CIRCUIT DESCRIPTION	FRAME
AIR CONDITIONING	59-62
ARMREST CONTROLLER	45-48
AUXILIARY CONTROL SYSTEM	52-53
AUTOMATIC TEMPERATURE CONTROL UNIT	60
AUXILIARY POWER CONN.-(IMPLEMENT)	67
AXLE LUBE SYSTEM	49
BLOWER MOTOR (ATC OR CCM)	59 & 60
BLOWER MOTOR (CAB PRESSURE)	61
BRAKE SWITCH	34
CHANGING SYSTEM	19
CABCONTROLLER POWER	20
CIGAR LIGHTER	67
CLIMATE CONTROL UNIT	59
COMMUNICATIONS RADIO SYSTEM	69
CONSTANT SPEED CONTROL	57
DATA BUS NETWORK- (TRACTOR)	12-18
DIFFERENTIAL LOCK	49
ELECTRONIC ENGINE CONTROLLER	55-56
ETHER START	19-20
FLASHER MODULE	32
FOOT DECELERATOR	58
GPS SYSTEM	71-72
HITCH CONTROL SYSTEM	50-51
HEADLIGHT SWITCH	28
HORN	36
IGNITION SWITCH	20
INSTRUMENT CLUSTER	24-26
LIGHTS-STANDARD HEAD LIGHTS	30-31
-REAR/CONV / STROBE	70
-DOME / CONSOLE/MAP	68

CIRCUIT DESCRIPTION	FRAME
-STANDARD FRONT LAMPS (GTA)	30-31
-STANDARD FRONT LAMPS (TJ)	30-31
-OPTIONAL HIGH INTENSITY LAMP	30-31
-OPTIONAL CAB REAR ROOF	28
-OPTIONAL REAR FENDER WORK	29
-OPTIONAL MARKER	33
-ROOF HEAD LIGHTS	29
-OPTIONAL MAP	68
-STANDARD REAR FENDER	29
-STANDARD CAB FRONT ROOF	29
-FENDER TAIL	32-33
-FENDER TURN SIGNAL	32-33
-ROOF WARNING RAD	32
MEGATRON HYDRAULIC SYSTEM	54
MIRAGE SYSTEM	38
PERFORMANCE MONITOR	27
POWER DISTRIBUTION SYSTEM	20-23
POWER MIRRORS	64
PTO SYSTEM	19-20
RADIO ANTENNA (AM/FM/WB)	63
RADIO SOUND SYSTEM	63
ROTARY LIGHT SWITCH	28
SCHEMATIC-LEGEND	1-11
-SYMBOL DEFINITIONS	2
SEAT	66
START / CRANK SYSTEM	19-21
TRAILER CONNECTOR (7 POLE)	33
TRANSMISSION CONTROL SYSTEM	39-40
WINDSHIELD WIPER/WASHER-FRONT	65
WINDSHIELD WIPER/WASHER-REAR	65

ELECTRICAL SCHEMATIC DIAGRAM
TJ SERIES TRACTOR
MANUAL SHIFT VERSION

FRAME 1

ACTUATORS

LEVER · HAND · FOOT · TEMP

LIQUID LEVEL FLOAT · PRESSURE · COIL · DIODE

CONTACTS: MOMENTARY · MAINTAINED

VARIABLE RESISTOR · RESISTOR

HOUSINGS

V VACUUM SWITCH · P PRESSURE SWITCH · T TEMPERATURE SWITCH · M MOTOR · LAMP

CONTACT CONFIGURATIONS

S.P.S.T. · S.P.D.T. · D.P.S.T. · D.P.D.T.

MISCELLANEOUS SYMBOLS

FUSE · CIRCUIT BREAKER · RELAYS · FUSE BLOCK

FRAME 2

COLOR ABBREVIATIONS

ABBREVIATION	COLOR
R	RED
T	TAN
W	WHITE
Y	YELLOW
BK	BLACK
N	BROWN
S	GREY
OR	ORANGE
K	PINK
V	VIOLET (PURPLE)
DG	DARK BLUE
LU	LIGHT BLUE
DG	DARK GREEN
LG	LIGHT GREEN

CIRCUIT DIAGRAM LEGENDS

123A R-1.0 — CIRCUIT TAG I/F REQUIRED (CIRCUIT NUMBER, COLOR, SIZE)

SPLICE-SPL..

INDICATES CIRCUIT SPLICE

INDICATES CIRCUIT CONNECTION

INDICATES CIRCUIT CROSSING NOT CONNECTED

INDICATES INTERNALLY GROUNDED UNITS

INDICATES EXTERNAL GROUND

GROUND

CIRCUIT 1 · CIRCUIT 2 · CIRCUIT 3 · CIRCUIT 4 — WIRE BUNDLE — CIRCUIT 1 · CIRCUIT 2 · CIRCUIT 3 · CIRCUIT 4

FRAME 3

TABLE OF FUSES

FUSE (2021)	FRAME LOCATION	CIRCUIT IDENTIFICATION
1	FRAME 21	IGNITION SWITCH
2	FRAME 31	FRONT FRAME
3	FRAME 30	FRONT FRAME
4	FRAME 30	FRONT FRAME
5	FRAME 30	FRONT FRAME
6	FRAME 32	FLASHER
7	FRAME 34	FWIP SWITCH
8	FRAME 13	SERVICE TOOL
9	FRAME 24	ICU / PMU DISPLAY
10	FRAME 71	GPS CDU
11	FRAME 57	ENGINE GOV UNSW
12	FRAME 28	CIGAR LIGHTER 1
13	FRAME 67	CIGAR LIGHTER 2
14	FRAME 67	CIGAR LIGHTER 3
15	FRAME 28	REAR ROOF LAMPS
16	FRAME 28	FRONT ROOF LAMPS
17	FRAME 28	WORKLIGHT INTERLOCK
18	FRAME 32	STROBE LAMP
19	FRAME 57	SEAT POWER
20	FRAME 13	PTO / STARTER SOL
21	FRAME 49	DIFF LOCK SOLENOIDS
22	FRAME 49	ENGINE GOV SW
23	FRAME 49	AXLE LUBE TEMP SW
24	FRAME 30	HVAC F-(C) CONVERSION
25	FRAME 61	HVAC MICROPROCESSOR
26	FRAME 61	HVAC MODULE
27	FRAME 36	ETHER
28	FRAME 49	REAR DIFF LOCK LATCH
29	FRAME 65	FRONT WIPER / WASH
30	FRAME 65	REAR WIPER / WASH
31	FRAME 65	FRONT LOWER WIPER
32	FRAME 65	CAB PRESS BLOWER
33	FRAME 67	POWER PORTS ACCY
34	FRAME 28	MIRRORS - HVAC
35	FRAME 66	SEAT HEATER
36	FRAME 13	CAN DATA BUS
37	FRAME 25	ICU / PMU DISPLAY
38	FRAME 47	ARMREST (ARA)
39	FRAME 39	TRANSMISSION (TRCU)
40	FRAME 53	ELEC HYDRAULICS (AUX)
41	FRAME 50	TPH (EDC)
42	FRAME 50	GPS / RADAR
43	FRAME 50	STEERING (STCU)
44	FRAME 30	SIDE HIGH BEAM
45	FRAME 30	CENTER HIGH BEAM
46	FRAME 30	LEFT HIGH BEAM
47	FRAME 30	RIGHT HIGH BEAM
48	FRAME 30	LEFT LOW BEAM
49	FRAME 30	RIGHT LOW BEAM
50	FRAME 29	REAR FENDER LAMPS
51	FRAME 29	REAR FENDER LAMPS
52	FRAME 54	TAIL / POS / HAZ
53	FRAME 54	COM RADIO/MP POWER
54	FRAME 63	AM/RFE/13P/SEO RE
55	FRAME 33	BRAKE LIGHTS
56	FRAME 49	FRONT DIFF LOCK LATCH

TABLE OF RELAYS

RLY NO	FRAME LOCATION	REF. DES.	FUNCTION
R1	FRAME 30	163	FRONT HIGH BEAM
R2	FRAME 29	114	REAR FENDER LAMPS
R3	FRAME 20	153	IGNITION POWER
R4	FRAME 20	264	CONTROLLER POWER
R6	FRAME 20	222	ACCESSORY POWER
R6	FRAME 49	263	REAR DIFF LOCK
R7	FRAME 49	263	FRONT DIFF LOCK
R8	FRAME 31	263	FRONT LOW BEAM
R9	FRAME 28	263	WORKLIT INTERLOCK
R10	FRAME 28	263	FRONT ROOF
R11	FRAME 28	263	REAR ROOF
R12	FRAME 61	264	CAB PRESSURIZATION
R13	FRAME 13	264	BOTTOM OF CLUTCH SW
R14	FRAME 19	264	PTO
R15	FRAME 36	264	COLD START ETHER

RLY NO	SECTION LOCAL	REF. DES.	FUNCTION
R16	FRAME 39	264	MANUAL TRANS LOW
R17	FRAME 39	264	MANUAL TRANS HIGH
R18			
R19			
R20			
R21			
R22			
R23	FRAME 31	265	IMPL AUXILIARY POWER
R24	FRAME 72	262	GPS IMPLEMENT PWR

FRAME 4

TABLE OF CONNECTOR LOCATIONS

REF. DES.	FRAME LOCATION	HARNESS
1	31	FRONT FRAME
2	31	FRONT FRAME
3	30	FRONT FRAME
4	30	FRONT FRAME
5	30	FRONT FRAME
6	30	FRONT FRAME
7M & 7F	20 21 34 36 49 57 61	CAB / DASH
8M & 8F	23 29 32 36 49 51 53	CAB / REAR FRAME
9		59
10M & 10F	28 32 64 65 70	CAB / ROOF
11	29	CAB
12	28	CAB
13	17 56	ENGINE
14M & 14F	58	DASH / FWIP
15	49	DASH
16M & 16F	28	ROOF
17M & 17F	28	ROOF
18M & 18F	29	ROOF
19M & 19F	29	ROOF
20M & 20F	29	ROOF
21		71
22	25	FRONT FRAME
23	25	FRONT FRAME
24	25	FRONT FRAME
25M & 25F	36	FRONT FRAME/ETHER
26		75
27		75
28		79
29		79
30		80M & 80F
31		81
32		80
33		83
34		84
35M & 35F	40	TRANSMISSION
36		87
37		87M & 87F
38		88
39		89
40		90
41		91
42		92
43	54	MEG-CAB
44		94M & 94F
45	65	WIPER
46	65	WIPER
47M & 47F	28	ROOF
48	39	FRONT FRAME
50	20	DASH
51M & 51F		34
52		52
53		52
54		52
55		14 52
56		
57		
58		SEAT HEATER
59		CH DATA BUS
61		50
62		54
63		54
64		54
65		54
66		54
67		54
68		54
69		54
70		54
71		54
72		54
73		54
74		54
75		54
76		54
79		54
80		54
81		54
82		54
83		54
84		54
87		54
88		54
89		54
90		54
91		54
92		54
94		54

FRAME 5

TABLE OF CONNECTOR LOCATIONS (CONTINUED)

REF. DES.	FRAME LOCATION	HARNESS
101	21	DASH
102A-C	68	CAB
103	52	CAB
104	29	CAB
105	32	ROOF
106	32	ROOF
107	32	ROOF
108M & 108F	68	AM/FM/WB ANTENNA
109	63	
110	36	DASH
111	54	MEG-CHASSIS
112M & 112F	64	ROOF
113M & 113F	64	ROOF
114M & 114F	64	ROOF
115	65	ROOF
116	65	ROOF
117		
118	32	ROOF
119		
120	32	ROOF
121	63	AM/FM/WB ANTENNA
122	26	CAB
123	62	CAB
124	62	CAB
125		
126		
127	65	CAB
128	62	CAB
129	70	CAB
130	64	CAB
131	54	MEG-CHASS
132	62	CAB
133		
134		
135	32	CAB
136	32	CAB
137	15, 47	CAB
138A-C	23	CAB
139	59/ 60/ 61	CAB
140	53	REAR FRAME
141	53	REAR FRAME
142	53	REAR FRAME
143	53	REAR FRAME
144	53	REAR FRAME
145		
146		
147	33	REAR FRAME
148	27	FRONT FRAME
149	27	FRONT FRAME
150		

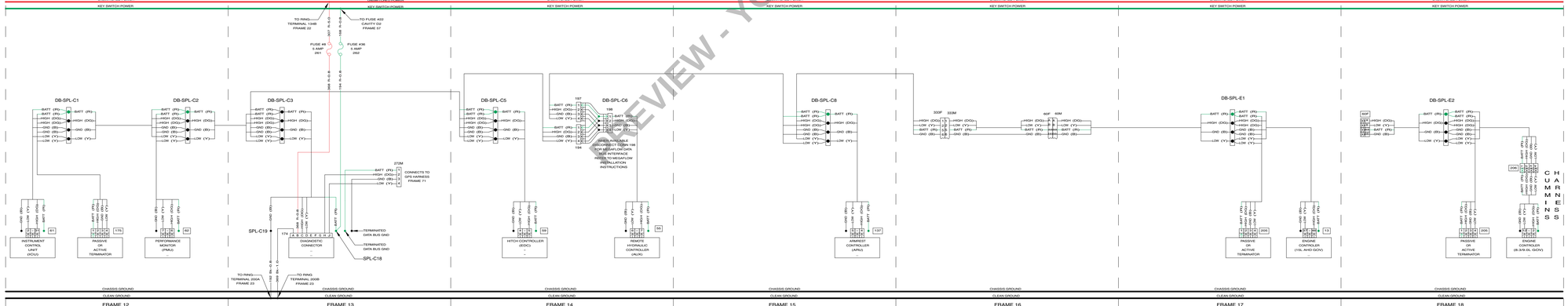
FRAME 6

TABLE OF CONNECTOR LOCATIONS (CONTINUED)

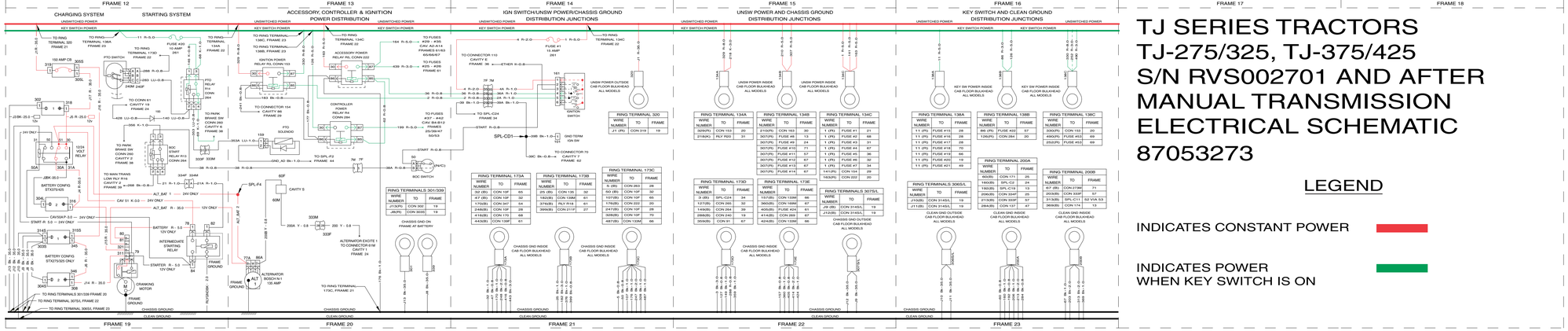
REF. DES.	FRAME LOCATION	HARNESS
201	44	FRONT FRAME
202	54	MEG-CHASSIS
203	54	MEG-CHASSIS
204	54	MEG-CHASSIS
205	17 18	ENGINE
206	18	ENGINE
207F	55	ENGINE
208M	55	ENGINE
208M	55	ENGINE
210	62	ENGINE
211M & 211F	27	CAB
212	65	FRONT FRAME
213	65	FRONT FRAME
214M & 214F		
215	65	WIPER
216	65	FRONT FRAME
217	65	WIPER
218	33	REAR FRAME
219	35	FWIP
220A-J	35	FWIP
221	35	FWIP
222	20	CAB
223M & 223F	27	CAB
224	32	ROOF
225	32	ROOF
226		
227M & 227F	29	REAR FRAME
228M & 228F		
229M & 229F	33	REAR FRAME
230M & 230F	29	REAR FRAME
231		
232M & 232F	29	REAR FRAME
233	33	REAR FRAME
234	32	REAR FRAME
235M & 235F	29	REAR FRAME
236M & 236F	33	MARKER LIGHT
237M & 237F	33	MARKER LIGHT
238	58	CAB
239	58	CAB
240M & 240F	19	CAB
241	65	CAB
242	31	CAB
243M & 243F	61	CAB
244	55	ENGINE
245		
246	58	NON A/U
247	58	NON A/U
248	58	NON A/U
249	58	NON A/U
250M & 250F	57	CAB / NON A/U

FRAME 7

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FRAME 12 · FRAME 13 · FRAME 14 · FRAME 15 · FRAME 16 · FRAME 17 · FRAME 18



FRAME 19 · FRAME 20 · FRAME 21 · FRAME 22 · FRAME 23

TABLE OF CONNECTOR LOCATIONS (CONTINUED)

REF. DES.	FRAME LOCATION	HARNESS
301	20	BATTERY
302	19	BATTERY
303S & 303L	19	BATTERY
304S & 304L	19	BATTERY
305S &306L	19	BATTERY
306S & 306L	23	BATTERY
307S & 307L	22	BATTERY
308	19	
309		
310		
311	19	BATTERY
312M & 312F	51	REAR FRAME
313		
314S & 314L	19	BATTERY
315S & 315L	19	BATTERY
316	19	BATTERY
317	19	BATTERY
318	19	BATTERY
319	19	BATTERY
320	21	BATTERY
321	19	BATTERY
322	55	ENGINE
323	67	AUX POWER PORT
324M & 324F	49	REAR FRAME/AXLE
325M & 325F	36	REAR FRAME/BACKUP
326	72	GPS CHASSIS
327(FUSE)	72	GPS CHASSIS
328		
329		
330	63	AM/FM/WB ANTENNA
331	39	FRONT FRAME
332M & 332F	65	FRONT FRAME/WIPER
333M & 333F	16 19 20 30 36 39 57 61 63	CAB & FRONT FRAME
334M & 334F	19 20 30 36 38 44 49 63	CAB & FRONT FRAME
335M & 335F	28, 40	FRONT FRAME/TANK
336		
337A & 337B	36	BACKUP ALARM
338		
339	20	BATTERY
340	53	REAR FRAME
341	53	REAR FRAME
342M & 342F	49 53	REAR FRAME
343	53	REAR FRAME
344	53	REAR FRAME
345	19	BATTERY
346	19	BATTERY
347	54	CAB
348	54	CAB
349	54	CAB
350		

REF. DES.	FRAME LOCATION	HARNESS

TORQUE SPECIFICATIONS - METRIC HARDWARE

Use the following torques when specifications are not given.

These values apply to fasteners with coarse threads as received from supplier, plated or unplated, or when lubricated with engine oil. These values do not apply if graphite or Molydisulfide grease or oil is used.

Grade 8.8 Bolts, Nuts, and Studs



Size	Pound-Inches	Newton metres
M4	24 to 36	3 to 4
M5	60 to 72	7 to 8
M6	96 to 108	11 to 12
M8	228 to 276	26 to 31
M10	456 to 540	52 to 61
Size	Pound-Feet	Newton metres
M12	66 to 79	90 to 107
M14	106 to 127	144 to 172
M16	160 to 200	217 to 271
M20	320 to 380	434 to 515
M24	500 to 600	675 to 815
M30	920 to 1100	1250 to 1500
M36	1600 to 1950	2175 to 2600

Grade 10.9 Bolts, Nuts, and Studs



Size	Pound-Inches	Newton metres
M4	36 to 48	4 to 5
M5	84 to 96	9 to 11
M6	132 to 156	15 to 18
M8	324 to 384	37 to 43
Size	Pound-Feet	Newton metres
M10	54 to 64	73 to 87
M12	93 to 112	125 to 150
M14	149 to 179	200 to 245
M16	230 to 280	310 to 380
M20	450 to 540	610 to 730
M24	780 to 940	1050 to 1275
M30	1470 to 1770	2000 to 2400
M36	2580 to 3090	3500 to 4200

Grade 12.9 Bolts, Nuts, and Studs



Usually the torque values specified for grade 10.9 fasteners can be used satisfactorily on grade 12.9 fasteners.

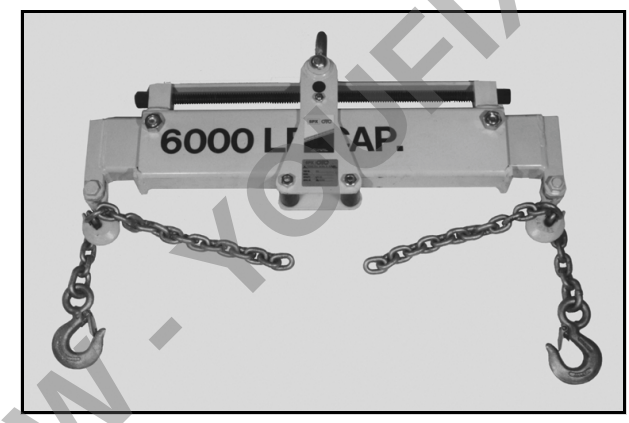
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SPECIAL TORQUE VALUES

	Metric Values	U.S. Values
Front Engine Mount Bolts	286 to 320 Nm	208 to 236 lb ft
Rear Engine Mount Bolts	252 to 278 Nm	185 to 205 lb ft
Driveshaft to Drive Coupler Mounting Bolts	163 to 176 Nm	120-to 130 lb ft
Exhaust Pipe Channel Clamp	8 Nm	75 lb inch
Exhaust Flex Tube Band Clamps	29 to 33 Nm	21 to 24 lb ft
Hood Support Bracket Mounting Bolts	68 to 77 Nm	50 to 57 lb ft
Aspirator Tube P-Clamp Mounting Bolts	94 to 106 Nm	69 to 78 lb ft
Aspirator Tube Clamp	40 Nm	29 lb ft
Turbo Air Tube Clamp	9 to 11 Nm	77 to 93 lb inch
Step to Fram Mounting Bolts	39 to 44 Nm	28 to 32 lb ft

SPECIAL TOOLS



MS99H280

OEM 4130 LOAD ROTOR

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Section 10
Chapter 24

24 Valve, 8.3 Liter Engine

Fuel System Troubleshooting And Repair

Troubleshooting Fault Codes

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Note: All coding used in the 8.3 Liter and 9 Liter engine manuals are Cummins engine codes. These engine codes have no meaning to New Holland warranty codes and should only be used for procedure steps.

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Troubleshooting Procedures and Techniques

A thorough analysis of the customer's complaint is the key to successful troubleshooting. The more information known about a complaint, the faster and easier the problem can be solved.

The Troubleshooting Symptom Charts are organized so that a problem can be located and corrected by doing the easiest and most logical things first. Complete all steps in the sequence shown from top to bottom.

It is not possible to include all the solutions to problems that can occur; however, these charts are designed to stimulate a thought process that will lead to the cause and correction of the problem.

Follow these basic troubleshooting steps:

- Get all the facts concerning the complaint
- Analyze the problem thoroughly
- Relate the symptoms to the basic engine systems and components
- Consider any recent maintenance or repair action that can relate to the complaint
- Double-check before beginning any disassembly
- Solve the problem by using the symptom charts and doing the easiest things first
- Determine the cause of the problem and make a thorough repair
- After repairs have been made, operate the engine to make sure the cause of the complaint has been corrected

Troubleshooting Symptoms Charts

Use the charts on the following pages of this section to aid in diagnosing specific engine symptoms. Read each row of blocks from top to bottom. Follow through the chart to identify the corrective action.

∆ WARNING ∆

Troubleshooting presents the risk of equipment damage, personal injury or death. Troubleshooting must be performed by trained experienced technicians.

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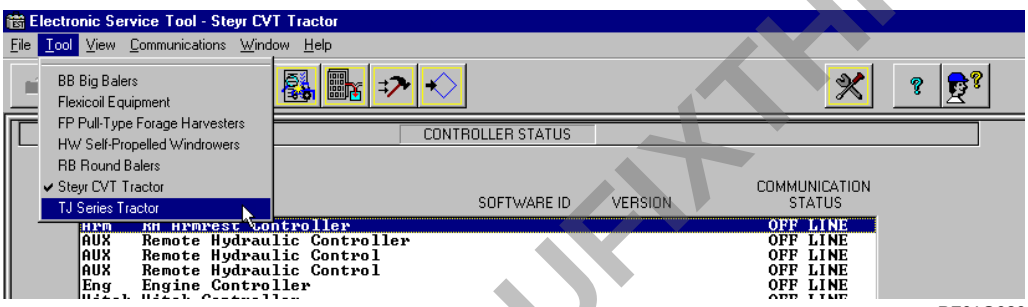
Section 4: Selecting TJ Series 4WD Tractor Application

If the Electronic Service Tool is not opened to an application supporting the use of the INSITE™ Professional engine software, it can be selected using the Tool pull down menu and the appropriate vehicle (tractor, combine, implement, etc.) selection.

Anytime the Electronic Service Tool is started, the CONTROLLER STATUS screen will be displayed. Any of the available Electronic Service Tool applications can be selected from the Tool pull down menu.

To select an application, use the left button of the mouse to click on the Tool pull down menu and select the desired application.

Left Click Mouse On: Tool > TJ Series Tractor



RZ01G020

An Electronic Service Tool screen will display. Using the left button of the mouse, click the OK button

Left Click Mouse On:OK



RZ01G009

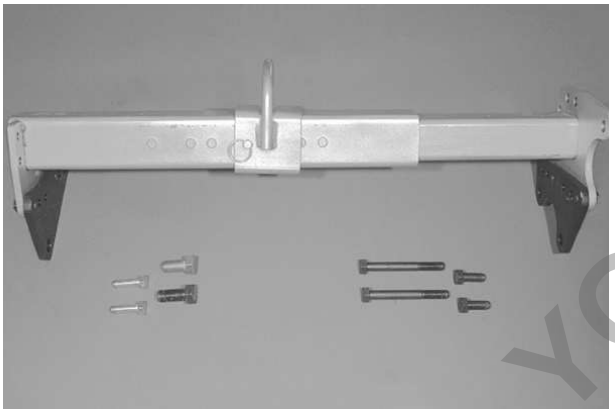
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SPECIAL TORQUE VALUES

	Metric Value	U.S. Value
Transmission Mounting Plate Bolts	484 to 549 Nm	357 to 405 lb ft
Transmission Mounting Bolts	282 to 319 Nm	208 to 235 lb ft
PTO Clutch Housing Mounting Bolts	60 to 76 Nm	42 to 50 lb ft
Transmission Input Driveshaft Mounting Bolts	118 to 133 Nm	87 to 98 lb ft
Front and Rear Output Driveshaft Mounting Bolts	118 to 133 Nm	87 to 98 lb ft
PTO Driveshaft Mounting Bolts	71 to 84 Nm	55 to 60 lb ft
Lube Pump Suction Tube Split Flange Bolts	54 to 63 Nm	40 to 46 lb ft
Park Brake Release Cable Bracket Mounting Bolts	27 to 31 Nm	20 to 23 lb ft
Hose and Tube Bracket Mounting Bolts	59 to 69 Nm	44 to 51 lb ft

SPECIAL TOOLS



MK95N213

CNH 299064 UNIVERSAL TRANSMISSION LIFTING BRACKET

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PTO CLUTCH REMOVAL

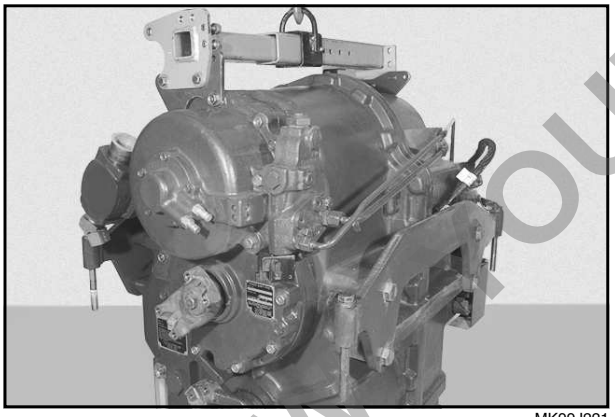
STEP 1



MD01J040

Remove the cab from the tractor. See Section 90, Chapter 1 Cab Removal and Installation of this manual for correct cab removal procedures.

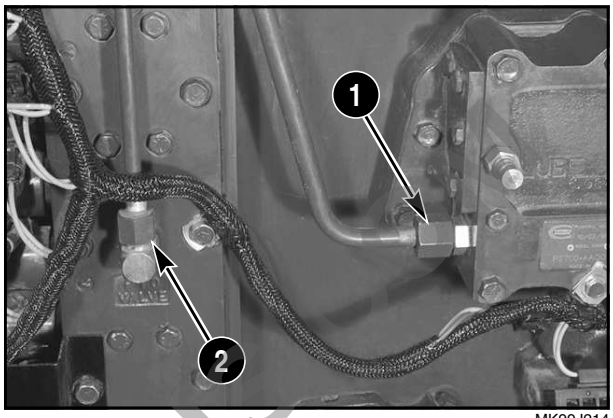
STEP 2



MK99J221

Remove the transmission. See Section 21, Chapter 1 PS-3 Powershift Transmission Removal and Installation of this manual for correct transmission removal procedures.

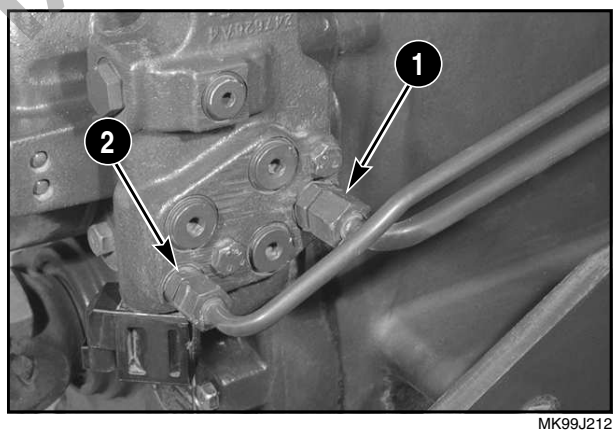
STEP 3



MK99J214

Remove the tube lines from the PTO lubrication port (1) on the regulator valve and the PTO clutch pressure port (2) on the range selector valve. Install plugs in the tube ends and caps on the port adapters.

STEP 4



MK99J212

Remove the lubrication (1) and clutch pressure (2) tube lines from the PTO clutch control valve. Install plugs in the tube ends and caps in the port adapters.

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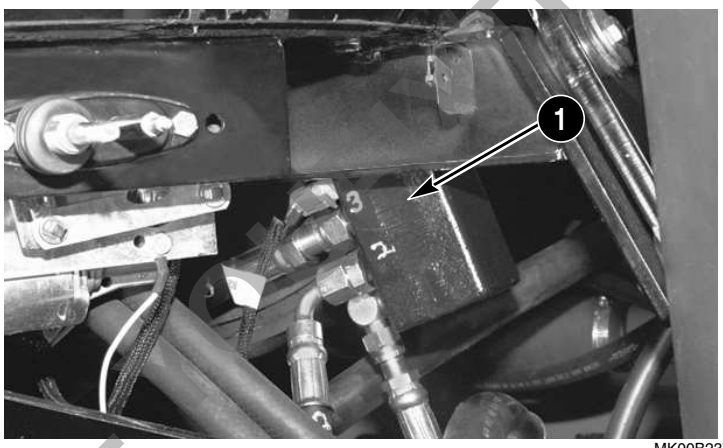
BRAKE SYSTEM

General Information

Inside the cab, below and to the right of the steering column, is a single brake pedal. When pushed by the operator, the brake pedal stops both axles simultaneously. If the operator releases the pedal, the service brakes will release and the axles will be free to rotate. The axle design incorporates the parking brake and service brake into each axle housing.

The pedal is used to actuate a brake valve (1) through a brake pedal actuator rod. The brake valve (1) is located below the steering column attached to the cab floor plate. As the operator pushes the brake pedal, the brake valve directs regulated supply pressure to/from the axle housings. A piston in the axle housing is pressed against the friction material and separator plates by the oil directed from the brake valve. As the friction material and separator plates are pressed together the axles stop.

The brakes are multi-disc oil bath self adjusting clutch packs. The system incorporates a PFC pump mounted tandem hydraulic pump to supply the brake/differential lock systems regulated operating pressure and axle lubrication/cooling requirements.



MK00B237

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HOW TO READ SYMBOLS IN A HYDRAULIC SCHEMATIC

Introduction

Accurate diagrams of hydraulic circuits are essential to the man who must repair them. The diagram shows how the components will interact. It shows the field technician how it works, what each component should be doing and where the oil should be going so that he can diagnose and repair the system.

The purpose of this section is to show you how to find your way around schematic circuit diagrams.

Circuit Diagrams

There are two types of circuit diagrams.

1. Cutaway Circuit Diagrams show the internal construction of the components as well as the flow paths. By using colors, shades or various patterns in the lines and passages, they are able to show many different conditions of flow and pressure. Cutaway diagrams take considerably longer to produce because of their complexity.

2. Schematic Circuit Diagrams the “shorthand” system of the industry, are usually preferred for troubleshooting. A schematic diagram is made up of simple geometric symbols for the components and their controls and connections.

Symbol Systems

There are several systems of symbols used when making schematic diagrams. They are as follows:

I. S. O. = International Standards Organization

A. N. S. I. = American National Standards Institute

A. S. A. = American Standards Association

J. I. C. = Joint Industry Conference

A combination of these symbols are shown in this section. There are differences between the symbols but there is enough similarity so that if you understand the symbols in this section you will be able to interpret other symbols as well.

Using Schematic Symbols

Reservoirs



VENTED RESERVOIR

710L8B



PRESSURIZED RESERVOIR

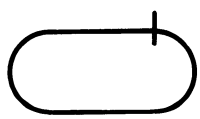
710L8D

A rectangle with the top removed represents a vented reservoir. A rectangle with the top in place represents a pressurized reservoir.



PRESSURIZED RESERVOIR

710L8C



PRESSURIZED RESERVOIR

710L8A

There are other schematic diagrams that show a slightly different version of a pressurized reservoir, but the symbols are similar and easily recognized. An oval with a short line on top or a rectangle with curved sides represents a reservoir that is pressurized.



RETURN LINE ABOVE
THE OIL LEVEL

710L8E

Lines connected to the reservoir usually are drawn from the top, regardless of where the actual connection is.



SUCTION LINE OR RETURN LINE
BELOW THE OIL LEVEL

710L8F

If the hydraulic line terminates below the fluid level, it is drawn all the way to the bottom of the symbol.

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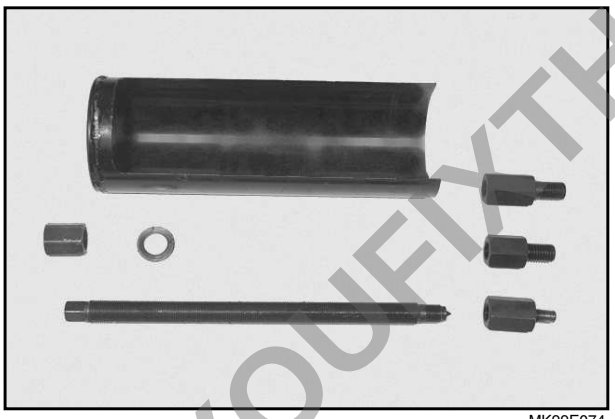
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SPECIAL TORQUE VALUES

	Metric Values	U.S. Values
Drawbar Pin Retaining Bolt (wet)	302 to 338 Nm	222 to 243 lb ft
Drawbar Yoke Retaining Bolts (wet)	709 to 797 Nm	523 to 588 lb ft

NOTE: *Threads lubed with light coat of 10W-30 engine oil.*

SPECIAL TOOLS



MK99E074

CNH299171 PIVOT PIN PULLER

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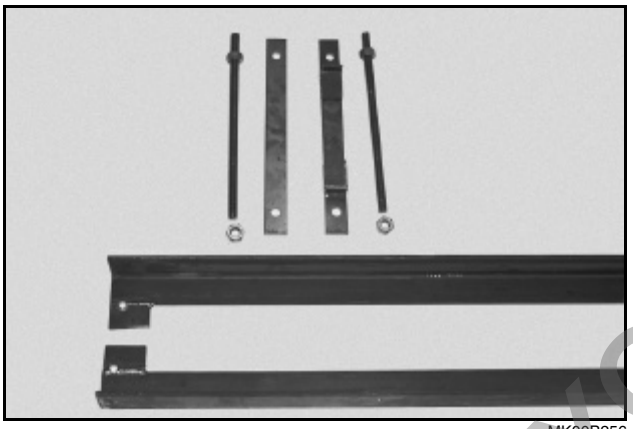
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SPECIAL TORQUE VALUES

	Metric Values	U.S. Values
Upper Connecting Link Pin Retainer Bolts	203 to 244 Nm	150 to 180 lb ft
King Pin Nut	793 to 834 Nm	585 to 615 lb ft
PTO Driveline Hanger Bearing Bolts	203 to 244 Nm	150 to 180 lb ft
PTO Driveshaft Bolts	75 to 81 Nm	55 to 60 lb ft
Rear Driveshaft Bolts	203 to 244 Nm	150 to 180 lb ft
Steering Cylinder Pin Retaining Bolts	203 to 244 Nm	150 to 180 lb ft
PTO Hanger Bearing Mount Bolts	295 to 330 Nm	145 to 215 lb ft

Lubed lightly with SAE 10W-30 oil

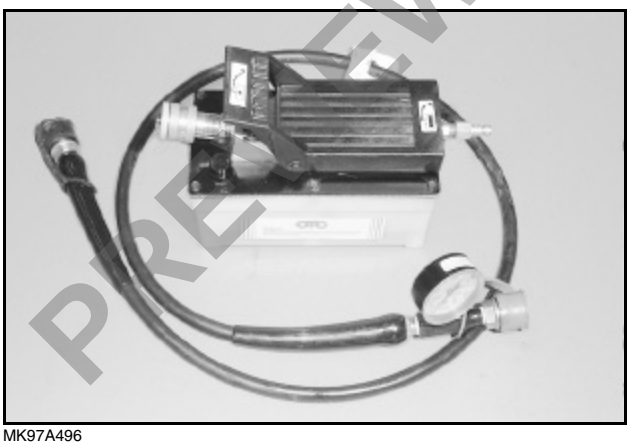
SPECIAL TOOL



MK00B256

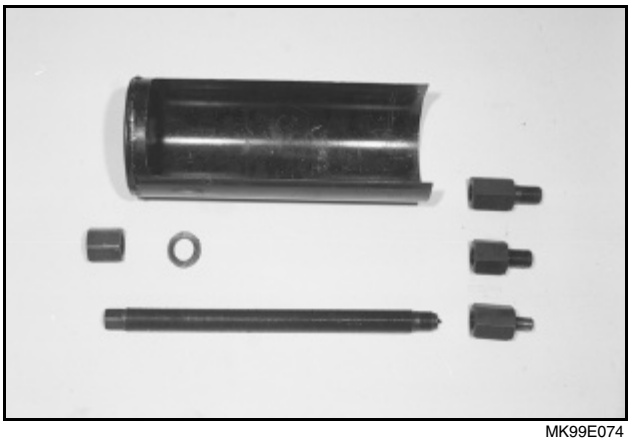
CNH299148 CONNECTING LINK SUPPORT BRACKET AND SLIDE RAILS

RECOMMENDED TOOLS



MK97A496

OEM 6019 AIR/HYDRAULIC PUMP (shown with two 49697 DUST PLUGS, two 25599 COUPLERS, OEM 9756 HOSE, 310514 GAUGE TEE ADAPTOR AND 3105 10,000 LB PRESSURE GAUGE not included)



MK99E074

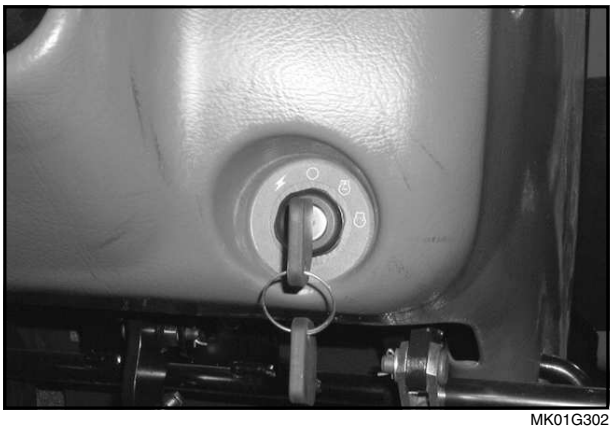
CNH299171 PIVOT PIN PULLER

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STEERING CONTROL VALVE REMOVAL

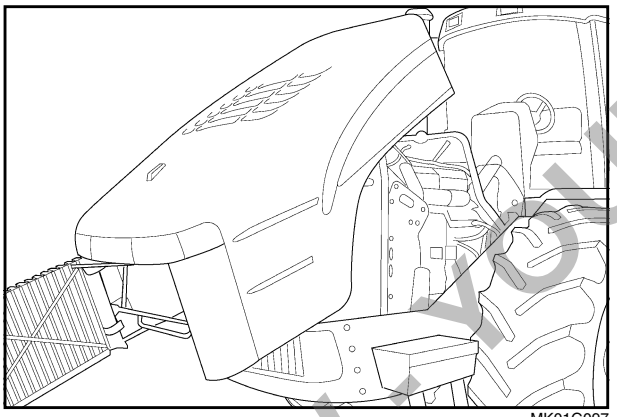
STEP 1



MK01G302

Park the tractor on a smooth concrete surface. Remove the switch key.

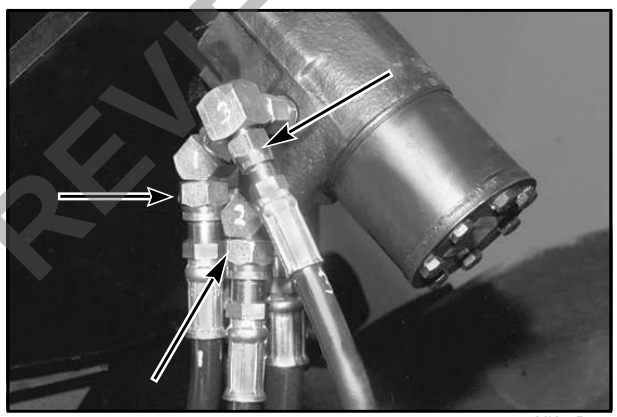
STEP 2



MK01G097

Open the hood.

STEP 3



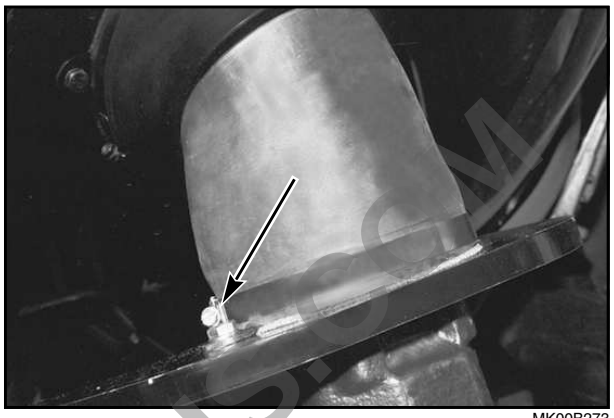
MK00B274

Disconnect the five hoses from the steering control valve.

NOTE: *Mark all hoses for correct assembly*

NOTE: *Install caps and plugs on all fittings.*

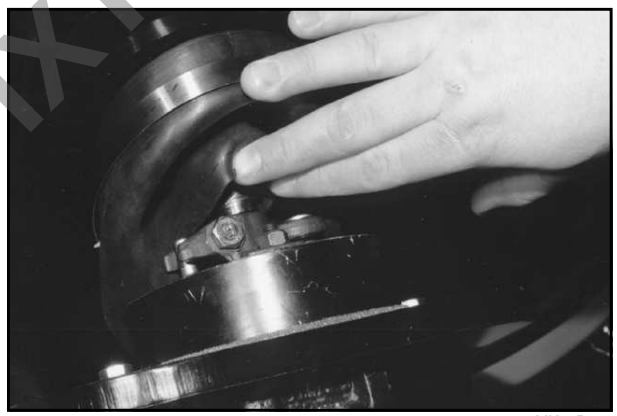
STEP 4



MK00B273

Loosen the clamp securing the rubber boot

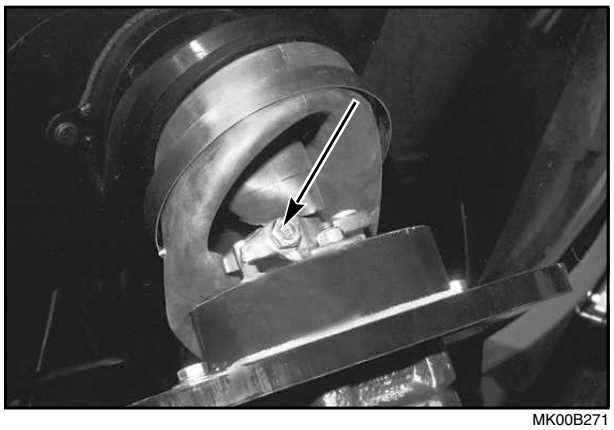
STEP 5



MK00B299

Push the rubber boot and clamp back.

STEP 6



MK00B271

Loosen the clamp bolt on the steering shaft side of the coupler.

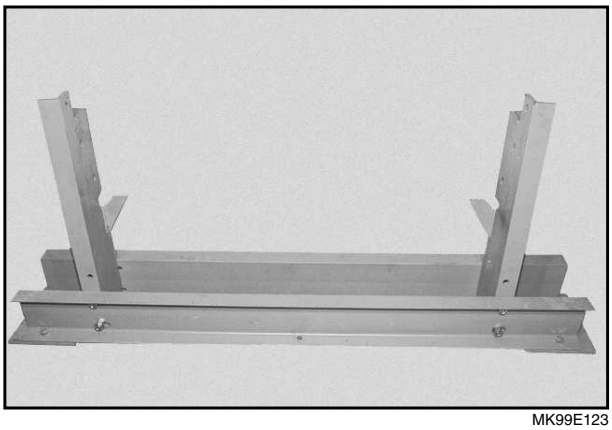
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SPECIAL TORQUE VALUES

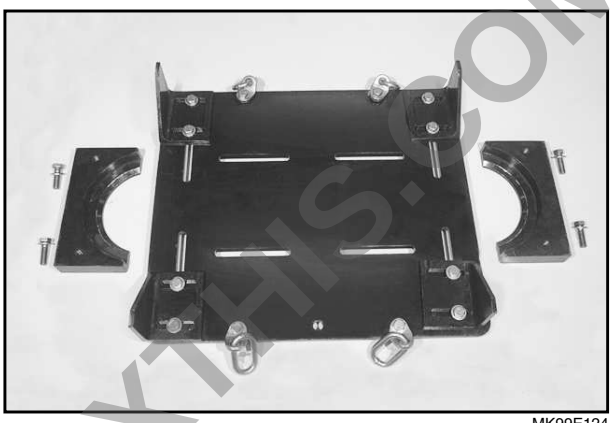
	Metric Value	U.S. Value
Wheel to Hub Bolts (lubed)	755 to 850 Nm	555 to 625 lb ft
Axle to Frame Mounting Bolts (lubed)	665 to 745 Nm	490 to 550 lb ft
Driveshaft Mounting Bolts (lubed)	95 to 108 Nm	70 to 80 lb ft
Pinion Yoke Retaining Bolt (lubed)	244 to 271 Nm	180 to 200 lb ft

SPECIAL TOOLS



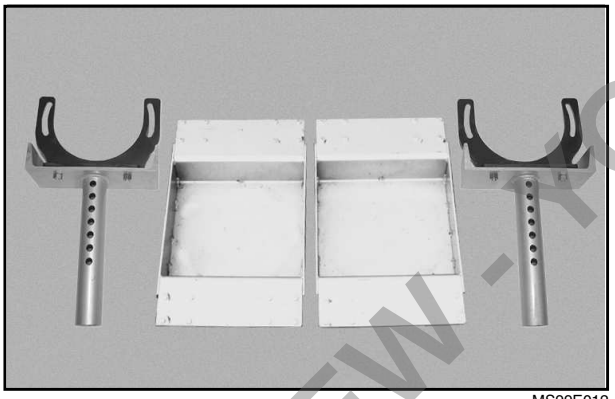
MK99E123

CNH299020 FRONT FRAME LIFT/SUPPORT BRACKET SET



MK99E124

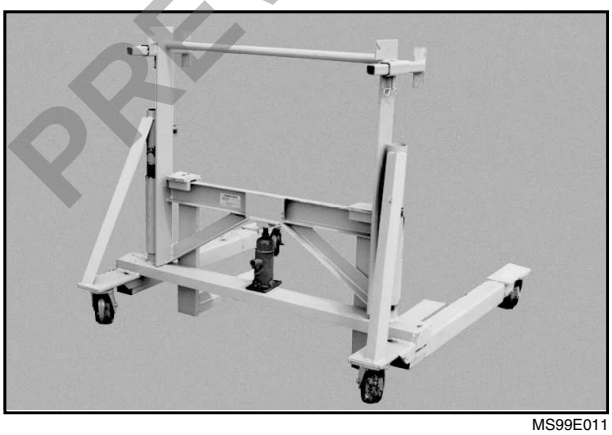
CNH299022 AXLE LIFTING ADAPTER PLATE



MS99E012

CNH299021 JACK STAND ADAPTER POST AND DOLLY CART

RECOMMENDED TOOLS



MS99E011

CNH299146 WHEEL/AXLE LIFT



MK99E121

2 - OEM 4168 12 TON JACK STAND

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SAFETY PROCEDURES



THIS SAFETY ALERT SYMBOL INDICATES IMPORTANT SAFETY MESSAGES IN THIS MANUAL. WHEN YOU SEE THIS SYMBOL, CAREFULLY READ THE MESSAGE THAT FOLLOWS AND BE ALERT TO THE POSSIBILITY OF PERSONAL INJURY OR DEATH. M171B

ATTENTION: *Only authorized technicians certified by an approved training and certification organization may service or repair motor vehicle or mobile air conditioning systems.*

Refrigerant HFC-134a is the most stable and easiest to work with of the refrigerants now used in air conditioning systems. Refrigerant R-134a does not contain chlorofluorocarbons (CFC's) which are harmful to the earth's ozone layer.

Safety procedures must be followed when working with refrigerant HFC-134a to prevent possible personal injury.

1. Always wear combination impact and chemical splash safety goggles when doing any service work near an air conditioner system. Liquid refrigerant in the eyes can cause serious injury. Do the following if you get refrigerant near or in your eyes:
   A. Flush your eyes with water for 15 minutes.
   B. See a physician immediately. M779
2. Always reclaim all refrigerant prior to opening an A/C system. (See Chapter Two.) A drop of liquid refrigerant on your skin may cause frostbite burns. Open fittings carefully and slowly when servicing the air conditioning system. Your skin must be treated for frostbite or a physician must be seen if you get refrigerant on your skin. M799
3. Keep refrigerant containers in correct upright position. Always keep refrigerant containers away from heat and sunlight. The pressure in a container will increase with heat. M743
4. Always check refrigerant purity with the OEM4450 Refrigerant Identifier before recovering refrigerant and before testing the system. See Chapter Two. M777
5. Use the air-powered OEM1691 ONLY to recover contaminated refrigerant. Do NOT use OEM1598 recycling station to recover contaminated refrigerant. If contaminated refrigerant contains more than 2% hydrocarbon (propane, butane or isobutance), the mixture must be considered flammable; if more than 4% hydrocarbon, the mixture must be treated as explosive; in both cases an electric-powered recovery station may NOT be used. Avoid heat, sparks and flame when working with this contaminated refrigerant. M800
6. Dangerous gas can form when refrigerant comes in contact with an open flame. Never inhale fumes. M745
7. Never leak test with compressed air or flame tester. Tests have indicated that compressed mixtures of HFC-134a and air can form a combustible gas. M746

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SPECIAL TOOLS



A7835

Electrical Connector and Terminal Repair Kit ZJI1400004. See the Parts Merchandiser Catalog for ordering information and identification of components.



A9206

Digital Multimeter OEM-1428

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Section 1: General Information

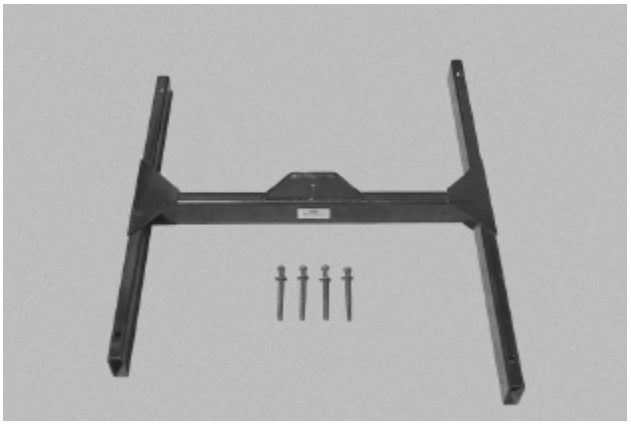
The Electronic Service Tool is a laptop computer based service and diagnostic tool that communicates with the vehicle (tractor, combine, implement, etc.) data bus. The Electronic Service Tool is used with the TJ 4WD tractors to:

- Display the controller software version installed.
- Retrieve fault codes stored within controllers.
- Monitor data bus based switch and sensor data parameters.
- Download software to controllers.
- Provide a Windows based link to the Engine Diagnostic Tool, Engine Diagnostic Tool Help, and Engine Calibration Download Tool.
- Configure Model, Forward and Reverse Gear Pre-selections, and Fuel Tank Capacity.
- Provide troubleshooting and diagnostic information.

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SPECIAL TOOLS



MK99G126

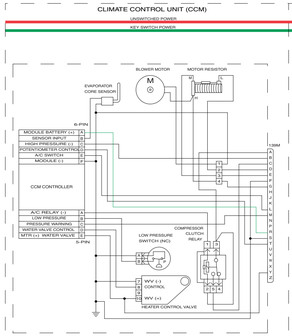
CNH 299011 CAB LIFTING BRACKET

SPECIAL TORQUE VALUES

	Metric Value	U.S. Value
Cab Mounting Bolts	698 to 778 Nm	515 to 575 ft lbs
Steering Control Valve Bracket Mounting Bolts	68 to 77 Nm	50 to 57 ft lbs
TJ 275, 325 Fender Mounting Bolts	27 to 34 Nm	20 to 25 ft lbs
TJ 275, 325 Fender Bracket Mounting Bolts	39 to 44 Nm	29 to 32 ft lbs

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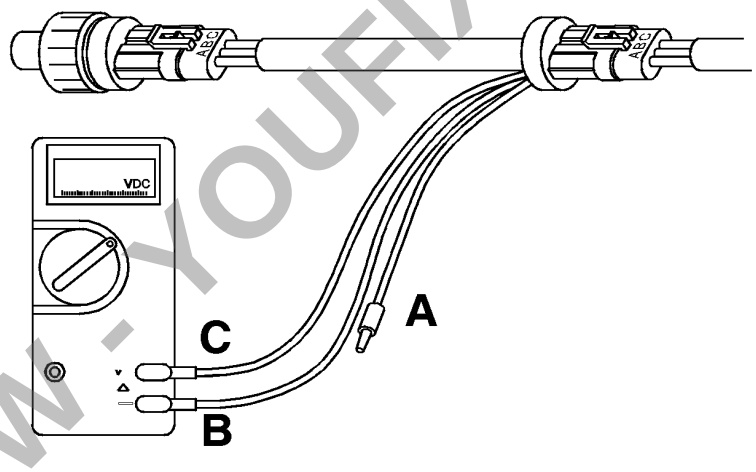
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CLIMATE CONTROL UNIT (CCM)
UNSWITCHED POWER
KEY SWITCH POWER
EVAPORATOR CORE SENSOR
BLOWER MOTOR
MOTOR RESISTOR
6-PIN
MODULE BATTERY (+)
WINDOW SW(+)
HIGH PRESSURE (+)
POTENTIOMETER CONTROL
A/C SWITCH MODULE (-)
CCM CONTROLLER
A/C RELAY (-)
LOW PRESSURE
PRESSURE WARNING
BLOWER MOTOR CONTROL
MTR (+) WATER VALVE
LOW PRESSURE SWITCH (NC)
COMPRESSOR CLUTCH RELAY
WV (-) CONTROL
WV (+)
HEATER CONTROL VALVE
AUTOMATIC TEMPERATURE CONTROL UNIT (ATC)
UNSWITCHED POWER
KEY SWITCH POWER
EVAPORATOR CORE SENSOR
CAB TEMP SENSOR
BLOWER MOTOR
PWM DRIVER
ATC CONTROL MODULE
A/C COMP RELAY
DEF POSITION
SIGNAL GROUND
SENSOR INPUT
A/C SWITCH AUTO
A/C SWITCH MAN
LOW PRESSURE
AIR SENSOR
MODE DOOR SIGNAL
HI PRESSURE (-)
MODE DOOR SIGNAL
MODULE BATTERY (+)
FAN SPEED CONTROL
WATER VALVE CONTROL
GROUND ATC
SENSOR GROUND
SIGNAL GROUND
POTENTIOMETER GROUND
DATA TO DISPLAY
5V SUPPLY (+)
DISPLAY GROUND
ATC "J" SELECTION
WATER VALVE (+)
LOW PRESSURE SWITCH (NC)
COMPRESSOR CLUTCH RELAY
WV (-) CONTROL
WV (+)
HEATER CONTROL VALVE
GROUND CONTINUITY FUSE #24, FUSE BLOCK (61, 5 AMP).
ATC DISPLAY WILL READ IN CELCIUS WHEN FUSE IS INSTALLED
AND FAHRENHEIT WHEN FUSE IS REMOVED.
CLIMATE CONTROL (CCM) AND AUTOMATIC TEMPERATURE CONTROL (ATC) HARNESS WIRING
UNSWITCHED POWER
KEY SWITCH POWER
TO ACCESSORY POWER RELAY, RELAY RS, CAV 87, FRAME 20
FUSE #26 30 AMP 261
FUSE #25 5 AMP 261
TO RING TERM 173E, FRAME 22
FUSE #32 15 AMP 262
CAB PRESSURE BLOWER
CAB PRESSURIZATION RELAY R12 CONN 264
TO RLY R13 CAV 2, FRAME 38
TO SPL-F3, FRAME 44
SPL-E11
TO COMP BODY
TO COMP CLUTCH
HIGH PRESSURE SWITCH R.S/9.0L ENGINES
HIGH PRESSURE SWITCH 13.0L ENGINE
TO SPL-F3, FRAME 44
TO CONNECTOR 60M, CAVITY M, FRAME 57
TO CONN 235M, CAV B, FRAME 36
CCM BLOWER SPEED SWITCH AVAILABLE STD MODELS ONLY
TO STROBE/BEACON SWITCH CONNECTION 10C, CAVITY E, FRAME 70
CCM ON/OFF SWITCH AVAILABLE STD MODELS ONLY
SPL-C9
CCM VENT MOTOR CONTROL POT STD MODELS ONLY (10K OHMS)
ATC VENT MOTOR CONTROL POT DLX/LX MODELS ONLY (10K OHMS)
ATC BLOWER SPEED POT AVAILABLE DLX/LX MODELS ONLY (10K OHMS)
TEMPERATURE CONTROL POT STD MODELS ONLY (10K OHMS)
ATC TEMPERATURE CONTROL AVAILABLE DLX/LX MODELS ONLY
TO SPL-CD1, FRAME 21
SPL-CD4
SPL-CD5
MODE DOOR MOTOR AVAILABLE IN ALL MODELS
TO RING TERMINAL 173E, FRAME 22
TO RING TERMINAL 173A, FRAME 21
TO RING TERMINAL 172B, FRAME 21
TO RING TERMINAL 172A, FRAME 69
INDICATE WIRE A/C HIGH PRESSURE SWITCH CONNECTIONS FOR 8.0/9.0L CUMMINS ENGINE APPLICATIONS ONLY
RADIO ANTENNA
UNSWITCHED POWER
KEY SWITCH POWER
AM/FM/WB ANTENNA
TO ACC POWER RELAY RS, CAVITY B7 FRAME 20
FUSE #34 15 AMP 262
330 FRAME GROUND
OPTIONAL ENHANCED RADIO
95A
95B
95C
N.C.
SWITCHED 12V
ILLUMINATION
IGNITION
POWER ANTENNA
DIMMER
BATTERY
RH SPEAKER +
RH SPEAKER -
RF SPEAKER +
RF SPEAKER -
LF SPEAKER +
LF SPEAKER -
LR SPEAKER +
LR SPEAKER -
REMOTE AMP ON
AMP SENSE
N.C.
CELL TELL MUTE
ASMC (ANALOG STEERING WHEEL CONTROL)
RSA CONTROL (REAR SEAT AUDIO)
L AUX IN
AUX SHIELD GND
R AUX IN
IC AUX IN
AUX ON OFF
N.C.
CDX L IN
CDX R IN
CDX BATTERY
CDX B IN
CDX SHIELD GROUND
CDX GROUND
CDX COMMON
N.C.
CD CHANGER'S AMP AMP / CELL PHONE
SOUND SYSTEM
UNSWITCHED POWER
KEY SWITCH POWER
TO SPL-C1, FRAME 25
TO SPL-C6, FRAME 68
RIGHT FRONT SPEAKER
LEFT FRONT SPEAKER
DUAL VOICE COIL BASE SPEAKER
TO RING TERMINAL 172B, FRAME 58
POWER MIRRORS
UNSWITCHED POWER
KEY SWITCH POWER
POWER MIRROR SWITCH
SPL-CR9
LEFT MIRROR
RIGHT MIRROR
TO RING TERMINAL 172A, FRAME 69
FRAME 59
FRAME 60
FRAME 61
FRAME 62
FRAME 63
FRAME 64
FRONT AND REAR WIPERS AND WASH
UNSWITCHED POWER
KEY SWITCH POWER
FRONT WIPER MOTOR
REAR WIPER MOTOR
OPTIONAL FRONT LOWER WASHER PUMP
REAR WASHER PUMP
FRONT WASHER PUMP
FRONT WIPER SWITCH
REAR WIPER SWITCH
FRONT LOWER WIPER SWITCH
FRONT LOWER RT WIPER MOTOR
FRONT LOWER LT WIPER MOTOR
SPL-W1
SPL-W2
SPL-W3
SPL-W4
SPL-W5
SPL-W6
SEAT
UNSWITCHED POWER
KEY SWITCH POWER
SPL-C10
TO ICU CONNECTOR 61M CAVITY 23, SECTION 2S
TO ACC POWER RELAY RS CAVITY B7 FRAME 20
HEIGHT ADJUST SWITCH
SEAT AIR PUMP COMPRESSOR
OPERATOR PRESENCE SWITCH #1
OPERATOR PRESENCE SWITCH #2
BACK CUSHION HEATER
SEAT CUSHION HEATER
HEATER CONTROL MODULE
HEATER SWITCH
CIGAR LIGHTERS AND AUXILIARY POWER
UNSWITCHED POWER
KEY SWITCH POWER
TO ACC POWER RELAY S, CAV 87, FRAME 20
SPL-C16
SPL-C17
TO SPL-C24, FRAME 34
TO RING TERMINAL 134B, FRAME 22
TO RING TERMINAL 134C, FRAME 22
TO CIGAR LIGHTER 1 LOCATED FRONT A-POST
TO CIGAR LIGHTER 2 LOCATED RIGHT REAR CONSOLE
TO CIGAR LIGHTER 3 LOCATED LEFT REAR CONSOLE
TO AUXILIARY POWER RECEPTICAL 1 LOCATED FRONT A-POST
TO AUXILIARY POWER RECEPTICAL 2 LOCATED RIGHT REAR CONSOLE
TO AUXILIARY POWER RECEPTICAL 3 LOCATED LEFT REAR CONSOLE
CIGAR LIGHTERS 2 AND 3 AVAILABLE DLX/LX MODELS ONLY
POWER RECEPTICLES 2 AND 3 AVAILABLE DLX/LX MODELS ONLY
MAP/DOME/CONSOLE LIGHTS
UNSWITCHED POWER
KEY SWITCH POWER
SPL-C6
TO CONN 95A CAVITY 7 FRAME 63
DOME LAMP AND SWITCH
OPERA LIGHT
SPL-C7
SPL-C5
SPL-C8
TO SPL-C1, FRAME 25
DOOR SWITCH
MAP LIGHT
TO RING TERMINAL 173A, FRAME 21
TO RING TERMINAL 172B, FRAME 69
TO RING TERMINAL 172A, FRAME 69
TO CONN 129 CAVITY C FRAME 70
FRAME 65
FRAME 66
FRAME 67
FRAME 68
CAB ROOF GROUND DISTRIBUTION/COMMUNICATIONS RADIO
UNSWITCHED POWER
KEY SWITCH POWER
TO RING TERMINAL 139C FRAME 23
TO RING TERMINAL 138C FRAME 23
FUSE #13 15 AMP 262
TO CONN 6 CAV 6 FRAME 32
2-WAY COMMUNICATIONS RADIO
BUSINESS BAND ANTENNA
RING TERMINAL 172A
WIRE NUMBER | TO | FRAME
98 (R) | SPL-C8 | 68
105(B) | CON 130 | 64
197(VN) | CON 123 | 62
205(B) | CON 257 | 39
553(B) | CON 238 | 58
RING TERMINAL 172B
WIRE NUMBER | TO | FRAME
95 (R) | SPL-C7 | 68
124(B) | CON 95A | 63
202(B) | CON 419 | 24
277 (B) | CON 260 | 38
324(B) | CON 108M | 68
502(VN) | CON 128 | 62
CHASSIS GND INSIDE CAB OVERHEAD PANEL ALL MODELS
TO RING TERMINAL 173A FRAME 21
STROBE/BEACON
UNSWITCHED POWER
KEY SWITCH POWER
TO RING TERMINAL 139A FRAME 23
FUSE #18 5 AMPS 261
STROBE/BEACON
TO SPL-C8 FRAME 68
STROBE/BEACON SWITCH
TO CONN 128 CAVITY C FRAME 62
STD MODELS ONLY
TO RING TERMINAL FRAME 21
TO CONN 238 CAVITY B FRAME 58
GPS SYSTEM
UNSWITCHED POWER
KEY SWITCH POWER
TO RING TERMINAL 134B FRAME 22
FUSE #10 5 AMPS 261
TO SPL-C21 FRAME 25
TO SPL-C20 FRAME 25
TO RING TERM 200B FRAME 23
SPL-GPS2
SPL-GPS3
SPL-GPS1
TO DIAGNOSTIC CONNECTOR 17A FRAME 19
IMPLEMENT CAN BUS TERMINATOR
GPS ANTENNA CONNECTOR
END OF ROW
GPS SYSTEM
UNSWITCHED POWER
KEY SWITCH POWER
GPS RECEIVER BOX
DB-SPL-GPS3
TO OPTIONAL FUNCTION CONTROLLER
RING TERMINAL 326
WIRE NUMBER | TO | FRAME
556(R) | FUSE 327 | 72
FUSE #327 40 AMP PH LINE
GPS IMPLEMENT POWER RELAY R24
SPL-GPS1
GPS IMPLEMENT CONNECTOR
TO IMPLEMENTS
RING TERMINAL 297
WIRE NUMBER | TO | FRAME
559(R) | CON 283 | 72
FRAME 69
FRAME 70
FRAME 71
FRAME 72
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TJ SERIES TRACTORS
TJ-275/325, TJ-375/425
S/N RVS002701 AND AFTER
MANUAL TRANSMISSION
ELECTRICAL SCHEMATIC
87053273
LEGEND
INDICATES CONSTANT POWER
INDICATES POWER WHEN KEY SWITCH IS ON
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STEP 2C: Check the ECM ambient air pressure signal voltage.

Condition:
- Install the breakout cable, (Part #3824775), between the sensor and the sensor harness connector.
- Key switch in the "ON" position.

Action	Specifications/Repair	Next Step
Check the ECM ambient air pressure signal voltage. • Measure the signal voltage from pin B to pin C of the breakout cable.	**OK** **Altitude (ft) - Voltage (volts)** **0 (sea level) - 4.00 to 4.58** **3000 - 3.60 to 4.40** **6000 - 3.20 to 4.00** **9000 - 3.00 to 3.80** **12000 - 2.60 to 3.40**	3A
	NOT OK **Replace the ambient air pressure sensor** Refer to Procedure 019-004.	5A



19c00095

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Section 10
Chapter 39

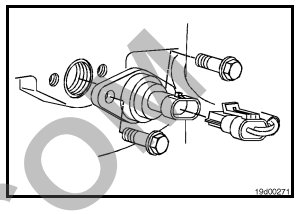
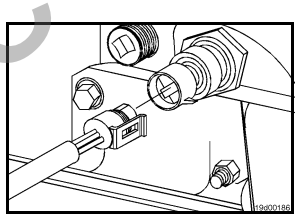
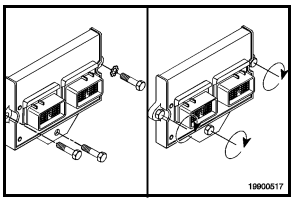
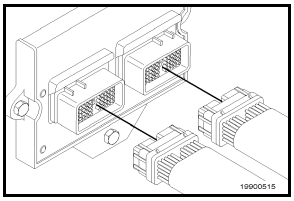
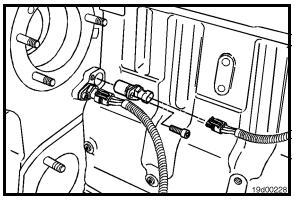
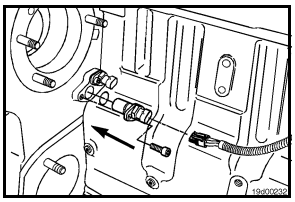
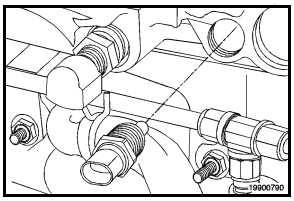
9 Liter Engine

Drive Units

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Note: All coding used in the 8.3 Liter and 9 Liter engine manuals are Cummins engine codes. These engine codes have no meaning to New Holland warranty codes and should only be used for procedure steps.

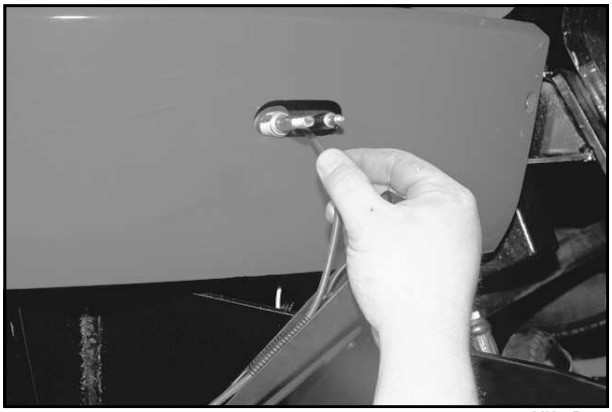
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Component or Assembly (Procedure)	Ref.No./Steps	Metric	U.S.	
Electronic Engine Controls - Torque Values				
Ambient Air Pressure Sensor (019-004)				
Ambient Air Pressure Sensor		9 N·m	80 in-lb	
Coolant Temperature Sensor (019-019)				
Coolant Temperature Sensor		14 N·m	10 ft-lb	
Electronic Control Module (ECM) (019-031)				
Electronic Control module (ECM)		24 N·m	18 ft-lb	
Deutsch Connectors		2.8 N·m	25 in-lb	
Engine Position Sensor (EPS) (019-038)				
Engine Position Sensor		8 N·m	71 in-lb	
Engine Speed Sensor (019-042)				
Engine Speed Sensor		8 N·m	71 in -lb	
Intake Manifold Temperature Sensor (019-059)				
Intake Manifold Temperature Sensor		14 N·m	10 ft-lb	

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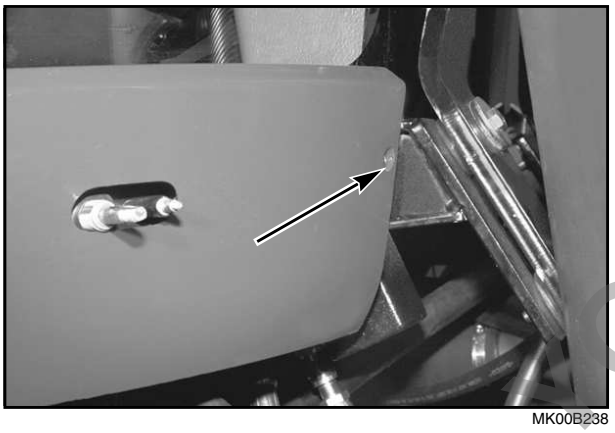
STEP 7



MK00B240

Disconnect the washer tube from the wiper motor.

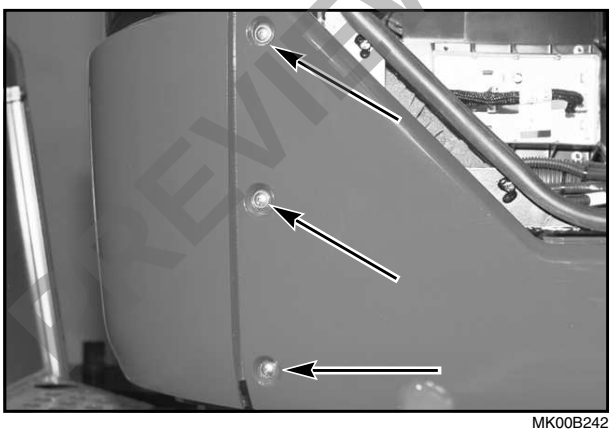
STEP 8



MK00B238

Remove the single screw from the front RH lower side skirt.

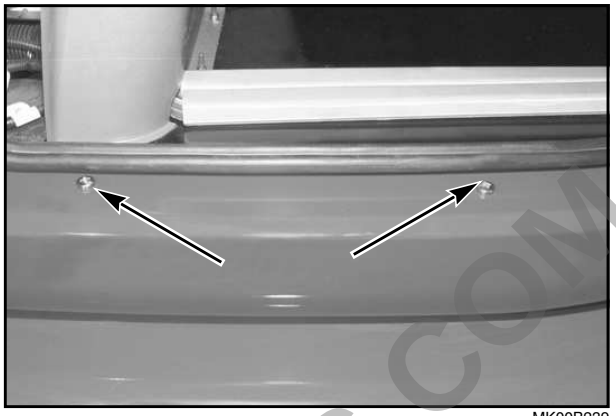
STEP 9



MK00B242

Remove the three screws from the rear RH lower side shirt.

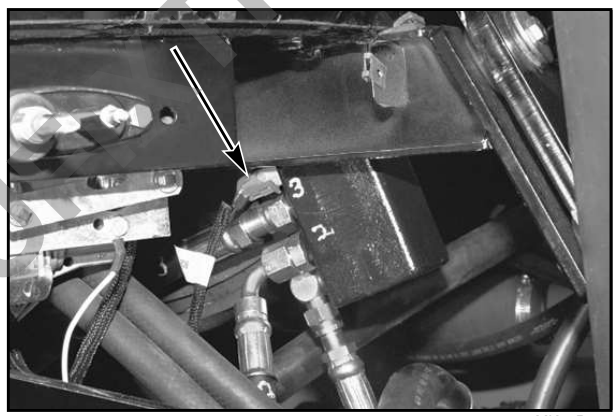
STEP 10



MK00B239

Remove the two screws located inside the RH door frame. Remove the RH lower side skirt.

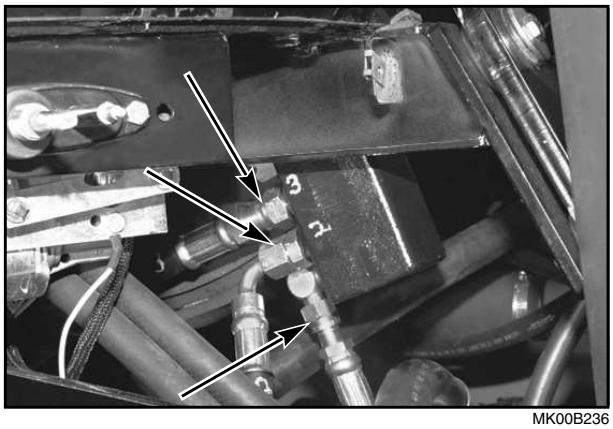
STEP 11



MK00B237

Disconnect the wire connector from the brake valve.

STEP 12



MK00B236

Remove the three hoses from the brake valve.

NOTE: *Mark all hoses for correct assembly.*

NOTE: *Install caps and plugs on all fittings.*

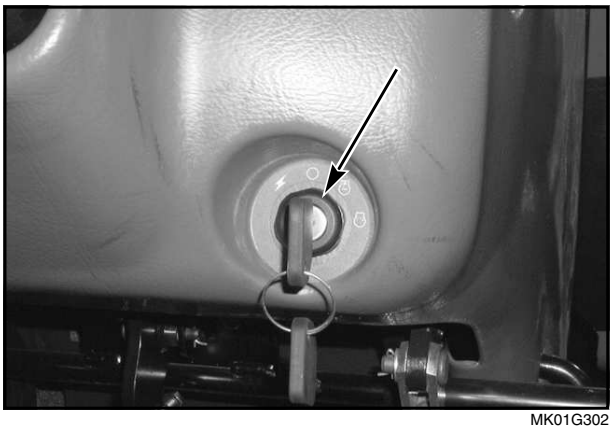
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FRONT AXLE REMOVAL

NOTE: *If the tractor is equipped with front suitcase weights, the front weight hanger assembly must be removed from the tractor.*

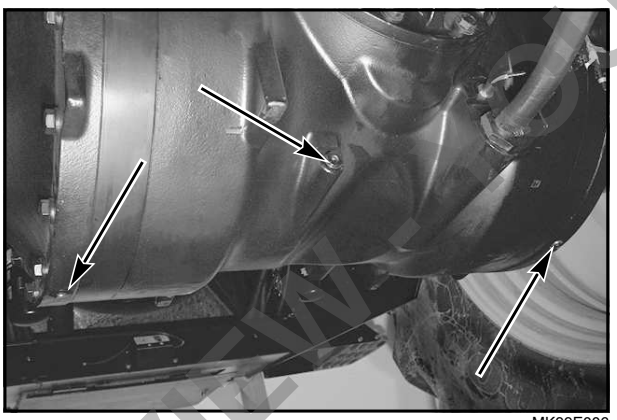
STEP 1



MK01G302

Park the tractor on a smooth and level concrete surface. Remove the switch key and install blocks in front and behind both rear wheels.

STEP 2

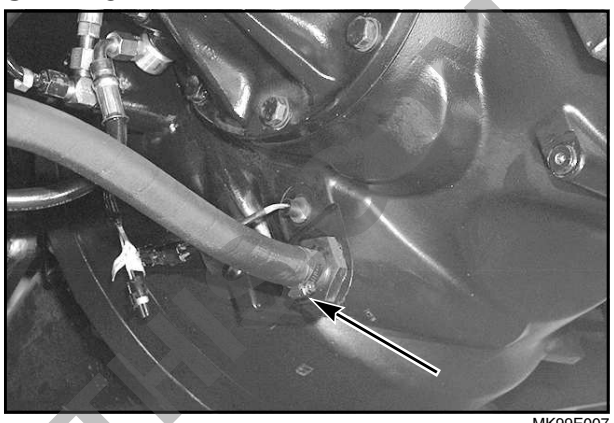


MK99E006

Remove each of the three drain plugs to drain the oil from the axle. Reinstall and tighten the plugs after the oil is drained.

NOTE: *There will be approximately 18 gallons (68 L) of oil in the axle.*

STEP 3

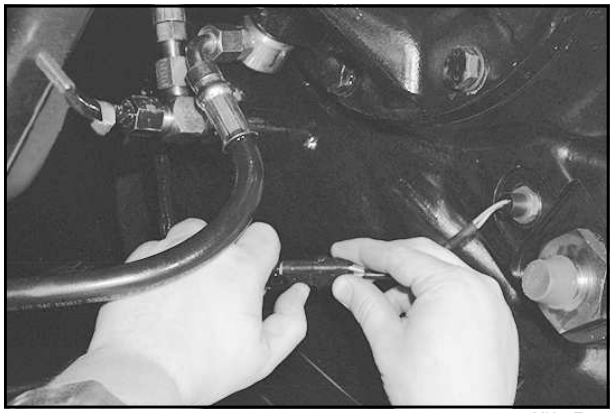


MK99E007

Loosen the hose clamp and remove the lube return hose from the fitting.

NOTE: *Install caps and plugs on all fittings.*

STEP 4



MK99E008

Disconnect the axle temperature sender connector.

NOTE: *If equipped with diff lock, disconnect the wires from the diff lock solenoid.*

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FAULT CODE TRANS 12011 Communication Lost With The Armrest Controller

Cause:
Communication is lost between the transmission and armrest controller.

Possible failure mode:

1. Armrest controller problem (power, ground, software)
2. Tractor Data Bus (TDB) problem.
3. Controller failure.

Solution:
Make sure the armrest controller, transmission controller and TDB are functioning properly.

1. Check the function of the armrest controller.

   A. Make sure the connector C137 to the armrest controller is correctly installed and fully seated.

   B. Inspect the data bus wires (cavities 4 and 5) and power and ground wires (cavities 12 and 11) into connector C137. Gently pull on the wires to ensure that the terminals are fully seated and the wires are not broken.

   C. Turn the key switch to the ON position. Check the LED lamp on the armrest controller.

NOTE: *The LED lamp for the armrest controller is located on the controller circuit board. It can be seen by looking through the opening for connector C137 at the rear of the armrest.*

   1. LED lamp on constant.

      a. No software installed in the controller. Using the service tool, install the correct software. Perform the ARM SET MENU in the instrumentation controller.

      b. After completing a. above, if the LED is still on constant, the armrest controller has failed and must be replaced.

   2. LED lamp flashing - controller is powered and functioning. Go to Step 2 below.

   3. LED lamp off - no power or ground to controller.

      a. Check fuse #38. Verify B+ power at fuse #38.

      b. Disconnect connector C137. Verify approximately 12 volts power at cavity 12. Verify continuity to clean ground at cavity 11.

      c. If controller has power and ground and LED is still off, the armrest controller has failed and must be replaced.

   D. With the key switch in the ON position and connector C137 disconnect, measure the voltage between the TDB high and low wires and clean ground. TDB high (cavity 4) should measure 2.5 to 2.8 volts. TDB low (cavity 5) should measure 2.2 to 2.5 volts. If both voltages are zero, go to Step 3 below. If the voltages are low or high, go to Step 4 below.

NOTE: *If the armrest controller is the only controller offline and INST 12011 has also occurred, check the Tractor Data Bus wiring from splice #8 to connector C137 for damaged wires, etc. before testing the entire data bus.*

2. Check the function of the transmission controller:

   A. Make sure that connectors C027 and C028 to the transmission controller are correctly installed and fully seated.

   B. Inspect the data bus wires (C028 cavities 1 and 12) and power and ground wires (C027 cavities 4 and 8) Gently pull on the wires to ensure that the terminals are fully seated and the wires are not broken.

   C. Turn the key switch to the ON position. Check the LED lamp on the transmission controller.

NOTE: *The LED lamp for the transmission controller is located on the end of the controller facing forward.*

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