

## Technology & Maintenance Council



*Turning Experience Into Practice*

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### *Average Standard Repair Times (SRT) for 98 Commonly Performed Labor Tasks in Fleet and Service Provider Operations*

Developed by the Technology & Maintenance Council (TMC)

#### **ABSTRACT**

Thirty-one TMC member fleet and service provider members responded to TMC's third "Fleet & Service Provider Average Standard Repair Time (SRT) Survey," which was administered in the second quarter of 2021. The purpose of the study was to aid in establishing baseline repair times that will improve shop productivity and profitability. This is the third year that TMC has conducted the survey, providing a three-year comparison of year-to-year SRT data.

The survey was based on Vehicle Maintenance Reporting Standards (VMRS) making it easier to aggregate repair times. Participants were asked to provide the time in hours to install specific parts or to perform needed labor in their facilities, not the rates that participants necessarily charge their customers.

Data presented in this report is based on the labor description and the corresponding VMRS Code Keys for each task using VMRS Code Keys 15 (Work Accomplished) and 33 (Component Code). Repair and replacement of automatic transmissions and clutch assemblies were reported to be the most labor intensive tasks followed by EGR cooler, replacement of the air brake compressor, and radiator replacement. Conversely, the top 10 least labor intensive tasks remained generally stable, with wiper blade assembly joining the list for 2021, and A/C belt falling out of the top 10. Thirty-eight tasks increased in time to complete task; 60 decreased.



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## INTRODUCTION

TMC's S.5 Fleet Maintenance Management Study Group is responsible for the maintenance and oversight of the Vehicle Maintenance Reporting Standards (VMRS) through its VMRS Codes Committee. One of the objectives of the VMRS Codes Committee is to develop meaningful benchmarking data based on the VMRS coding convention.

Accordingly, TMC's S.5 Fleet Maintenance Management Study Group directed its VMRS Codes Committee to conduct a labor time study based on fleet and service provider members' self-reported repair and installation times. The

purpose of the study was to aid in establishing baseline repair times that will improve shop productivity and profitability.

The survey was based on VMRS Code Keys 15 (Work Accomplished) and 33 (Component Code), making it easier to aggregate repair times. Participants were asked to provide the time in hours to install specific parts or to perform needed labor in their facilities, not necessarily the rates that participants charge their customers.

TMC realized that reported times would vary depending on the brands involved in certain installations. Therefore, participants were asked to list the "average" repair time for the brand they use most often. Hours were recorded to the nearest hundredth of an hour (i.e., 1 hour and 45 minutes is recorded as 1.75).



**TMC Needs Your Input!**

Official TMC Survey:

**TMC Seeks Input in Assessing Average Standard Repair Times for Common Maintenance Tasks**

ATA's Technology & Maintenance Council (TMC), through its S.5 Fleet Maintenance Management Study Group, is conducting this member survey to assess and evaluate standard repair times (SRTs). The objective is to determine baseline repair times that will improve shop productivity and profitability.

The survey is based on the Council's Vehicle Maintenance Reporting Standards (VMRS), which will help the Council in aggregating reported SRT data. Participants are asked to provide their average times in hours for the 100 common maintenance tasks listed. NOTE: TMC is collecting data on actual labor/repair hours – not rates that participants may charge customers.

Please provide data for as many of the 100 repair tasks as you can, based on your operation. You do not have to answer all 100 questions.

We do ask contact information in order to follow up with you should questions arise, you may also choose to answer anonymously.

All response will be kept strictly confidential and only aggregated results will be shared by TMC.

To take the survey, go to:

[Average Standard Repair Times for Common Maintenance Times Survey](#)

**Thank you in advance for your participation!**

## METHODOLOGY

Survey alerts were sent via email to more than 500 TMC fleet executive members and more than 100 TMC service provider members on June 8, 2021, with reminder notices being sent during the following 30 days. **Figure 1** illustrates how the survey notice email appeared to recipients.

The survey was conducted using Survey-Monkey. Eblast alerts were generated using Bluehornet's High Roads email management system. Fifty individuals attempted to complete at least a portion of the survey. The survey was activated on June 8, 2021. The survey was closed August 1, 2021.

The survey was initiated by S.5 Fleet Maintenance Management Study Group Chairman Amanda Schuier, VMRS Codes Committee Chairman Paul Moszak, and administered by TMC staff members Robert Braswell, TMC executive director; Jack Poster, VMRS services manager, and Cori Hicks, TMC administrative coordinator.

**Figure 1**

## RESULTS

The total number of responding TMC member fleets and service providers was 31. Survey respondents were asked a series of demographic questions to determine their company's geographic area of operation, vocation and fleet size (if applicable).

*Q1. Which of the following best describes your company's operation (check all that apply)?*

Vocation	Number
Private carrier	8
Vocational	2
Intermodal	2
Leasing (full service)	4
Truckload	6
LTL	2
Service provider	7

See **Figure 2**.

*Q2. In what area(s) does your fleet principally operate (check all that apply)?*

Region	Number
Nationally	10
Northeast	8
Northwest	5
Mid-Atlantic	4
Midwest	9
Southeast	6
South Central	6
Southwest (including Hawaii)	2
Alaska	1
Canada	5
Mexico	1

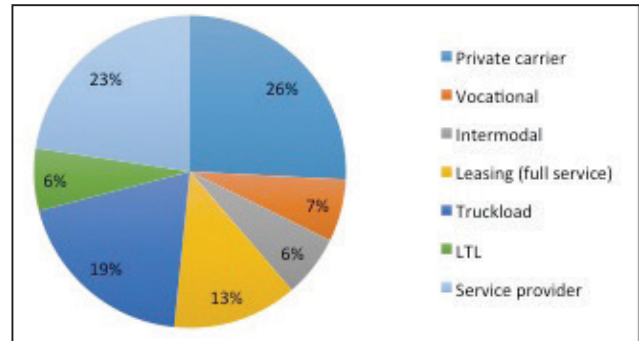
See **Figure 3**.

*Q3. How many power units does your fleet operate?*

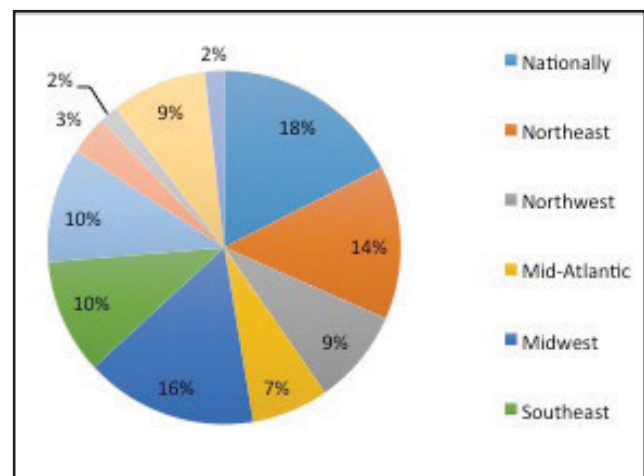
1-9	2
10-49	1
50-99	2
100-499	10

500-999	4
1000 & above	7

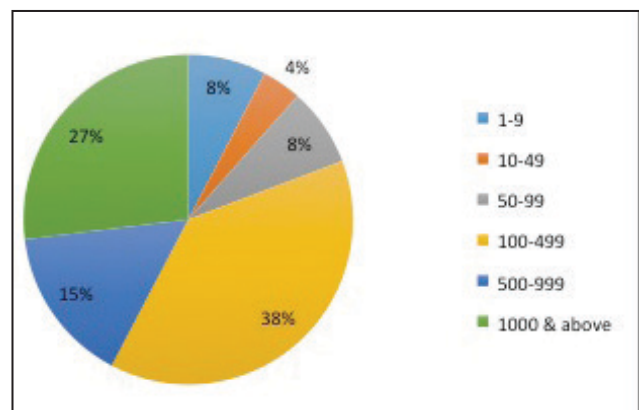
See **Figure 4**.



**Figure 2: Vocation**



**Figure 3: Region**



**Figure 4: Fleet Size**

In developing the survey, TMC staff identified — with the assistance of members of the VMRS Codes Committee — 98 commonly performed labor tasks on powered equipment as experienced in typical fleet and service provider operations. Each of the following labor tasks were tagged with the appropriate VMRS Code Key 33: Component Code and Code Key 15: Work Accomplished Code to facilitate data collection and analysis.

For the purposes of this study, “R&R” was defined as Code Key 15; “Code 03: Replace With New,” which means to replace a damaged or worn component with a new component. The 98 labor tasks are as follows:

- R&R Brake Lining, Per Wheel - Steer Axle
- R&R Brake Drum, Per Wheel - Drive Axle
- R&R Brake Lining, Per Wheel - Drive Axle
- R&R Brake Drum, Per Wheel - Drive Axle
- R&R Brake Rotor, Per Wheel - Steer Axle
- R&R Brake Rotor, Per Wheel - Drive Axle
- R&R Brake Caliper, Per Wheel - Steer Axle
- R&R Brake Caliper, Per Wheel - Drive Axle
- R&R Slack Adjuster - Steer Axle
- R&R Slack Adjuster - Drive Axle
- R&R Slack Adjuster - Automatic, Steer Axle
- R&R Slack Adjuster - Automatic, Drive Axle
- R&R Brake Chamber/Cylinder Assembly - Steer Axle
- R&R Brake Chamber/Cylinder Assembly - Drive Axle
- R&R Brake Hose - Hydraulic, Steer Axle
- R&R Brake Hose - Hydraulic, Drive Axle
- R&R Gladhand - Service & Emergency
- R&R Gladhand - Service
- R&R Gladhand - Emergency
- R&R Tractor Protection Control Valve
- R&R Brake Air Compressor
- R&R Air Governor
- R&R Foot Valve
- R&R ABS Modulator Valve
- R&R Wheel Speed Sensor
- R&R ABS ECU
- R&R Alternator
- R&R Alternator/Generator Belt
- R&R Idler Pulley
- R&R Starter
- R&R Starter Relay
- R&R Battery
- R&R Power Steering Pump
- Adjust Wheel Bearings - Per Wheel
- Recharge A/C System
- R&R A/C Expansion Valve
- R&R A/C Accumulator
- R&R A/C Receiver Drier
- R&R A/C Belt
- R&R A/C Evaporator Core
- R&R Radiator
- R&R Water Pump
- R&R Thermostat
- Flush & Fill Coolant System
- R&R Radiator Hose - Upper
- R&R Radiator Hose - Lower
- R&R Engine Serpentine Belt
- R&R Wiper Blade Assembly
- R&R Wiper Arm Linkage Assembly
- R&R Clutch Assembly
- R&R Automatic Transmission
- R&R Turbocharger
- R&R Charge Air Cooler
- R&R EGR Cooler
- R&R EGR Valve
- R&R DEF Tank
- R&R DEF Tank Heater
- R&R ELD - Electronic Logging Device
- R&R 7 Pin Connector Plug
- R&R Trailer Junction Box
- Overhaul Fifth Wheel Assembly
- Lubricate Fifth Wheel
- R&R Fuel Tank
- R&R Fuel Tank Sending Unit
- R&R Windshield
- R&R Wheel Stud - Per Wheel
- R&R Auxiliary Heater Assembly
- R&R Tire
- R&R Shock Absorber - Each
- R&R Intake Manifold Gasket
- R&R Exhaust Pipe Stack
- New Truck In-service
- R&R Cab Height Control Valve
- R&R Doser Valve Assembly
- R&R Camshaft Position Sensor

- R&R Hood Assembly
- R&R Side Cab Rear View Mirror Assembly, Non-Heated
- R&R Side Cab Rear View Mirror Assembly, Heated
- R&R Backup Warning System Sensor
- R&R Backup Warning System Switch
- R&R Adaptive Cruise Control Distance Sensor
- R&R Roof Mounted Air Foil Deflector
- R&R Roof Air Deflector Actuator Assembly
- R&R Roof Mounted Fairing, Complete
- R&R Aerodynamic Wheel Cover
- R&R Front Chassis Fairing
- R&R Heater Glow Pin, (APU) Auxiliary Power Unit
- R&R Trailer Tail Extender Assembly
- R&R Headlamp Housing Assembly
- R&R Headlamp Halogen Capsule
- R&R Speedometer Head Cable, Driven
- R&R Pitman Arm
- R&R Steering Idler Arm
- R&R Tie Rod Assembly, Outer
- R&R Tie Rod, Inner
- R&R Power Take-Off (PTO) Assembly, Complete
- R&R Pintle Hook
- R&R Trailer Side Skirt Fairing

4. R&R EGR Cooler	5.50
5. R&R Intake Manifold Gasket	5.33
6. New Truck In-service	5.26
7. R&R Brake Air Compressor	5.08
8. R&R Turbocharger	4.50
9. R&R A/C Evaporator Core	3.83
10. R&R Trailer Tail Extender Assembly	3.66

The top 10 labor tasks by shortest length of repair time in hours were as follows:

1. R&R Gladhand - Emergency	0.30
2. R&R Headlamp Halogen Capsule	0.39
3. R&R Gladhand - Service & Emergency	0.40
4. R&R Shock Absorber - Each	0.48
5. Lubricate Fifth Wheel	0.53
6. R&R Front Chassis Fairing	0.54
7. R&R Aerodynamic Wheel Cover	0.54
8. R&R 7 Pin Connector Plug	0.55
9. R&R Slack Adjuster - Steer Axle	0.64
10. R&R Air Governor	0.65

Thirty-eight tasks increased in time to complete task; 60 decreased. See **Tables 2 and 3**.

Results for the average standard repair times submitted by survey respondents follows in **Table 1**.

Data presented in **Table 1** includes the labor description, the task performed as identified by VMRS Code Keys 15 and 33, and the number of respondents for a given labor task, and the hours it takes to perform that given task. Data shaded in red indicates a reported increase in time from 2019 and 2020; green indicates a reported decrease in time.

The top 10 labor tasks by longest length of repair time in hours were as follows:

1. R&R Automatic Transmission	11.75
2. R&R Clutch Assembly	10.20
3. R&R Radiator	5.50

## CONCLUSION

For 2021, repair and replacement of automatic transmissions was reported to be the most labor intensive task, whereas in 2020 and 2019, repair and replacement of clutch assemblies topped the list. Clutch assembly replacement dropped to the second most labor intensive position, but the labor time increased from 9.49 to 10.20 hours. The same items generally remained in the top 10 from 2020, albeit in different positions; however, fuel tank was superseded by trailer tail extender assembly repair and replacement. Conversely, the top 10 least labor intensive tasks remained generally stable, with wiper blade assembly joining the list for 2021, and A/C belt falling out of the top 10. TMC intends to repeat this survey on at least an annual basis and will keep expanding the number of labor tasks covered.

**TABLE 1:  
AVERAGE STANDARD REPAIR TIMES FOR 98 COMMON LABOR TASKS**

Labor Description	CK33	CK 15	Hours 2021	Resp. 2021	Hours 2020	Resp. 2020	Hours 2019	Resp. 2019
Recharge A/C System	001-001-000	34	1.86	5	1.49	12	1.50	18
R&R A/C Belt	001-001-048	03	0.72	6	0.68	13	0.59	18
R&R A/C Expansion Valve	001-001-049	03	1.70	5	2.78	12	1.72	15
R&R A/C Evaporator Core	001-001-052	03	3.83	6	3.47	10	3.22	18
R&R A/C Receiver Drier	001-001-065	03	1.65	5	1.76	12	1.18	18
R&R A/C Accumulator	001-001-376	03	1.70	5	2.14	12	1.59	18
R&R Auxiliary Heater Assembly	001-003-001	03	2.30	3	1.42	9	2.52	17
R&R Hood Assembly	002-004-053	03	2.75	4	3.29	10	3.03	18
R&R Side Cab Rear View Mirror Assembly, Non-Heated	002-010-006	03	0.88	4	1.05	11		
R&R Side Cab Rear View Mirror Assembly, Heated	002-010-117	03	0.94	4	1.16	11		
R&R Windshield	002-021-001	03	1.73	5	1.47	11	1.59	17
R&R Wiper Arm Linkage Assembly	002-035-013	03	1.30	4	0.78	12	0.96	17
R&R Wiper Blade Assembly	002-035-015	03	0.30	6	0.27	12	0.33	19
R&R Speedometer Head Cable, Driven	003-002-001	03	1.94	4	1.78	8		
R&R Roof Mounted Air Foil Deflector	004-001-001	03	2.75	4	1.93	10		
R&R Roof Air Deflector Actuator Assembly	004-001-034	03	2.12	4	1.35	8		
R&R Roof Mounted Fairing, Complete	004-003-023	03	2.65	4	2.51	8		
R&R Front Chassis Fairing	004-005-001	03	0.54	4	0.76	10		
R&R Aerodynamic Wheel Cover	004-013-001	03	0.54	4	0.25	9		
R&R Brake Lining, Per Wheel - Steer Axle	013-001-015	03	1.09	10	1.26	17	1.06	20
R&R Brake Chamber/Cylinder Assembly - Steer Axle	013-001-020	03	1.03	10	1.08	16	0.95	20
R&R Brake Drum, Per Wheel - Drive Axle	013-001-023	03	0.95	11	0.88	16	0.86	20
R&R Brake Rotor, Per Wheel - Steer Axle	013-001-026	03	2.16	8	1.92	12	1.26	20
R&R Brake Caliper, Per Wheel - Steer Axle	013-001-028	03	1.78	8	1.60	12	1.33	15
R&R Slack Adjuster - Steer Axle	013-001-030	03	0.64	8	0.81	15	0.73	20
R&R Slack Adjuster - Automatic, Steer Axle	013-001-149	03	0.72	9	0.88	16	0.78	20
R&R Brake Lining, Per Wheel - Drive Axle	013-002-014	03	1.06	11	1.10	16	1.14	20
R&R Brake Drum, Per Wheel - Drive Axle	013-002-023	03	0.78	10	0.89	15	0.81	20
R&R Slack Adjuster - Drive Axle	013-002-028	03	0.81	10	0.92	16	0.78	20
R&R Brake Caliper, Per Wheel - Drive Axle	013-002-122	03	1.72	8	1.70	12	1.52	20
R&R Brake Rotor, Per Wheel - Drive Axle	013-002-124	03	2.22	8	1.94	12	1.72	16
R&R Slack Adjuster - Automatic, Drive Axle	013-002-169	03	0.82	9	1.48	16	0.83	20
R&R Brake Chamber/Cylinder Assembly - Drive Axle	013-002-169	03	1.01	10	1.30	16	1.04	13
R&R Brake Hose - Hydraulic, Steer Axle	013-007-007	03	0.75	7	0.82	12	0.84	12
R&R Brake Hose - Hydraulic, Drive Axle	013-007-012	03	0.75	7	0.84	12	0.91	18
R&R Brake Air Compressor	013-009-001	03	5.08	8	5.26	13	4.29	20
R&R Air Governor	013-009-070	03	0.65	9	0.91	14	0.79	20
R&R Tractor Protection Control Valve	013-010-016	03	0.87	10	1.40	13	1.34	20
R&R Gladhand - Service & Emergency	013-010-030	03	0.40	10	0.43	16	0.49	21

R&R Gladhand - Service	013-010-031	03	0.30	11	0.32	16	0.37	21
R&R Gladhand - Emergency	013-010-032	03	0.30	11	0.32	16	0.37	20
R&R Foot Valve	013-010-411	03	2.0	8	2.75	13	2.12	20
R&R Wheel Speed Sensor	013-011-002	03	1.47	10	1.40	14	1.30	19
R&R ABS Modulator Valve	013-011-071	03	1.43	9	2.13	13	1.58	20
R&R ABS ECU	013-011-076	03	1.67	10	2.18	15	1.78	18
R&R Power Take-Off (PTO) Assembly, Complete	015-001-001	03	3.25	4	3.47	9		
R&R Pitman Arm	015-004-013	03	1.26	4	1.48	9		
R&R Steering Idler Arm	015-004-014	03	1.26	4	1.31	9		
R&R Tie Rod Assembly, Outer	015-004-045	03	1.31	4	1.39	10		
R&R Tie Rod, Inner	015-004-070	03	1.14	4	1.41	10		
R&R Power Steering Pump	015-005-009	03	1.96	6	2.42	12	2.02	17
R&R Shock Absorber - Each	016-008-003	03	0.48	5	0.59	12	0.65	19
R&R Cab Height Control Valve	016-015-006	03	0.80	5	1.14	11	1.24	18
R&R Tire	017-000-000	03	0.70	5	0.72	11	0.78	20
Adjust Wheel Bearings - Per Wheel	018-001-000	01	1.10	6	0.80	13	0.84	18
R&R Wheel Stud - Per Wheel	018-003-009	03	0.95	4	1.22	11	1.14	17
R&R Clutch Assembly	023-002-001	03	10.20	4	9.49	11	9.14	18
R&R Automatic Transmission	027-037-001	03	11.75	4	9.07	11	8.19	15
R&R Alternator	031-001-001	03	1.45	6	1.50	13	1.35	18
R&R Alternator/Generator Belt	031-001-026	03	0.76	5	0.85	13	0.77	18
R&R Idler Pulley	031-001-027	03	0.92	5	0.76	13	1.08	19
R&R Battery	032-001-001	03	0.68	6	0.86	14	1.06	18
R&R Starter	032-002-001	03	2.63	6	2.58	13	2.64	17
R&R Starter Relay	032-002-015	03	0.77	5	0.75	13	0.81	19
R&R Headlamp Housing Assembly	034-001-001	03	0.82	5	0.95	11		
R&R Headlamp Halogen Capsule	034-001-078	03	0.39	4	0.46	10		
R&R 7 Pin Connector Plug	034-003-036	03	0.55	7	0.61	11	0.90	17
R&R Trailer Junction Box	034-003-067	03	1.0	6	0.85	11	1.08	17
R&R ELD - Electronic Logging Device	036-010-001	03	1.92	5	1.25	10	1.86	17
R&R Backup Warning System Sensor	036-012-001	03	0.75	4	0.68	9		
R&R Backup Warning System Switch	036-012-006	03	0.68	4	0.73	9		
R&R Adaptive Cruise Control Distance Sensor	036-013-001	03	1.25	4	1.08	10		
R&R Intake Manifold Gasket	041-002-003	03	5.33	3	3.78	10	3.77	16
R&R Charge Air Cooler	041-004-021	03	2.58	5	2.62	12	2.65	18
Flush & Fill Coolant System	042-000-000	44	1.6	5	1.65	12	1.87	17
R&R Radiator	042-002-001	03	5.5	6	5.17	12	4.61	19
R&R Water Pump	042-004-001	03	3.2	6	3.28	12	3.08	18
R&R Thermostat	042-004-001	03	1.88	6	2.45	12	1.81	18
R&R Radiator Hose - Upper	042-004-014	03	0.66	5	1.12	12	0.96	18
R&R Radiator Hose - Lower	042-004-015	03	0.75	5	1.28	12	1.08	18
R&R EGR Valve	043-001-023	03	2.12	5	2.85	10	3.31	18
R&R EGR Cooler	043-001-049	03	5.5	4	6.37	10	5.88	18
R&R Exhaust Pipe Stack	043-003-018	03	1.16	3	1.33	10	1.36	17
R&R Turbocharger	043-004-001	03	4.50	4	4.76	11	4.00	19
R&R Doser Valve Assembly	043-006-025	03	1.45	4	1.40	10	1.93	18

R&R DEF Tank	043-007-001	03	3.16	5	2.31	10	3.07	17
R&R DEF Tank Heater	043-007-016	03	2.56	3	1.68	10	2.61	16
R&R Fuel Tank	044-001-001	03	3.25	4	3.50	12	2.46	18
R&R Fuel Tank Sending Unit	044-001-100	03	1.02	5	1.03	12	1.21	17
R&R Engine Serpentine Belt	045-002-073	03	0.80	6	0.89	12	0.72	17
R&R Camshaft Position Sensor	045-021-037	03	1.31	4	1.35	10	1.72	17
Lubricate Fifth Wheel	059-001-001	07	0.53	6	0.35	11	0.34	18
Overhaul Fifth Wheel Assembly	059-001-135	08	3.31	6	2.76	11	2.71	18
R&R Pintle Hook	059-002-001	03	1.02	4	1.12	9		
R&R Trailer Side Skirt Fairing	078-025-001	03	2.18	4	2.11	10		
R&R Trailer Tail Extender Assembly	078-026-001	03	3.66	3	2.57	8		
R&R Heater Glow Pin, (APU) Auxiliary Power Unit	151-002-006	03	1.06	3	1.13	9		
New Truck In-service	999-999-999	36	5.26	5	3.45	10	4.58	17

**TABLE 2:  
INCREASE/DECREASE IN LABOR HOURS FOR TOP 10 MOST TIME CONSUMING TASKS**

Rank	Task	Labor Hours (2021)	% Increase/Decrease from 2020
1.	R&R Automatic Transmission	11.75	+ 29%
2.	R&R Clutch Assembly	10.20	+ 7%
3.	R&R Radiator	5.50	+ 6%
4.	R&R EGR Cooler	5.50	- 14%
5.	R&R Intake Manifold Gasket	5.33	+ 41%
6.	New Truck In-service	5.26	+ 52%
7.	R&R Brake Air Compressor	5.08	- 3.5%
8.	R&R Turbocharger	4.50	- 5.5%
9.	R&R A/C Evaporator Core	3.83	+ 10%
10.	R&R Trailer Tail Extender Assembly	3.66	+ 42%

**TABLE 3:  
INCREASE/DECREASE IN LABOR HOURS FOR TOP 10 LEAST TIME CONSUMING TASKS**

Rank	Task	Labor Hours (2021)	% Increase/Decrease from 2020
1.	R&R Gladhand - Emergency	0.30	- 6%
2.	R&R Headlamp Halogen Capsule	0.39	- 15%
3.	R&R Gladhand - Service & Emergency	0.40	- 7%
4.	R&R Shock Absorber - Each	0.48	-19%
5.	Lubricate Fifth Wheel	0.53	+ 51%
6.	R&R Front Chassis Fairing	0.54	- 29%
7.	R&R Aerodynamic Wheel Cover	0.54	+ 216%
8.	R&R 7 Pin Connector Plug	0.55	- 10%
9.	R&R Slack Adjuster - Steer Axle	0.64	- 21%
10.	R&R Air Governor	0.65	- 28.5%