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24-23

STANDARD REPAIR TIMES

	Group 10 - Air Cleaner System	MODELS			
OPT. NO.	Operation Name	HDX	ER	HD	MVP EF & EFX
10-01	Bracket, Mounting, Air Cleaner Assembly - Remove & Replace	0.3	0.3	0.3	0.3
10-02	Hose / Elbow, Intake System, (One) - Remove & Replace	0.2	0.2	0.2	0.3
10-03	Hose, All Tighten Check For Leaks	0.2	0.2	0.2	0.2
10-04	Restriction Indicator - Remove and Replace	0.2	0.2	0.2	0.2
10-05	Air Restriction Line - Remove & Replace				0.2
10-07	Von # 33 Air Intake Tube		0.4		
10-08	Air Cleaner Tube Replacement (PSB - Index 10, Bulletin 3)				0.4
10-09	Air Restriction Mounting Bracket (PSB - Index 10, Bulletin 2)				0.2

STANDARD REPAIR TIMES

	Group 11 - Front Axle System	MODELS			
OPT. NO.	Operation Name	HDX	ER	HD	MVP EF & EFX
11-01	Front Axle Beam Assembly - Replace (Includes Remove & Replace Assembly, Transfer All Parts To New Beam Assembly, Lubrication, Center Steering - Does Not Include Checking Alignment)	7.4	7.4	7.4	7.4
11-02	Drag Link - Replace & Align	1	1	1	1
11-03	Hub Assembly Front Remove & Replace . Clean & Inspect Bearings	0.9	0.9	0.9	0.9
11-05	Hub Cap Assembly - Remove & Replace	0.1	0.1	0.1	0.1
11-06	Front Bearing & Cup (Wheel Removed) - Remove & Replace Inner Bearing	0.9	0.9	0.9	0.9
11-07	Front Bearing & Cup (Wheel Removed) - Remove & Replace Outer Bearing	0.2	0.2	0.2	0.2
11-08	Kingpin and Bushings, Both Sides - Remove & Replace	2.8	6.2	6.2	2.8
11-09	Steering Knuckle Assembly - Remove & Replace	2.5	3.1	3.1	2.5
11-10	Steering Arm, Upper - Remove & Replace	1.4	1	1	1.4
11-11	Steering Arm, Lower - Remove & Replace (Includes Checking Toe In)	1.4	1.5	1.5	1.4
11-12	Wheel Studs Remove & Replace Up to 3 Per Wheel.	1	1	1	1
11-13	Tie Rod End - Remove & Replace (Includes Resetting Toe In)	1.3	1.3	1.3	1.3
11-14	**Not in Use**				
11-15	Remove & Replace Tie Rod Tube Includes checking Toe In.	1.2	1.3	1.3	1.2

STANDARD REPAIR TIMES

	Group 12 - Rear Axle System	MODELS			
OPT. NO.	Operation Name	HDX	ER	HD	MVP EF & EFX
12-01	Rear Axle Housing, Standard Suspension - Replace (Includes Remove & Replace Axle Assembly, Transfer All Parts)	10	10	10	10
12-02	Rear Axle Housing , Air Suspension - Replace (Includes Removing Entire Suspension	10	10	10	10
12-03	Rear Axle Shaft Remove & Replace (one)	0.5	0.7	0.7	0.5
12-04	Differential Carrier Assemebly Remove & Replace Includes R/R Axle Shafts	4	4	4	5
12-05	Differential Carrier Assembly Overhaul, Includes R/R From Unit.	12	12	12	12
12-06	Hub and Wheel Assembly, Rear (One) Remove & Replace	1	1	1	1
12-07	Seal, Wheel, Hub Removed - Replace	1	0.3	0.3	1
12-08	Pinion Seal - Remove & Replace	2	2	2	2
12-09	Vent, Housing - Replace	0.2	0.2	0.2	0.2
12-10	Brake Camshaft Tube	1	1	1	1
12-11	Differential Carrier Assembly With Air Suspension Includes R/R Axle Shafts	6	6	6	6
12-12	Drive Axle Studs, Up to 3 R/R	0.5			0.5
12-13	Wheel Studs Rear Axle Up to 3, R/R	1.2			1.2
12-14	Seal, Wheel, Hub Removed- Replace w/contaminated Brakes	1.4			1.4

STANDARD REPAIR TIMES

	Group 13 - Brakes - Pneumatic and Hydraulic System	MODELS			
OPT. NO.	Operation Name	HDX	ER	HD	MVP EF & EFX
13-01	Drain Valve, Automatic - Remove & Replace	0.3	0.3	0.3	0.3
13-02	Double Check Valve - Remove & Replace	0.4	0.4	0.4	0.4
13-03	Single Check Valve - Remove & Replace	0.3	0.4	0.4	0.3
13-04	PR- 2 Valve - Remove & Replace	0.5	0.5	0.5	0.5
13-05	Quick Release Valve - Remove & Replace	1.6	1.6	1.6	1.6
13-06	Relay Valve - Remove & Replace	1.3	1.3	1.3	1.3
13-07	SR - 1 Valve - Remove & Replace	0.5	0.5	0.5	0.5
13-08	Safety Valve - Remove & Replace	.2.	0.2	0.2	0.2
13-09	Treadle (Application) - Remove & Replace	1.2	1.2	1.2	1.2
13-10	Compressor, Cummins - Remove & Replace	1.9	2.5	2.5	1.9
13-11	Dryer - Remove & Replace	1	1	1	1
13-12	Governor, Air - Remove & Replace	1	1	1	1
13-13	Governor, Air - Adjust	0.2	0.2	0.2	0.5
13-14	Hose, Brake - Remove & Replace	0.3	0.3	0.3	0.3
13-15	Switch, Stop Light - Remove & Replace	0.5	0.5	0.5	0.5
13-16	Switch, Low Pressure- Remove & Replace	0.5	0.5	0.5	0.5
13-17	Troubleshoot Air System	1	1	1	1
13-18	Tank - Air - Remove & Replace	0.8	1	1	0.8
13-19	Fitting - Air (Any One) Remove & Replace	0.3	0.3	0.3	0.3
13-20	Von # 31 - PP1 Valve MVP- EF & ER				0.4
13-21	Von # 32 - PR2 Valve				0.3
13-22	PP - 1 Valve - Remove & Replace	0.5	0.5	0.5	0.5
13-23	Ind. 17 Bul. 5 Air Compressor Mtg. Brkt or Cummins 6B		0.8		
13-24	Ind. 17 Bul. 5 Air Compressor Mtg. Brkt on Cummins		0.8		
13-25	**not in use**				
13-26	ABS Module Remove and Replace	0.8	2		0.8

STANDARD REPAIR TIMES

	Group 13 - Brakes - Pneumatic and Hydraulic System	MODELS			
OPT. NO.	Operation Name	HDX	ER	HD	MVP EF & EFX
	Foundation Air Brake System				
13-50	Front Brake Chamber- Remove & Replace	0.5	0.5	0.5	0.5
13-51	Front Brake Drum, Outboard Mounted - Remove & Replace	0.4	0.4	0.4	0.4
13-52	Front Brake Shoes, One Wheel - Remove & Replace (Includes Inspecting and Ajusting Bearings)	1	1	1	1
13-53	Front Brake Shoes R/R And Reline (Per Wheel.)	1.6	1.6	1.6	1.6
13-54	Slack Adjuster - Remove & Replace		0.5	0.5	0.6
13-55	Rear Brake Chamber, Spring Brake Assembly (Remove & Replace)	0.7	0.7	0.7	0.7
13-56	Rear Brake Drum, Outboard - Remove & Replace	0.5	0.5	0.5	0.5
13-57	Rear Brake Drum, Spoke Wheel - Remove & Replace				1.6
13-58	Rear Brake Shoes, Outboard Drum, One Wheel - Remove & Replace	1.9	0.8	0.8	1.9
13-59	Rear Brake Shoes, Spoke Wheel, One Wheel - Remove & Replace				2
13-60	Rear Brake Shoes Remove and Replace and Reline (Per Wheel)	2.7	1.6	1.6	2.7
13-61	Rear Brake Spider Assembly - Remove	3	3	3	3
13-62	Rear Camshaft, Brake, Includes New Bushings, One - Remove & Replace	2.3	2.3	2.3	2.3
13-63	Slack Adjuster, Spring & Neway Suspension (Remove & Replace)	1	0.6	0.6	1
13-64	**not in use**				
13-65	Slack Adjuster, Ridewell Suspension - Remove & Replace	1	1	1	1
13-66	Front "S" Cam Bracket to Remove & Replace	1.2		1	1.2
13-67	To R&R Dust Shield	0.5			0.5

STANDARD REPAIR TIMES

	Group 13 - Brakes - Pneumatic and Hydraulic System	MODELS			
OPT. NO.	Operation Name	HDX	ER	HD	MVP EF & EFX
	Hydraulic Brake System				
13-100	Front Caliper - Remove & Replace (With Wheels Removed) Includes Bleeding System				0.7
13-101	Brake Line Assembly - Remove & Replace (Reservoir, Right or Left) (Includes Bleeding System)				0.8
13-102	Brake Line Assembly Primary Supply - Remove & Replace (Includes Bleeding System)				0.8
13-103	Brake Line Assemble Secondary Supply - Remove & Replace (Includes Bleeding System)				0.8
13-104	Hose Front to Caliper Right or Left - Remove & Replace (Includes Bleeding System)				0.8
13-105	Fitting Replace (Any 1 fitting) (Includes Bleeding System)				0.8
13-106	Front Rotor - Remove & Replace Disc Wheel (Wheel Removed)				0.7
13-107	Front Rotor - Remove & Replace Spoke Wheel (Wheel Removed)				1.2
13-108	Brake Hydra - Max- Remove & Replace (Includes Bleeding of all Brakes)				1.3
13-109	Brake Booster Over Haul				1.8
13-110	Electric Motor for Booster Pump (Includes Bleed of Brakes)				1.8
13-111	Reservoir - Remove & Replace (Includes Bleeding of Brakes)				0.5
13-112	Rear Caliper Remove & Replace (Wheel Removed) (Includes Bleeding System)				1
13-113	Brake Line Assembly to Rear (Includes Bleeding System)				0.8
13-114	Hose Assembly Rear Brake to Rear Caliper (Right or Left) (Includes Bleeding System)				0.8
13-115	Rear Rotor Remove & Replace (Disc Wheel Removed)				1.2

STANDARD REPAIR TIMES

	Group 13 - Brakes - Pneumatic and Hydraulic System	MODELS			
OPT. NO.	**Operation Name**	**HDX**	**ER**	**HD**	**MVP EF & EFX**
13-116	Rear Rotor Remove & Replace (Spoke Wheel Removed)				1.3
13-117	R&R Hydraulic Brake Modulator (includes bleeding of all brakes				2
13-118	To Remove & Replace The Manual Park Brake Lever Assembly				0.5

STANDARD REPAIR TIMES

	Group 14 - Clutch System	MODELS			
OPT. NO.	Operation Name	HDX	ER	HD	MVP EF & EFX
14-01	Clutch Assembly - Remove & Replace (Includes Remove & Replace Transmission Assembly)				5
14-02	Clutch Linkage Adjustment				1

STANDARD REPAIR TIMES

	Group 15 - Throttle System	MODELS			
OPT. NO.	Operation Name	HDX	ER	HD	MVP EF & EFX
15-01	not in use				
15-02	not in use				
15-03	not in use				
15-04	not in use				
15-05	not in use				
15-06	not in use				
15-07	Throttle Pedal / Position Sensor R/R	0.4	0.4	0.4	0.4
15-08	not in use				
15-09	not in use				
15-10	Treadle / Adjustable Motor	0.5	0.5	0.5	

STANDARD REPAIR TIMES

	Group 16 - Belt System	MODELS			
OPT. NO.	**Operation Name**	**HDX**	**ER**	**HD**	**MVP EF & EFX**
16-01	Belt, Air Conditioner Drive - Replace **Caterpillar**	0.7	0.7	0.7	1
16-02	Belt, Air Conditioner Drive - Replace **Cummins**	0.7	0.7	0.7	1
16-03	Belt, Alternator / Compressor (With Air Conditioning - Replace **Caterpillar**	0.7	0.7	0.7	1
16-04	Belt, Alternator / Compressor (With Air Conditioning) - Replace **Cummins**	0.7	0.7	0.7	1
16-05	Belt, Alternator / Compressor (Without Air Conditioning) - Replace **Caterpillar**	0.2	0.2	0.2	0.5
16-06	Belt, Alternator / Compressor (Without Air Conditioning) - Replace **Cummins**	0.2	0.2	0.2	0.5
16-07	Belt, Water Pump (Without Air Conditioning) - Replace **Caterpillar**	0.4	0.4	0.4	0.7
16-08	Belt Tensioner	0.2	0.2	0.2	
16-09	Belt, Mechanical Fan Drive **Caterpillar**		0.5		
16-10	Belt, Mechanical Fan Drive **Cummins**		0.5		
16-11	Belt , Alternator / Compressor **John Deere**	0.7			
16-12	Bel, Alternator / Compressor **MBE**	0.7		0.7	
16-13	Index 16 Bulletin 7 A/C Idler/ Bracket Upgrade	1.5			
16-14	Retrofitting the AC Tensioner TBB 61160961 to TBB 158476 This is For Units Built Prior to Body 1030379	1			

STANDARD REPAIR TIMES

	Group 18 - Transmission Control System	MODELS			
OPT. NO.	**Operation Name**	**HDX**	**ER**	**HD**	**MVP EF & EFX**
18-01	not in use				
18-02	Shift Control, Manual - Replace				2
18-03	Shift Control Cables, Automatic - Replace				2
18-04	Modulator - Mechanical Remove & Replace (Includes Adjust)				0.6
18-05	Modulator - Mechanical - Adjust				0.3
18-06	ECU, Allison Trans R/R	0.7			0.7

STANDARD REPAIR TIMES

	Group 19 - Cooling System	MODELS			
OPT. NO.	Operation Name	HDX	ER	HD	MVP EF & EFX
19-01	Cooler, Transmission Oil R/R	**2.4**	2.4	**2.4**	**1.2**
19-02	not in use				
19-03	Fan Blade - Replace	5	1	1	1.7
19-04	Fan Clutch Assembly - Replace (EF units - Includes removal of engine cover)		1		0.8
19-05	Pump, Coolant Booster - Replace	0.8	0.8	0.8	0.8
19-06	Radiator Assembly , Cummins, With After Air Cooler Remove & Replace		4		3.5
19-07	Radiator Assembly - With After Cooler Remove & Replace.	8.3	6.1	6.1	5.6
19-08	Radiator Core Remove & Replace.	9	9	9	9
19-09	Radiator Endtank Remove & Replace	7	5	5	5
19-10	Radiator Hose, Upper - Replace	0.3	0.3	0.3	0.3
19-11	Radiator Hose Lower - Replace	0.4	0.4	0.4	0.5
19-12	Shutter Assembly - Repace				5
19-13	Shutter Cylinder - Replace				0.8
19-14	Shutterstat - Replace (Includes Draining & Flushing Radiator)				1
19-15	Shroud, Radiator - Replace With Shutters				5.5
19-16	Shroud, Radiator Replace Without Shutters	4.5	4.5	4.5	3.5
19-17	Surge Tank - Replace	1.8		1.8	
19-18	Sight Glass, in Surge Tank - Replace		0.5		0.5
19-19	Valve, Heater Shut - off - Replace (Includes Draining & Flushing Radiator)	1.2	1.2	1.2	1.2
19-20	Radiator Draining & Flushing	1	1	1	1
19-21	VON # 28 Coolant Recovery System				0.8
19-22	VON # 29 Cooling System Modification- Cat 3116		3.5		3.5
19-23	**not in use**				
19-24	VON # 30 Air Fan Drive Modification		0.5		
19-25	VON # 35 MVP-ER Coolant Recovery		0.5		

STANDARD REPAIR TIMES

	Group 19 - Cooling System	MODELS			
OPT. NO.	Operation Name	HDX	ER	HD	MVP EF & EFX
19-26	Radiator Mounting Bushings	1	1	1	3.5
19-27	Radiator Support Rod Bushings	0.2	0.2	0.2	
19-28	**not in use**				
19-29	**not in use**				
19-30	**not in use**				
19-31	Ind. 33 Bul. 7 Trans. Oil Cooler Hose	0.8			
19-32	Index 23 Bul. 17 Heater Plumbing Revision	2			
19-33	Index ss 19 Bul. Surge Tank Refrofit Draining & Refilling	0.4			
19-34	MD3060R Accumulator Pre 07 Includes Draining	2.5	2.5	2.5	
19-35	MD3060R Accumulator 07 Includes Draining	1.5			
19-36	To R&R The Fan Blade On EPA 07 Engines	7			
19-37	To R7R Radiator Rock Shield EPA 07 Units Only	0.5			
19-38	Surge Tank to Remove & Replace on EF'S only includes draining & flushing				4.5

STANDARD REPAIR TIMES

	Group 20 - Electrical System	MODELS			
OPT. NO.	Operation Name	HDX	ER	HD	MVP EF & EFX
20-01	Alternator - Remove & Replace	0.8	1	1	1
20-02	Batteries - Replace (Per Battery)	0.3	0.3	0.3	0.3
20-03	Battery Cables, Positive - Replace	0.5	0.5	0.5	0.8
20-04	Battery Cables, Ground - Replace	0.5	0.5	0.5	0.8
20-05	Bell or Buzzers, Warning - Replace	0.3	0.3	0.3	0.3
20-06	Circuit Breakers, Front Panel - Replace	0.1	0.1	0.1	0.1
20-07	Circuit Breaker, Rear Panel - Replace	0.1	0.1	0.1	0.1
20-08	Diode, Turn Signal, Hazard - Replace, Diode - General	0.3	0.3	0.3	0.3
20-09	Alarmstat - Replace (Includes Draining Coolant)		0.5		0.5
20-10	Module Low Coolant - Replace		0.4		0.5
20-11	Pressurestat - Replace		0.3		0.3
	Engine Protection System - Kysor				
20-12	Probe, Low Coolant - Replace	0.4	0.3	0.3	0.4
	Flashers				
20-13	Flasher, Turn Signal, Standard - Replace	0.2	0.2	0.2	0.2
20-14	Flasher, Turn Signal, Heavy Duty - Replace	0.3	0.3	0.3	0.3
20-15	Flasher, Emergency - Replace	0.2	0.2	0.2	0.2
	Gauges - Dash and Rear Panel				
20-16	Air Pressure - replace	0.4	0.4	0.4	0.3
20-17	Ammeter - Replace				0.3
20-18	Fuel - Replace				0.3
20-19	Oil Pressure - Replace				0.3
20-20	Speedometer - Replace				0.3
20-21	Tachometer - Replace				0.3
20-22	Temperature, Engine - Replace				0.3
20-23	Temperature, Transmission Oil Replace				0.3
20-24	Voltmeter - Replace				0.3

STANDARD REPAIR TIMES

	Group 20 - Electrical System	MODELS			
OPT. NO.	Operation Name	HDX	ER	HD	MVP EF & EFX
	Gauges - Dash And Rear Panel				
20-25	Horn, Electric - Replace	0.5	0.5	0.5	0.3
20-26	Relay, Horn - Remove & Replace	0.4	0.4	0.4	0.3
20-27	Sender, Fuel Gauge - Replace	0.8	0.8	0.8	0.8
20-28	Sender, Oil Pressure - Replace	0.3	0.3	0.3	0.3
20-29	Sender, Water Temperature - Replace		0.3		0.3
20-30	Sender, Transmission Temperature - Replace	0.3	0.3	0.3	0.4
20-31	Sender, Speedometer, Front Wheel- Replace		0.8		
20-32	Sender, Speedometer, Transmission - Replace				0.3
20-33	Starter Remove & Replace	1	1	1	1
20-34	Solenoid, Door Interlock - Remove & Replace	0.8	0.8	0.8	0.8
20-35	Solenoid, Fast Idle - Remove & Replace		0.5		
20-36	Solenoid, Hydraulic Control Valve - Remove & Replace	0.4	1	1	
20-37	Solenoid, Retarder - Remove & Replace		1		1
20-38	Solenoid, Starter Removed - Replace	0.6	0.6	0.6	0.6

	Switches - General				
20-39	Switch, Fast Idle - Replace	0.3	0.3	0.3	0.3
20-40	Switch, Headlight - Replace	0.3	0.3	0.3	0.3
20-41	Switch, Ignition, Front - Replace	0.5	0.5	0.5	0.5
20-42	Switch, Ignition, Rear - Replace	0.5	0.5	0.5	
20-43	Switch, Low Air Pressure - Replace	0.6	0.6	0.6	0.5
20-44	Switch, Master Disconnect - Replace	0.6	0.6	0.6	0.4
20-45	Switch, Starter, Rear - Replace	0.5	0.5	0.5	
20-46	Switch, Stop Light - Replace	0.5	0.5	0.5	0.5
20-47	Switch, Toggle, All - Replace	0.4	0.4	0.4	
20-48	To Remove & Replace The Turn Signal Switch.	2.9	2.9	2.9	2.9
20-49	Electric Box Rear Remove & Replace Modular	3	5	5	
20-50	Electric Box Rear Weld Bracket 6C or Replace on 6B 3116		1		
20-51	Troubleshooting the Electrical Circuit	2	2	2	2
20-52	**not in use**				
20-53	To Remove & Replace the Electronic Hydraulic Module	0.1			
20-54	**not in use**				
20-55	**not in use**				
20-56	**not in use**				
20-57	**not in use**				
20-58	Ind. 20 Bul. 36 Ground Strap Improvement	0.2			
20-59	Ind. 20 Bul. 38 LED Brake Lights	0.4			
20-60	Ind. 20 Bul. 39 Vehicle Electrical Center Upfit		0.4		
20-61	Ind. 21 Bul., 8 Hehr Powerline Alternator improve.				1
20-62	ICU 3 Dash Electrical Assembly	0.5	0.5	0.5	0.5
20-63	PC Board To Remove & Replace.	1.5	2	2	
20-64	Ind. 20 Bul. 45 Electrical Harness. Re-routing.	0.3			
20-65	To R & R The Dual Switch	0.7	0.7	0.7	0.5
20-66	To Remove & Replace the Dash Harness	4.5			4.5

STANDARD REPAIR TIMES

	Group 23 - Engine Installation System	MODELS			
OPT. NO.	**Operation Name**	**HDX**	**ER**	**HD**	**MVP EF & EFX**
23-01	Isolator, Engine Front Support - Replace	1	1	1	1
23-02	Isolator, Rear Support Replace (PSB - Index 22 Bul. 5)		0.8		0.8
23-03	Air in take pipe to the turbo brkt.	0.3			
23-04	PSB Ind. 22 Bul10 Air intke pipe to turbo support brkt.	0.3			
23-05	R&R Engine	16	16		20
23-06	To Remove and Replace the Engine Coolant Prehrate, Element	0.7	0.7	0.7	1.2
23-07	Oil Dipstick Cummins EPA 07 Right hand R/R.	1			
23-08	Fresh Air Compressor Elbow Hose R/R 6B Cummins 2010 EPA	1			

STANDARD REPAIR TIMES

	Group 24 - Exhaust System	MODELS			
OPT. NO.	Operation Name	HDX	ER	HD	MVP EF & EFX
24-01	Bellows Joint - Replace	0.4	0.4	0.4	0.4
24-02	Muffler Assembly - Replace (Includes Pipe Removal)	1	1	1	1
24-03	Pipe, Manifold to Bellows, Two Piece - Replace	0.7	0.7	0.7	0.8
24-04	Pipe, Bellows to Muffler- Replace	0.5	0.5	0.5	0.5
24-05	Pipe, Tail - Replace	0.3	0.3	0.3	0.3
24-06	Pipe, Tail (Street Side) - Replace	0.6	0.6	0.6	0.5
24-07	Strap, Support - Replace (Any Position)	0.2	0.2	0.2	0.2
24-08	Pipe, Tail (In Front of Wheel)				0.3
24-09	Support, Exhaust Pipe	0.3	0.3	0.3	0.3
24-10	Clamp - (Any Position)	0.2	0.1	0.1	0.2
24-11	Exhaust Pipe From Turbo	1	0.5	0.5	0.6
24-12	Exhaust Brake Soleniod	0.5			
24-13	**not in use**				
24-14	Ind. 24 Bul. 10 Exhaust Pipe Heat Shield for Wirng Harness Area.	0.3			
24-15	Index 24 Bul. 11 Turbo Pipe Flange Crack	0.8			
24-16	Index 24 Bul. 12 Exhaust Hanger				0.5
24-17	To Remove & Replace the Def Tank	1.5			1.5
24-18	DEF Supply Line On Tank R/R	1.3			1.3
24-19	DEF Return Line On Tank R/R	1.3			1.3
24-20	DEF Supply Line, Pump to Metering Device R/R	0.7			0.7
24-21	DEF Coolant Supply Line on Pump	1.6			1.6
24-22	DEF Coolant Supply Line on Pump to Tank	1.3			1.3
24-23	DEF Tem Sensor This includes the Removel of the DEF Tank.	2.1			2.1

STANDARD REPAIR TIMES

	Group 26 - Frame System	MODELS			
OPT. NO.	Operation Name	HDX	ER	HD	MVP EF & EFX
26-01	Crossmember, Front - Replace	3.2	3.2	3.2	3
26-02	Crossmember, Intermediate - Replace - No Time Set - Depends On Options Or Units, Use "M" Time Actual.				
26-03	Crossmember, Rear, Spring Suspension - Replace	6	6	6	2
26-04	Crossmember, Rear, Air Suspension - Replace. This will be replaced by a four crossmember.	4	9	4	9
26-05	Channel, Engine Mount, Front - Replace	1.6	1.6	1.6	1.4
26-06	Engine Mount, Rear - Replace	1.6	1.6	1.6	1.5
26-07	Bumper, Inner, Rear - Replace	1.5	1.5	1.5	
26-08	not in use				
26-09	Frame Rail R/R	30			24.7

STANDARD REPAIR TIMES

	Group 27 - Fuel System	MODELS			
OPT. NO.	**Operation Name**	**HDX**	**ER**	**HD**	**MVP EF & EFX**
27-01	Fuel Tank, Between the Rails - Remove & Replace	3.2	3.2	3.2	3
27-02	Fuel Tank, 100 Gal. Saddle, School Bus - Remove & Replace	3	3	3	
27-03	Pressure Leak Check, Tighten Fittings - Test	0.8	0.8	0.8	0.8
27-04	Vent Assembly, Fuel Tank - Replace	0.8	0.8	0.8	0.8
27-05	CNG Tank - Remove & Replace, Between the Rails	6		6	
27-06	CNG Tank - Remove & Replace, Outboard Frame	1.5		1.5	
27-07	CNG Tank - Remove & Replace, Davenport Mounted	3.2		3.2	
27-08	CNG Manifold - Remove & Replace	1		1	
27-09	CNG Braided Hoses - Remove & Replace, (Anyone)	1.6		1.6	
27-10	CNG Fill Line - Remove & Replace	5		5	
27-11	CNG Fill Connector - Remove & Replace	1.6		1.6	
27-12	CNG High Pressure Regulator - Remove & Replace	1.6		1.6	
27-13	CNG PRD Valve R/R With In Between Frame Rail Tanks.	7.5		7.5	
27-14	CNG PRD Valve R/R Out Board Frame Mounted Tanks	3		3	
27-15	**not in use**				
27-16	Remove and Replace Fuel Fill Tube	1			1
27-17	To Remove & Replace the CNG Tank Guard	1		1	
27-18	Fuel filter Assembly R/R	1.2	1.2	1.2	1.2
27-19	To Remove & Replace The Webasto Fuel Pick-Up Tube				0.8

STANDARD REPAIR TIMES

	Group 28 - Hydraulic System	MODELS			
OPT. NO.	Operation Name	HDX	ER	HD	MVP EF & EFX
28-01	Cooler, Oil, Hydraulic - Remove & Replace	1.1	1.1	1.1	
28-02	Filter, Reservoir - Replace	0.2	0.2	0.2	
28-03	Hose Assembly - Replace	0.5	0.5	0.5	0.8
28-04	Motor Assembly, Fan Drive, All Engines - Remove & Replace	4		4	
28-05	Seal Assembly, Fan Drive Motor - Remove & Replace	2.6		2.6	
28-06	O-Rings, Hose Fittings, (One) - Replace	0.4	0.4	0.4	
28-07	Pump, Hydraulic, Caterpillar Engine - Remove & Replace	1	1	1	1.1
28-08	Pump, Hydraulic, Cummins Engine - Remove & Replace	2	1	1	1.1
28-09	Seal , Pump Shaft, All Engines - Remove	0.6	0.6	0.6	0.6
28-10	Relay, Solenoid Control - Replace	0.1		0.1	
28-11	Sensor, Temperature - Replace		0.5	0.5	0.5
28-12	Solenoid, Control Valve - Replace	0.1		0.1	
28-13	System, Hydraulic - Flush / Clean	1	1	1	1
28-14	Manifold Valve Block Assembly	1.5	0.5	0.5	
28-15	Hydraulic Motor Support Bracket - Remove & Replace	3	3	3	
28-16	**not in use**				
28-17	Hydraulic Pump MBE	2		1	
28-18	Hydraulic Pump John Deere	2	1	1	
28-19	To R/R The EPA 07 Hydraulic Pump On HDX Units Only	3			
28-20	To Diagnostic Testing For the Hydraulic System	1	1	1	
28-21	Catastrophic Failure To Remove & Replace on HDX's Only	13			
28-22	Electronic Controller R/R pre 2010 Includes Controller/ Harnesses/ And Proportional Valve	0.5			
28-23	Transduser / Logic / Proportional Valve	0.1			
28-24	Electronic Controller R/R EPA 07 units and newer	0.3			

STANDARD REPAIR TIMES

	Group 29 - Propeller Shaft - Driveline System	MODELS			
OPT. NO.	**Operation Name**	**HDX**	**ER**	**HD**	**MVP EF & EFX**
29-01	Shaft Assembly, Propeller - Remove & Replace (Per Shaft)	0.5	0.8	0.8	0.8
29-02	Universal Joint, Shaft Removed - Replace	0.6	0.6	0.6	0.6
29-03	Yoke Assembly Pinion Shaft R/R	1.3	13	1.3	1.3
29-04	Yoke Assembly, Transmission Output - Replace (With Shaft Removed)	0.6	0.6	0.6	0.6
29-05	Carrier Bearing Support R/R				1.3
29-07	TBB Chassis To R/R Drive Line Guard Per Section	0.2	0.2	0.2	0.2
29-08	Driveline to reinstall after vehicle has been towed	0.5	0.5	0.5	0.8

STANDARD REPAIR TIMES

	Group 30 - Front Suspension	MODELS			
OPT. NO.	Operation Name	HDX	ER	HD	MVP EF & EFX
	Standard Spring Suspension				
30-01	Bushings, Spring Eyes & Hanger, (One Spring), Includes Remove & Replace Spring - Replace	2.5	2.5	2.5	2.5
30-02	Center Bolt Spring R/R	2	2	2	2
30-03	Hanger, Spring, Front - Remove & Replace	1.4	2	2	1.4
30-04	Hanger, Spring, Rear - Remove & Replace	1.8	1.8	1.8	1.5
30-05	Pin, Shackle, (One) - Replace	0.4	0.4	0.4	0.4
30-06	Shackle Assembly, Rear, (One) - Replace	0.5	0.5	0.5	0.5
30-07	Shock Absorber Assembly, (One) - Replace	0.3	0.3	0.3	0.3
30-08	Spacers, Front Spring, (One) - Install	0.5	0.5	0.5	0.5
30-09	Remove & Replace Front Springs	2.2	2.2	2.2	2.2
30-10	Remove & Replace Spring Leaf	2.3	2.3	2.3	2.3
30-11	U - bolts, Front - Re - Torque (R & R)	0.5	0.5	0.5	0.5
30-12	**not in use**				
	Air Suspensions - Neway / Reyco				
30-13	Bushings, Spring Beam - Replace	1.3	1.3	1.3	1.3
30-14	Bushings, Track Bar - Replace	1.8	1.8	1.8	1.3
30-15	Link, Ride Height Valve - Replace	0.5	0.5	0.5	0.5
30-16	Ride Height - Adjust	0.3	0.3	0.3	0.3
30-17	Shock Absorber, (One) - Replace	0.5	0.5	0.5	0.5
30-18	Track Bar - Replace	1.5	1.5	1.5	1.5
30-19	Height Valve Control R/R and Adjust	1.3	1.3	1.3	1.1

STANDARD REPAIR TIMES

	Group 30 - Front Suspension	MODELS			
OPT. NO.	**Operation Name**	**HDX**	**ER**	**HD**	**MVP EF & EFX**
	Air Suspensions - Ridewell				
30-20	Bar, Sway (Track) - Remove & Replace	1.3	1.3	1.3	
30-21	Bushing, Sway Bar, Bar Removed, (Both) - Remove & Replace	1.5	1.3	1.5	
30-22	Bushing, Torque Beam R/R	3.5	3.3	3.5	
30-23	Hanger Assembly - Remove & Replace	5	5	5	
30-24	Ride Height - Adjust	0.5	0.5	0.5	
30-25	Shock Absorber - Remove & Replace	0.5	0.5	0.5	
30-26	Shock , Mounting Pin, Lower - Remove & Replace	1	1	1	
30-27	Shock, Mounting Pin Upper - Remove & Replace	1.2	1.2	1.2	
30-28	Spring, Air - Remove & Replace	1	1	1	
30-29	**not in use**				

STANDARD REPAIR TIMES

	Group 31 - Rear Suspension System	MODELS			
OPT. NO.	Operation Name	HDX	ER	HD	MVP EF & EFX
	Standard Spring Suspension				
31-01	Bushing, Spring Eyes, Removed - Remove & Replace	1.6	1.6	1.6	1.6
31-02	Bushing, Spring Shackle, Removed - Replace	1.6	1.6	1.6	1.6
31-03	Spring Center Bolt R/R	3.5	3.5	3.5	3.5
31-04	Hanger, Spring, Front - Remove & Replace	1.4	2.2	2.2	1.4
31-05	Hanger, Spring, Rear - Remove & Replace	1.5	2.2	2.2	1.5
31-06	Pin Shackle- Remove and Replace	1	1	1	1
31-07	Shackle Assembly - Remove and Replace	1.1	1.1	1.1	1.1
31-08	Shock Absorber - Remove & Replace	0.4	0.4	0.4	0.4
31-09	Spacer, Rear Spring - Install	1	1	1	1
31-10	Spring, Rear - Remove & Replace	3.2	3.2	3.2	3.2
31-11	Spring Main Leaf Wrap R/R	3.9	3.9	3.9	3.9
31-12	U - Bolts - Re - Torque	0.4	0.4	0.4	0.4
	Air Suspensions - Neway				
31-13	Beam Assembly, Equalizer - Remove & Replace	4	4	4	4
31-14	Bushing, Equalizer Beam, Front, Beam Removed - Remove & Replace	1	1	1	1
31-15	Bushing, Equalizer Beam, Center, Beam Removed - Remove & Replace	0.8	0.8	0.8	0.8
31-16	Beam Assembly, Transverse - Remove & Replace	1.5	1.5	1.5	1.5
31-17	Bushing, Transverse Beam, (two) - Remove & Replace	2	2	2	2
31-18	Link Assembly, Height Control - Remove & Replace	0.2	0.2	0.2	0.2
31-19	Ride Height - Adjust	0.5	0.5	0.5	0.5
31-20	Shock Absorber - Remove & Replace	0.6	1	1	0.6
31-21	Spring Assembly, Air (One) - Remove & Replace	0.7	1	1	0.7
31-22	Torque Rod Assembly - Remove & Replace	1.5	1.5	1.5	1.5
31-23	Torque Rod End R/R Both Ends	3.5	3.5	3.5	3.5
31-24	Track Bar Assembly - Remove & Replace	2	2	2	2

STANDARD REPAIR TIMES

	Group 31 - Rear Suspension System	MODELS			
OPT. NO.	Operation Name	HDX	ER	HD	MVP EF & EFX
31-25	Track Bar Ends Both Ends	3	3	3	3
31-26	Valve, Height Control - Remove & Replace	1	1	1	1
31-27	Valve, Protection - Remove & Replace	0.5	0.5	0.5	0.5
	Air Suspensions - Ridewell				
31-28	Bar Assembly, Sway - Remove & Replace	1.6	1.6	1.6	
31-29	Bushing, Sway Bar R/R (Two)	2.4	2.4	2.4	
31-30	Beam, Torque, Lower - Remove & Replace	1.5	1.5	1.5	
31-31	Bushing, Torque Beam R/R (Two)	2.4	2.4	2.4	
31-32	Beam, Torque, Upper - Remove & Replace	2.5	2.5	2.5	
31-33	Hanger Assembly - Remove & Replace	8	8	8	
31-34	Leveling Valve, Remove & Replace	0.7	0.7	0.7	
31-35	Ride Height - Adjust	0.5	0.5	0.5	
31-36	Shock Absorber - Remove & Replace	0.5	0.5	0.5	
31-37	Spring, Air - Remove & Replace	1.6	1.6	1.6	
31-38	Valve, Protection - Remove & Replace	0.5	0.5	0.5	

STANDARD REPAIR TIMES

	Group 31 - Rear Suspension System	MODELS			
OPT. NO.	Operation Name	HDX	ER	HD	MVP EF & EFX
	Air Suspensions - Reyco				
31-50	Hanger - Front, Remove & Replace, (One)	0.8	0.8	0.8	0.8
31-51	Top Plate, Remove & Replace, (One)	0.4	0.4	0.4	0.4
31-52	U - Bolt, Remove & Replace, (One)	0.2	0.2	0.2	0.2
31-53	Axle Seat, Remove & Replace, (One)	1.3	1.3	1.3	1.3
31-54	Torque Arm, Remove & Replace, (One)	0.5	0.5	0.5	0.5
31-55	Bottom Plate, Remove & Replace, (One)	0.4	0.4	0.4	0.4
31-56	Track & Torque Arm Re- Bush, Remove & Replace, (One)	0.7	0.7	0.7	0.7
31-57	Hanger Pad Replacement, Remove & Replace, (One)	0.6	0.6	0.6	0.6
31-58	Shock Absorber, Remove & Replace, (One)	0.5	0.5	0.5	0.5
31-59	Air Spring Assembly, Remove & Replace, (One)	0.6	0.6	0.6	0.6
31-60	Trailing Beam Assembly, Remove & Replace, (One)	1	1	1	1
31-61	Lower Shock Bracket, Remove & Replace, (One)	0.4	0.4	0.4	0.4
31-62	Air Spring Support Assembly, Remove & Replace, (One)	1.8	1.8	1.8	1.8
31-63	Height Control Valve, Remove & Replace (One) & Adjust	0.5	0.5	0.5	0.5
31-64	Track Bar Assembly, Remove & Replace, (One) & Adjust	1.3	1.3	1.3	1.3
31-65	Check Suspension Alignment	0.4	0.4	0.4	0.4
31-66	Adjust Suspension Alignment	2.6	2.6	2.6	2.6
31-67	Hendrickson Suspension Bracket To R/R & Adjust	5	5	5	5

STANDARD REPAIR TIMES

	Group 32 - Steering System	MODELS			
OPT. NO.	**Operation Name**	**HDX**	**ER**	**HD**	**MVP EF & EFX**
	Drag Link Assembly, See Group 11 - Front Axle System				
	Pump, Power Steering, See Group 28 - Hydraulic System				
32-01	Column, Steering - Remove & Replace	2.5	2.5	2.5	2.5
32-02	Seal, Sector Shaft - Replace (Includes Removal of Pitman Arm)	1.1	1.1	1.1	1
32-03	Seal Input Shaft R/R And R/R Steering Grear.	4	4	4	4.5
32-04	Steering Gear Assembly - Remove & Replace	3.5	3.5	3.5	4
32-05	**Not In Use**				
32-06	Steering Gear Assembly, In Chassis - Adjust	0.5	0.5	0.5	0.5
32-07	Steering Wheel - Remove & Replace	0.5	0.5	0.5	0.5
32-08	System Test, Using Kent - Moore Gauges - Test	0.8	0.8	0.8	0.8
32-09	**not in use**				
32-10	Reservoir - Power Steering Remove & Replace	2	2	2	0.5
32-11	**not in use**				
32-12	Power Steering Hose **W/Out** Luggage Box	2	2	2	1
32-13	Power steering Hose **With** Luggage Box	4	4	4	

STANDARD REPAIR TIMES

	Group 33 - Transmission System	MODELS			
OPT. NO.	**Operation Name**	**HDX**	**ER**	**HD**	**MVP EF & EFX**
33-01	Dipstick & Tube Assembly - Remove & Replace	0.6	0.6	0.6	0.8
33-02	Flex Plate, Transmission R/R	3.8	3.8	3.8	3.8
33-03	Oil Seal, Output Shaft - Replace	1.5	1.5	1.5	1.5
33-04	ECU, Tranmission R/R	0.7	0.7	0.7	0.7
33-05	**not in use**				
33-06	Transmission Assembly, Automatic - Remove & Replace	3	3	3	5.1
33-07	Transmission Assembly, Standard - Remove & Replace				2.5
33-08	Splash Guard, Transmission - Remove & Replace	0.4	0.4	0.4	0.4
33-09	**not in use**				
33-10	Ind. 33 Bul. 6 Trans. Mtg. Brkt for WTEC III Harness				0.3
33-11	Index 33 Bul. 8 VIM Box Cover	0.7			

STANDARD REPAIR TIMES

	Group 34 - Wheel System	MODELS			
OPT. NO.	Operation Name	HDX	ER	HD	MVP EF & EFX
34-01	Rim & Wheel Assembly, Disc, Front or Rear - Remove & Replace	0.4	0.8	0.8	0.4
34-02	Rim Assembly, Spoke Wheel, Front - Remove & Replace				0.8
34-03	Rim Assembly, Spoke Wheel, Rear - Remove & Rplace				0.8

STANDARD REPAIR TIMES

	Group 38 - Miscellaneous	MODELS			
OPT. NO.	Operation Name	0	ER	HD	MVP EF & EFX
	Maintenance Items & Pre-Delivery Inspection Not Warranted				
	Element, Air Cleaner - Service (Remove & Replace, Clean And Inspect - Washing Generally Not Recommended)	0.2		0.2	0.3
	Steering Axle Stops - Adjust	0.6	0.6	0.6	0.6
	Toe-in Check And Adjust	0.8	0.8	0.8	0.8
	Clutch Pressure Plate - Adjust				0.5
	Clutch Linkage - Adjust				0.5
	Belt, Air Conditioner Drive - Adjust	0.5	0.5	0.5	0.5
	Belt, Compressor, Air Conditioning - Adjust	0.3	0.3	0.3	0.5
	Shift Control Cables, Automatic - Adjust	0.7	0.7	0.7	0.5
	Shroud, Radiator - Adjust	0.8	0.8	0.8	0.5
	Battery Terminals - Clean / Tighten	0.5	0.5	0.5	0.5
	Poppets and Axle Stops - Adjust	1.1	1.1	1.1	1.1
	Control, Shift, Standard - Adjust				0.5
	Oil And Filters, All Engines - Change	1.1	1.1	1.1	1.1
	Differential Lubrication - Drain & Refill	0.5	0.5	0.5	0.5
	Transmission Oil - Drain & Refill	0.5	0.5	0.5	0.5
	Chassis & Hinges - Grease & Lubricate	1	1	1	1
	P.M. Inspection # 1- Inspect	3.7	3.7	3.7	4
	P.M. Inspection # 1 and # 2 - Inspect	12.4	12.4	12.4	14.5