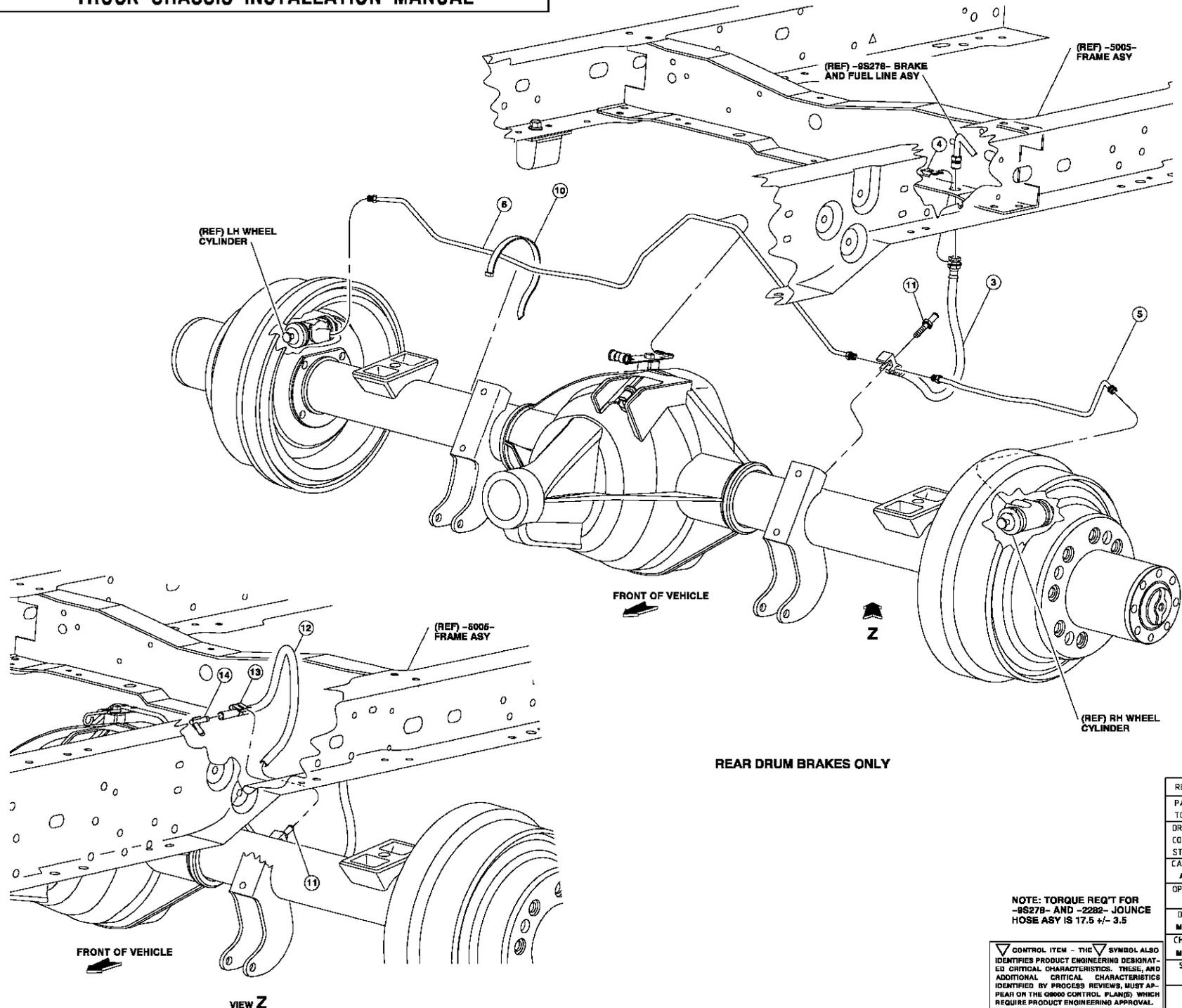
REFERENCE		DEPT# V216	
PART MUST COMPLY WITH MATERIAL SPECIFICATION WSS-M99P9999-A1 TO HELP SAFEGUARD HEALTH, SAFETY AND THE ENVIRONMENT			
DRAFTED IN ACCORDANCE WITH FORD MOTOR COMPANY ENGINEERING CAD AND DRAFTING STANDARDS CURRENT AT INITIAL RELEASE		3RD ANGLE PROJ DIMENSIONS ARE IN MILLIMETERS	
CAD TYPE	CAD LOC.	CAD FILE	DTMC IS MASTER
ATROL	METAPH	IL-3C34-060600-L02-D03	
OPER. NO.	UNIT	DRAWING	DATA
N/A	N/A	IL-3C34-060600-L02	
DESIGN	DETAIL	TITLE	SHT 03 OF 08
MRILEYS	N/A	P131A137 REAR BRAKE LINES	
CHECKED	SAFETY		
MRILEYS	N/A		
SCALE	DATE	DIVISION	
N/A	020200	PLANT	

▽ CONTROL ITEM - THE ▽ SYMBOL ALSO IDENTIFIES PRODUCT ENGINEERING DESIGNATED CRITICAL CHARACTERISTICS. THESE, AND ADDITIONAL CRITICAL CHARACTERISTICS IDENTIFIED BY PROCESS REVIEWS, MUST APPEAR ON THE 02000 CONTROL PLANS WHICH REQUIRE PRODUCT ENGINEERING APPROVAL.

*Ford Motor Company*

# TRUCK CHASSIS INSTALLATION MANUAL

LTRS		REVISIONS		
ORIGINATOR	CHECKER	ENGR APP	MATL APP	
REVISED TORQUE NOTE HL00-E-1108223		000602	CAD:Y	
KSKUBS	KSKUBS			



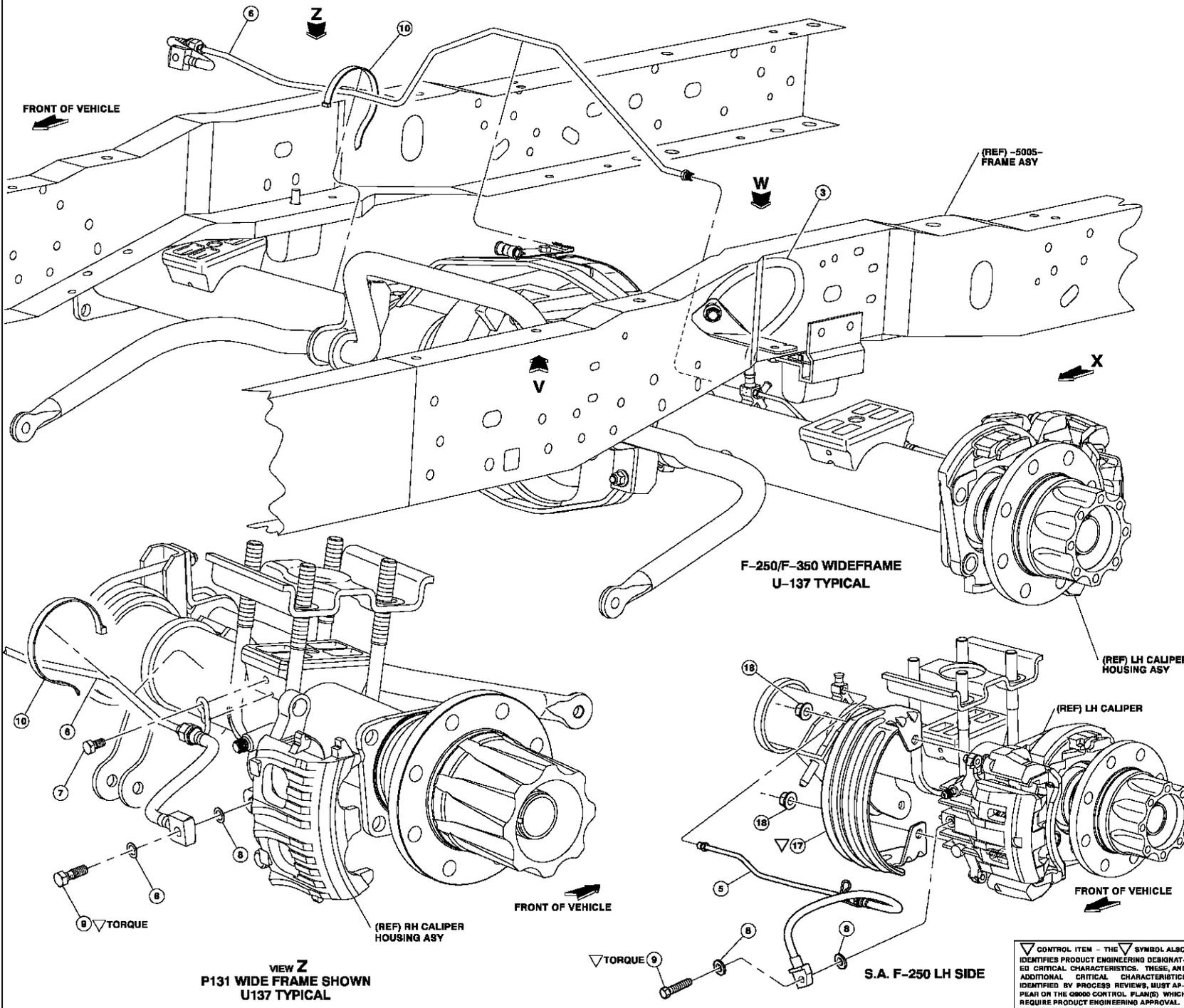
NOTE: TORQUE REQ'T FOR -88278- AND -2282- JOUINCE HOSE ASY IS 17.5 +/- 3.5

CONTROL ITEM - THE V SYMBOL ALSO IDENTIFIES PRODUCT ENGINEERING DESIGNATED CRITICAL CHARACTERISTICS. THESE, AND ADDITIONAL CRITICAL CHARACTERISTICS IDENTIFIED BY PROCESS REVIEWS, MUST APPEAR ON THE DRWG CONTROL PLANS WHICH REQUIRE PRODUCT ENGINEERING APPROVAL.

REFERENCE		DEPT# V316	
PART MUST COMPLY WITH MATERIAL SPECIFICATION WSS-M99P9999-A1 TO HELP SAFEGUARD HEALTH, SAFETY AND THE ENVIRONMENT			
DRAFTED IN ACCORDANCE WITH FORD MOTOR COMPANY ENGINEERING CAD AND DRAFTING STANDARDS CURRENT AT INITIAL RELEASE		3RD ANGLE PROJ DIMENSIONS ARE IN MILLIMETERS	
CAD TYPE	CAD LOC.	CAD FILE	DTMC IS MASTER
ATROL	METAPH	IL-3C34-060600-L02-D06	
OPER. NO.	UNIT	DRAWING	DATA
N/A	N/A	IL-3C34-080600-L02	
DESIGN MRILEYS	DETAIL	TITLE	SHT 06 OF 06
N/A	N/A	P131A137 REAR BRAKE LINES	
CHECKED MRILEYS	SAFETY		
N/A	N/A		
SCALE	DATE	DIVISION	PLANT
N/A	020200		

*Ford Motor Company*

# TRUCK CHASSIS INSTALLATION MANUAL



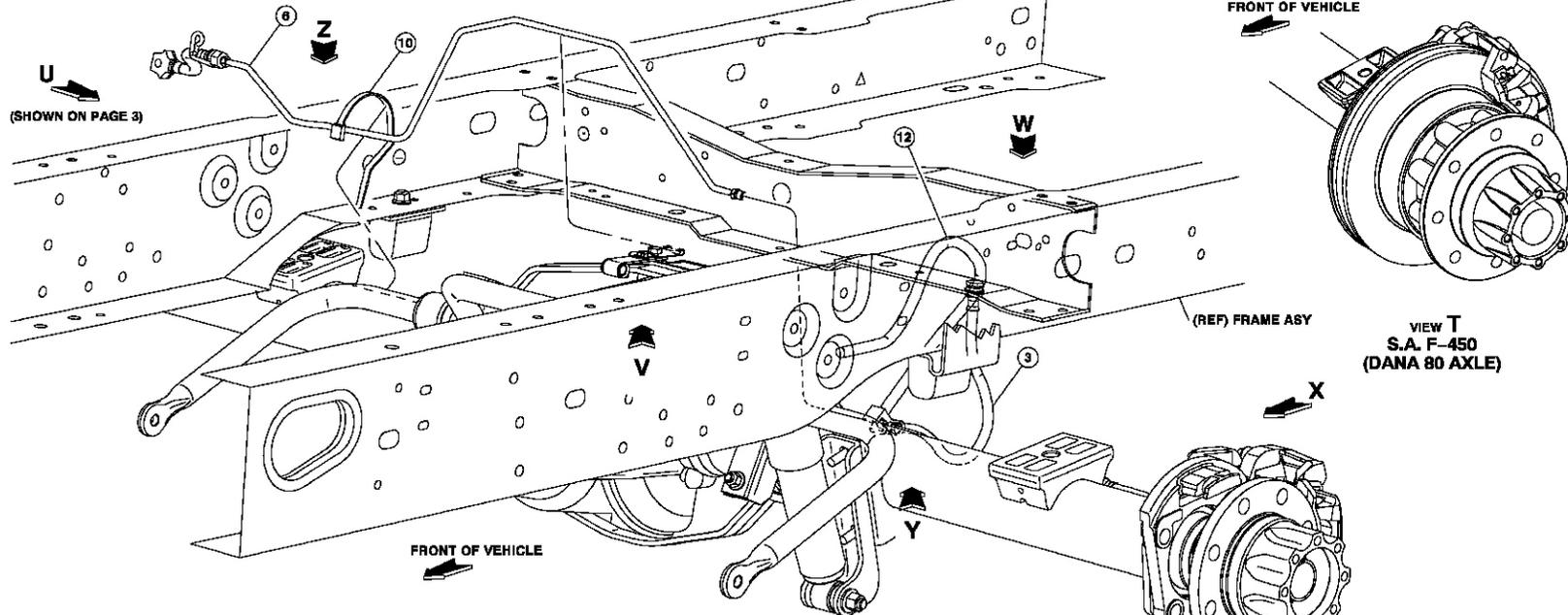
LTRS		REVISIONS		
ORIGINATOR	CHECKER	ENGR APP	MATL APP	
REVISED CALIPER MOUNTING POSITION & REMOVED SHIELD		002131	CAD:Y	
HL00-E-10827780				
MRILEYS	MRILEYS	FBARBOB1		

REFERENCE		DEPT# V210		
PART MUST COMPLY WITH MATERIAL SPECIFICATION WSS-M99P9999-A1 TO HELP SAFEGUARD HEALTH, SAFETY AND THE ENVIRONMENT				
DRAFTED IN ACCORDANCE WITH FORD MOTOR COMPANY ENGINEERING CAD AND DRAFTING STANDARDS CURRENT AT INITIAL RELEASE				3RD ANGLE PROJ DIMENSIONS ARE IN MILLIMETERS
CAD TYPE	CAD LOC.	CAD FILE	DTMC	IS MASTER
ATROL	METAPH	IL-3C34-080600-L02-D01		
OPER. NO.	UNIT	DRAWING	DATA	
N/A	N/A	IL-3C34-080600-L02		
DESIGN	DETAIL	TITLE	SHT	OF
MRILEYS	N/A	P131A137 REAR BRAKE LINES	01	08
CHECKED	SAFETY			
MRILEYS	N/A			
SCALE	DATE	DIVISION	PLANT	
N/A	020200			

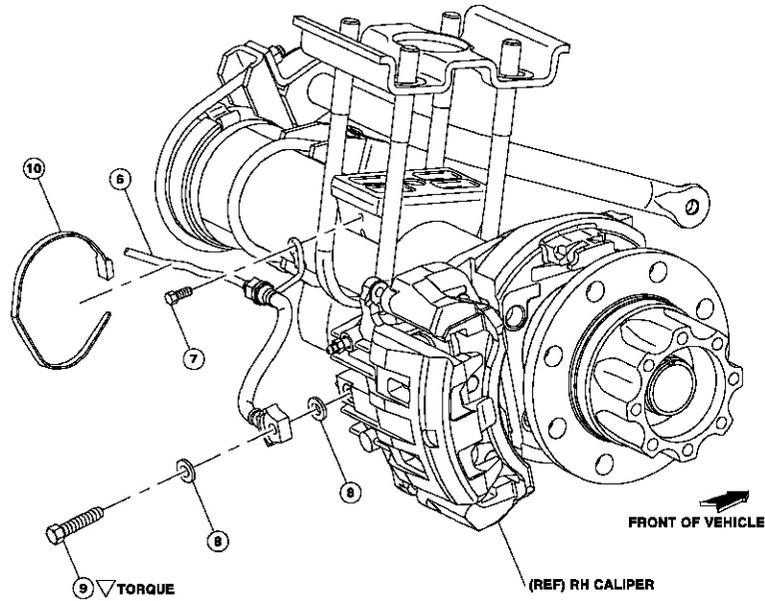
▽ CONTROL ITEM - THE ▽ SYMBOL ALSO IDENTIFIES PRODUCT ENGINEERING DESIGNATED CRITICAL CHARACTERISTICS. THESE, AND ADDITIONAL CRITICAL CHARACTERISTICS IDENTIFIED BY PROCESS REVIEWS, MUST APPEAR ON THE Q9000 CONTROL PLANS WHICH REQUIRE PRODUCT ENGINEERING APPROVAL.



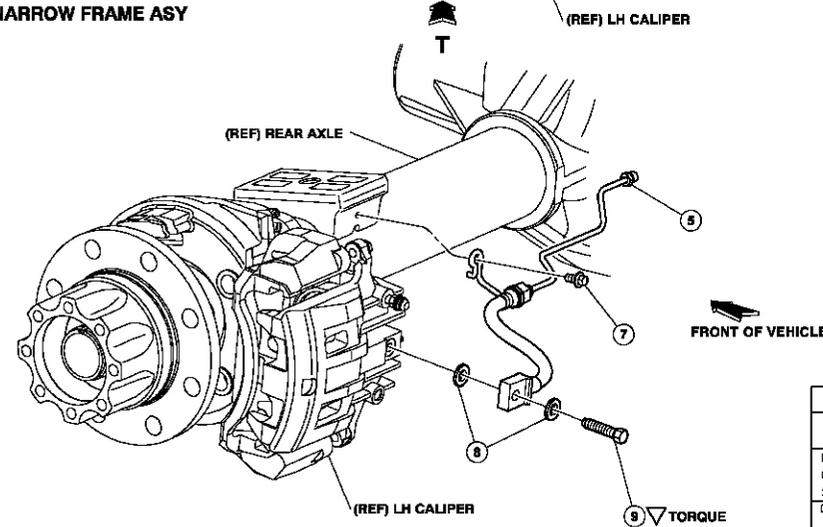
# TRUCK CHASSIS INSTALLATION MANUAL



F-350 NARROW FRAME ASY



VIEW Z  
P131 NARROW FRAME  
(DANA 80 AXLE)



VIEW X  
TYPICAL

REVISIONS			
LTRS	CHECKER	ENGR APP	MATL APP
ORIGINATOR			
REVISED LH CALIPER MNTG POSITION & REMOVED SHIELD		002131	CAD:Y
HL00-E-10827780			
MRILEYS	MRILEYS	FBARBOB1	

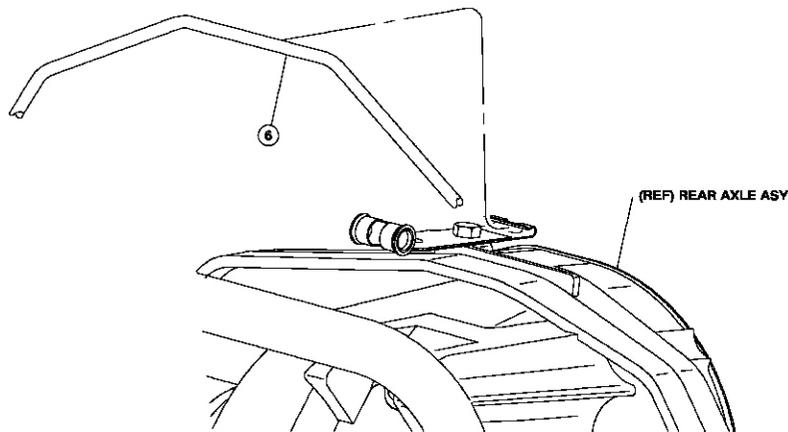
REFERENCE			DEPT# V210
PART MUST COMPLY WITH MATERIAL SPECIFICATION WSS-M99P9599-A1 TO HELP SAFEGUARD HEALTH, SAFETY AND THE ENVIRONMENT			
DRAFTED IN ACCORDANCE WITH FORD MOTOR COMPANY ENGINEERING CAD AND DRAFTING STANDARDS CURRENT AT INITIAL RELEASE			3RD ANGLE PROJ DIMENSIONS ARE IN MILLIMETERS
CAD TYPE	CAD LOC.	CAD FILE	DTMC IS MASTER
ATROL	METAPH	IL-3C34-060600-L02-D02	
OPER. NO.	UNIT	DRAWING	DATA
N/A	N/A	IL-3C34-060600-L02	
DESIGN	DETAIL	TITLE	SHT 02 OF 08
MRILEYS	N/A	P131A137 REAR BRAKE LINES	
CHECKED	SAFETY		
MRILEYS	N/A		
SCALE	DATE	DIVISION	
N/A	020200	PLANT	

▽ CONTROL ITEM - THE ▽ SYMBOL ALSO IDENTIFIES PRODUCT ENGINEERING DESIGNATED CRITICAL CHARACTERISTICS. THESE, AND ADDITIONAL CRITICAL CHARACTERISTICS IDENTIFIED BY PROCESS REVIEWS, MUST APPEAR ON THE Q9000 CONTROL PLANS WHICH REQUIRE PRODUCT ENGINEERING APPROVAL.



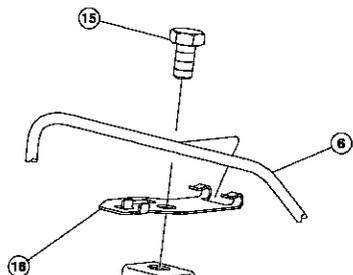
# TRUCK CHASSIS INSTALLATION MANUAL

LTRS		REVISIONS		
ORIGINATOR	CHECKER	ENGR APP	MATL APP	
NL00-1-10858044				
NL00-1-10809254				
NL00-1-10875509		980702		CAD-Y
MRILEYS	MRILEYS			



FRONT OF VEHICLE

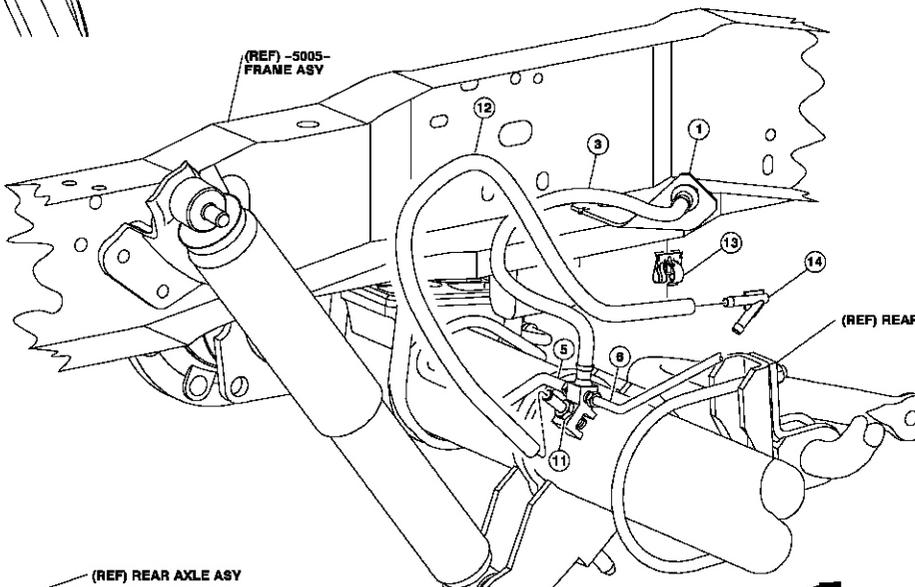
VIEW V  
TYPICAL



FRONT OF VEHICLE

VIEW V  
S.A. F-450

(REF) REAR AXLE ASY



(REF) -5005-  
FRAME ASY

(REF) REAR AXLE ASY

FRONT OF VEHICLE

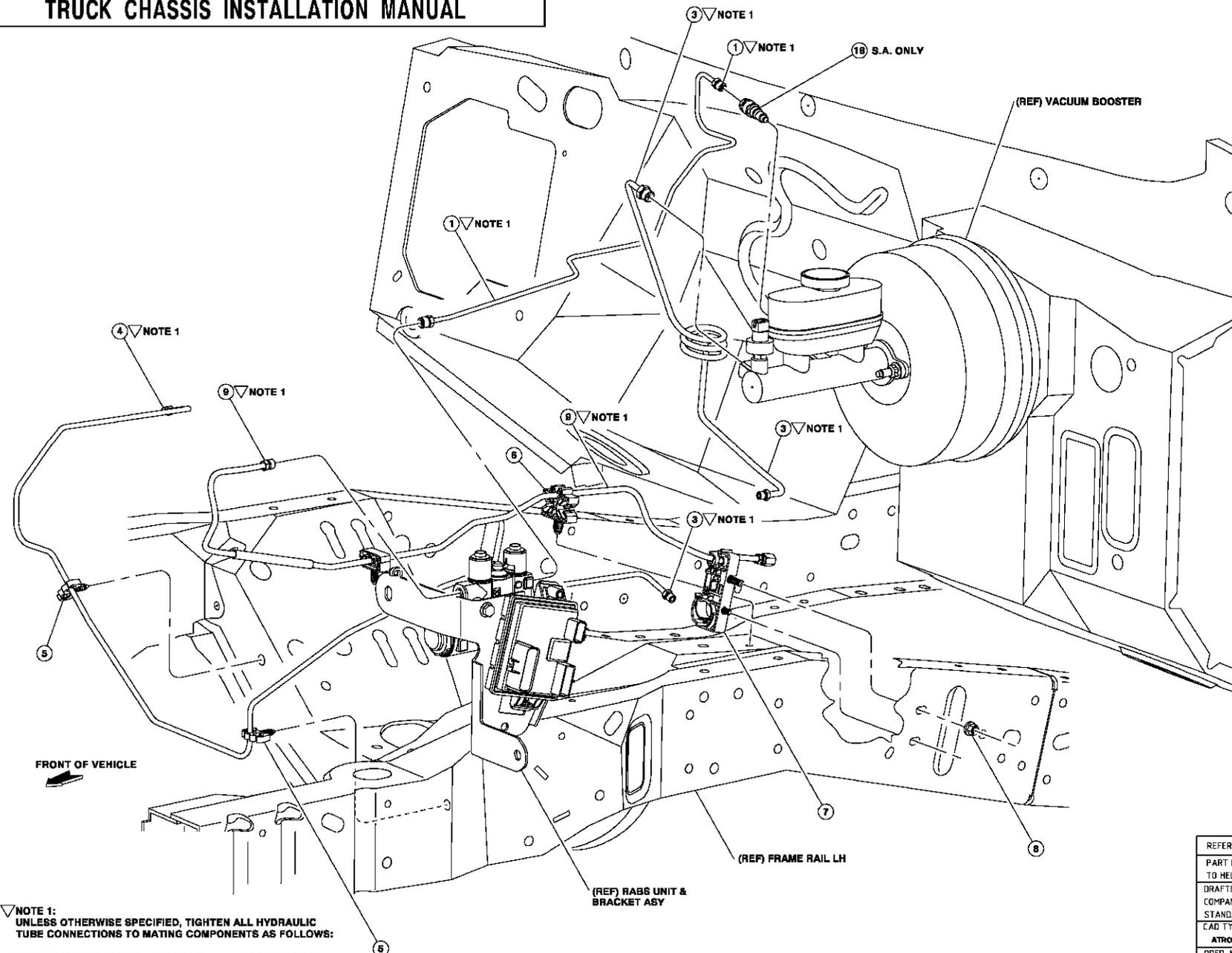
VIEW W  
P131 WIDE FRAME SHOWN  
U137 TYPICAL

▽ CONTROL ITEM - THE ▽ SYMBOL ALSO IDENTIFIES PRODUCT ENGINEERING DESIGNATED CRITICAL CHARACTERISTICS. THESE, AND ADDITIONAL CRITICAL CHARACTERISTICS IDENTIFIED BY PROCESS REVIEWS, MUST APPEAR ON THE Q9000 CONTROL PLANS WHICH REQUIRE PRODUCT ENGINEERING APPROVAL.

REFERENCE		DEPT# V216	
PART MUST COMPLY WITH MATERIAL SPECIFICATION WSS-M99P9999-A1 TO HELP SAFEGUARD HEALTH, SAFETY AND THE ENVIRONMENT			
DRAFTED IN ACCORDANCE WITH FORD MOTOR COMPANY ENGINEERING CAD AND DRAFTING STANDARDS CURRENT AT INITIAL RELEASE			3RD ANGLE PROJ DIMENSIONS ARE IN MILLIMETERS
CAD TYPE	CAD LOC.	CAD FILE	DTMC IS MASTER
ATROL	METAPH	IL-3C34-060600-L02-D06	
OPER. NO.	UNIT	DRAWING	DATA
N/A	N/A	▽ IL-3C34-060600-L02	
DESIGN	DETAIL	TITLE	SHT 05 OF 05
MRILEYS	N/A	P131A137 REAR BRAKE LINES	
CHECKED	SAFETY		
MRILEYS	N/A		
SCALE	DATE	DIVISION	
N/A	020200	PLANT	

*Ford Motor Company*

# TRUCK CHASSIS INSTALLATION MANUAL



▽NOTE 1:  
UNLESS OTHERWISE SPECIFIED, TIGHTEN ALL HYDRAULIC  
TUBE CONNECTIONS TO MATING COMPONENTS AS FOLLOWS:

MASTER CYLINDER (NON-ABS ONLY)	27.5 +/- 5.5 Nm
MASTER CYLINDER	20 +/- 4 Nm
ANTI-LOCK CONTROL MODULE	25 +/- 5 Nm
BRAKE HOSE	17.5 +/- 3.5 Nm
REAR BRAKE TUBE UNION	17.5 +/- 3.5 Nm

NOTE 2:  
POSITION SPECIFIED BRAKE TUBES ON VEHICLE PRIOR TO  
REMOVAL OF PROTECTIVE CAP. REMOVE CAP PRIOR TO  
FITTING CONNECTION.

**VIEW-RABS**

▽CONTROL ITEM - THE ▽SYMBOL ALSO IDENTIFIES PRODUCT ENGINEERING DESIGNATED CRITICAL CHARACTERISTICS. THESE, AND ADDITIONAL CRITICAL CHARACTERISTICS IDENTIFIED BY PROCESS REVIEWS, MUST APPEAR ON THE Q9000 CONTROL PLAN(S) WHICH REQUIRE PRODUCT ENGINEERING APPROVAL.

LTRS		REVISIONS		
ORIGINATOR	CHECKER	ENGR APP	MATL APP	
TORQUE FOR MSTR CYL WAS 25 +/- 5 TORQUE FOR ANTI-LOCK CMTRL MOD. WAS 20 ML00-E-00683612 000611 CAD:Y				
MRILEYS	MRILEYS	PWILLI73		
ADDED ITEM #18 ML00-E-11259685-000 020913 CAD:Y				
MRILEYS	MRILEYS	CCARVALS		

REFERENCE		DEPT# V210	
PART MUST COMPLY WITH MATERIAL SPECIFICATION WSS-M99P9599-A1 TO HELP SAFEGUARD HEALTH, SAFETY AND THE ENVIRONMENT			
DRAFTED IN ACCORDANCE WITH FORD MOTOR COMPANY ENGINEERING CAD AND DRAFTING STANDARDS CURRENT AT INITIAL RELEASE			3RD ANGLE PROJ DIMENSIONS ARE IN MILLIMETERS
CAD TYPE	CAD LOC.	CAD FILE	DTMC IS MASTER
ATROL	METAPH	IL-3C34-060600-L03-D06	
OPER. NO.	UNIT	DRAWING	DATA
N/A	N/A	▽IL-3C34-060600-L03	
DESIGN	DETAIL	TITLE	SHT 06 OF 06
MRILEYS	N/A	P131A127 FRONT BRAKE LINES	
CHECKED	SAFETY		
MRILEYS	N/A		
SCALE	DATE	DIVISION	
N/A	020013	PLANT	
<i>Ford Motor Company</i>			