Job Task Analysis

Employer:	**Stanislaus County**
Occupation:	Equipment Mechanic and Lead Equipment Service Technician
Company Contact:	Risk Management 1010 10th Street Modesto, California 95354 (209) 525-5770
Date:	March 2009; Updated September 2014
Analysis Provided By:	Lyle Andersen, PT, CWCE Andersen Physical Therapy, Inc. 3500 Coffee Road, Suite 3 Modesto, California 95355 (209) 549-4626

INTRODUCTION:

A complete job description is available through Stanislaus County Human Resources. The environmental factors, physical and functional demands for this Job Task Analysis were documented by Andersen Physical Therapy, Inc. The methodology for documentation consisted of on-site visits, using various measuring devices such as dynamometers and scales, as well as observation and interviews with employees and managers. A detailed record was made of the physical and functional demands of the job in terms of force pounds, weight, frequency, height, distance, anthropometric measurements, stamina, and degrees of range of motion. The determination of the frequencies of functional activities is based on standards provided by the National Institute for Occupational Safety and Health (NIOSH) and the Work Practice Guide for Manual Lifting (U.S. Department of Commerce, National Technical Information Service).

The Job Task Analysis is organized as follows: General work description; safety requirements; equipment; environmental factors; and physical/functional demands.

GENERAL WORK DESCRIPTION:

The frequency of the following activities may vary according to the physical requirements of the specific job tasks that the employee may be required to perform at random intervals.

Under the general supervision of the division manager, **the Equipment Mechanic, Lead Equipment Mechanic & Equipment Service Technician** performs journey level work as a mechanic. Supervises mechanics and other garage employees engaged in the services, repairs and maintenance of light duty trucks, boat motors, tractors and automotive and small engine equipment.

SPECIFIC DUTIES: Available through the Human Resources Department at the County of Stanislaus.

http://www.stancounty.com/riskmgmt/risk-dm-jta-class-sub-main.shtm

Safety Requirements: All employees are required to observe company safety procedures and standards to insure individual and collective safety, in addition to avoiding unnecessary risk to oneself, co-workers, customers, and property.

Equipment:

1. Air tools
2. Brake lathe
3. Calculator
4. Car lifts
5. Chop saw
6. Computer / printer
7. Copier
8. Drill press
9. Facsimile
10. Grinder
11. Hoist
12. Hydraulic floor jack
13. Hydraulic lifts
14. Jack
15. Keyboard
16. Mobile/portable radio
17. Mouse
18. Power/hand tools/equipment
19. Printer
20. Puller
21. Routine maintenance tools
22. Steam cleaner
23. Tire balancer
24. Tire machine
25. Torch
26. Tow truck
27. Vehicle
28. Vehicle diagnostic equipment
29. Welders
30. Diagnostic equipment
31. Refrigerant recovery equipment
32. Transmission flush machine

*All employees within the **Equipment Mechanic, Lead Equipment Mechanic & Service Technician** positions are required to provide physical assistance for all weight and frequency requirement needs of all job tasks in order to maintain a safe work environment. Employees must be physically capable of working in any of the job tasks within the **Equipment Mechanic, Lead Equipment Mechanic & Service Technician** positions.*

ENVIRONMENTAL FACTORS

The following percentages are given in terms of an eight-hour workday:

Seldom =	1% - 2%	**Frequent =**	34% - 66%
Occasional =	3% - 33%	**Constant =**	67% - 100%

	ENVIRONMENTAL FACTORS	MAXIMUM FREQUENCY
1.	Unprotected heights: ladder…….……	Seldom
2.	Being around moving machinery: traffic, miscellaneous power equipment….....	Occasional
3.	Exposure to marked changes in temperature and humidity: outside temperatures may seasonally vary between 28-110 degrees……..	Seldom
4.	Exposure to dust, fumes, smoke, gases, or other irritating substances (specify): exhaust	Seldom
5.	Driving: vehicle……	Occasional
6.	Exposure to excessive noise: power equipment…… *Hearing protection is available*	Seldom
7.	Exposure to radiant or electrical energy: high voltage, hybrid vehicle…… *Hand protection is available*	Seldom
8.	Exposure to solvents or chemicals:……... *Refer to MSDS document.*	Seldom
9.	Exposure to slippery or uneven walking surfaces:……	Occasional
10.	Working below ground:……..	Not Applicable
11.	Unusual fatigue factors: …….	Not Applicable
12.	Working with explosives: fuel…..……	Seldom
13.	Excessive vibration: power tools……..	Seldom
14.	Working with hands in water or other substance:……. *Hand protection is available*	Occasional
15.	Working proximity:……..Alone: Closely with others:	Occasional Continuous
16.	Working inside:……	Continuous
17.	Working outside:……	Occasional

FUNCTIONAL ACTIVITIES

The frequency of the following activities may vary according to the physical requirements of the specific job tasks the employee may be required to perform at random intervals.

PHYSICAL AND FUNCTIONAL REQUIREMENTS

FREQUENCY DEFINITIONS	SELDOM	OCCASIONAL	FREQUENT	CONSTANT
Percent of the Day	1-2%	3-33%	34-66%	67-100%
Material Handling	1-4 Reps	5-32 Reps	33-250 Reps	251-2,000 Reps
Non Material Handling	1-4 Reps	5-32 Reps	33-250 Reps	251-2,000 Reps
Repetitive & Static Work	1-50 Reps	51-250 Reps	251-1,000 Reps	1,001-20,000 Reps

1.) **PUSH**: ***Pushing activities may require use of the back in conjunction with leg and arm musculature.***

	MAXIMUM REQUIREMENT		
0-10 pounds:	Frequent		
11-25 pounds:	Occasional		
26-35 pounds:	Occasional		
36-50 pounds:	Seldom		
51-75 pounds:	Not Required		
76-100 pounds:	Not Required	**Maximum Force:**	**50** Pounds

Assistive Devices: 4-Wheeled Cart, Hand Truck. Additionally, one or more person(s) assistance is available with forces greater than 50 pounds.

Comments: Pushing is utilized with activities such as retrieving, returning, storing, adjusting, moving, transporting, equipment, controls, repairing, inspecting, maintaining, supplies (e.g. tools, tires, carts, doors). The employee exerts up to 50 pounds of force in a horizontal plane from waist to shoulder height of a distance up to 50-feet when performing job tasks (e.g. push to utilize hand and power tools; installing tires; inspection of vehicle body parts; tool cart; tire rolling; floor jack; battery and tire cart; applying torque to wrenches; open/close drawer, file).

2.) **PULL**: ***Pulling activities may require use of the back in conjunction with leg and arm musculature.***

	MAXIMUM REQUIREMENT		
0-10 pounds:	Frequent		
11-25 pounds:	Occasional		
26-35 pounds:	Occasional		
36-50 pounds:	Seldom		
51-75 pounds:	Not Required		
76-100 pounds:	Not Required	**Maximum Force:**	**50** Pounds

Assistive Devices: 4-Wheeled Cart, Hand Truck. Additionally, one or more person(s) assistance is available with forces greater than 50 pounds.

Comments: Pulling is utilized with activities such as retrieving, returning, storing, adjusting, moving, transporting, repairing, inspecting, maintaining, equipment, controls, supplies (e.g. tools, tires, carts). The employee exerts up to 50 pounds of force in a horizontal plane from waist to shoulder height of a distance up to 5-feet when performing job tasks (e.g. pull to utilize hand and power tools; remove tires; inspection of vehicle body parts; tool cart; battery and tire cart; floor jack; applying torque to wrenches; open/close drawer, file, door). *Pushing is the preferred method of moving carts.*

3.) **STAND-UP LIFT**: ***Lifting weighted objects between floor and waist height.***

	MAXIMUM REQUIREMENT		
0-10 pounds:	Frequent		
11-25 pounds:	Occasional		
26-35 pounds:	Occasional		
36-50 pounds:	Seldom		
51-75 pounds:	Seldom		
76-100 pounds:	Not Required	**Maximum Force:**	**75** Pounds

Assistive Devices: One or more person(s) assistance is available with weights greater than 75 pounds.

Comments: A stand-up lift is utilized with activities such as retrieving, returning, storing, adjusting, moving, transporting, repairing, inspecting, maintaining, equipment, controls, and/or supplies (e.g. vehicle parts, tools; miscellaneous paper documents). The employee lifts items weighing between <1 pounds and 75 pounds when performing job tasks (e.g. lift up to 75-pound tire; up to 50-pound miscellaneous parts; up to 50-pound battery; up to 45-pound fuel/oil containers; up to 40-pound exterior vehicle apparatus; miscellaneous brakes, rotors, drums; up to 10 pound miscellaneous hand and power tools; automotive testing equipment; up to 10-pound hand or armfuls of documents, forms, brochures, binders, reference material, catalogs, reports). *Safe lifting is performed by utilizing a posture of partial squatting and a straight back.*

4.) **LEVEL LIFT**: ***Lifting weighted objects from between waist and chest height level for a maximum horizontal distance of up to four feet.***

	MAXIMUM REQUIREMENT		
0-10 pounds:	Frequent		
11-25 pounds:	Occasional		
26-35 pounds:	Occasional		
36-50 pounds:	Seldom		
51-75 pounds:	Seldom		
76-100 pounds:	Not Required	**Maximum Force:**	**75** Pounds

Assistive Devices: 4-Wheeled Cart, Hand Truck. Additionally, one or more person(s) assistance is available with weights greater than 75 pounds.

Comments: A level lift is utilized with activities such as retrieving, returning, storing, adjusting, moving, transporting, repairing, inspecting, maintaining, equipment, controls, and/or supplies (e.g. vehicle parts, tools). The employee lifts items weighing between <1 pounds and 75 pounds when performing job tasks (e.g. lift up to 75-pound tire; up to 50-pound miscellaneous parts; up to 50-pound battery; up to 45-pound fuel/oil containers; up to 40-pound exterior vehicle apparatus; miscellaneous brakes, rotors, drums; up to 10-pound miscellaneous hand and power tools; automotive testing equipment; opening vehicle hood; up to 10-pound hand or armfuls of documents, forms, brochures, binders, reference material, catalogs, reports).

5.) **WEIGHT CARRY**: ***Carrying weighted objects between waist and chest height beyond a distance of four feet.***

	MAXIMUM REQUIREMENT		
0-10 pounds:	Frequent		
11-25 pounds:	Occasional		
26-35 pounds:	Seldom		
36-50 pounds:	Seldom		
51-100 pounds:	Not Required	**Maximum Force:**	**50** Pounds

Assistive Devices: 4-Wheeled Cart, Hand Truck. Additionally, one or more person(s) assistance is available with weights greater than 50 pounds.

Comments: Weight carry is utilized with activities such as retrieving, returning, storing, adjusting, moving, transporting, repairing, inspecting, maintaining, equipment, controls, and/or supplies (e.g. vehicle parts, tools; miscellaneous paper documents). The employee lifts items weighing between <1 pounds and 50 pounds when performing job tasks (e.g. lift up to 75-pound tire; up to 50-pound miscellaneous parts; up to 50-pound battery; up to 45-pound fuel/oil containers; up to 40-pound exterior vehicle apparatus; miscellaneous brakes, rotors, drums; up to 10 pound miscellaneous hand and power tools; automotive testing equipment; opening vehicle hood; up to 10-pound hand or armfuls of documents, forms, brochures, binders, reference material, catalogs, reports).

6.) **OVERHEAD LIFT/PULL DOWN**: ***Lifting weighted object from/to chest and overhead height level.***

	MAXIMUM REQUIREMENT		
0-10 pounds:	Occasional		
11-25 pounds:	Seldom		
26-100 pounds:	Not Required	**Maximum Force:**	**20** Pounds

Assistive Devices: A vertical ladder, step ladder or step stool is available to bring items to eye or shoulder level.

Additionally, one or more person(s) assistance is available with weights greater than 20 pounds.

Comments: Overhead lift/pull down is utilized with activities such as retrieving, returning, storing, adjusting, moving, transporting, equipment, controls, and/or supplies (e.g. tools, external vehicle apparatus, parts; miscellaneous paper documents). The employee lifts items weighing between <1 pounds and 20 pounds to a maximum height of 84 inches when performing job tasks (e.g. reach to lift hand and power tools; patrol light bar apparatus; vehicle parts; retractable reeled hose nozzle; up to 10-pound hand or armfuls of documents, forms, brochures, binders, reference material, catalogs, reports). *Variables to overhead reaching will be the employee's height and anthropometric reach.*

7.) **OVERHEAD REACH**:

MAXIMUM FREQUENCY:	Occasional

Comments: Overhead reach is performed to a maximum height of 84 inches when retrieving, returning, storing, adjusting, repairing, maintaining, inspecting equipment, supplies (e.g. reach for retractable reeled hose nozzle; under carriage work under hoist; elevated vehicle apparatus; miscellaneous vehicle components, parts, miscellaneous paper documents; hand or armfuls of documents, forms, brochures, binders, reference material, catalogs, reports; maintaining inventory). *A ladder (appropriate height) or step stool may be utilized to bring items to eye or shoulder level. Variables to overhead reaching will be the employee's height and anthropometric reach.*

8.) **FORWARD REACH:**

MAXIMUM FREQUENCY: Frequent

Comments: Forward reach is performed to a maximum distance of 32-inches when retrieving, returning, storing, adjusting, moving, transporting, inspecting, repairing, maintaining, equipment, controls, and/or supplies (e.g. reach for maintenance or repair of brakes, tires, engine, apparatus components, water pump, electrical system, fuel pump, fuel tank, pulleys; service transmission, cooling system, air conditioning system; counter or desktop work, maintaining inventory; miscellaneous hand/power tools; worksite analysis). *The degree of elbow extension required for reaching will vary according to the employee's anthropometric reach.*

9.) **STOOP:**

MAXIMUM FREQUENCY: Occasional

Comments: Stooping is performed when retrieving, returning, storing, adjusting, moving, transporting, inspecting, repairing, maintaining, equipment, controls, and/or supplies (e.g. stoop for maintenance or repair of brakes, tires, engine, apparatus components, water pump, electrical system, fuel pump, fuel tank, pulleys; service transmission, cooling system, air conditioning system). *Variable to stooping will be the employee's height. Stooping of the head, trunk and knees can be minimized or avoided by substituting alternate positions of squatting, kneeling or bending when performing job tasks.*

10.) **SQUAT: *(Unloaded)***

MAXIMUM FREQUENCY: Seldom

Comments: Squatting is performed when inspecting equipment (e.g. squat to reach below waist height for preventative maintenance; inspection of under carriage; climb to/from creeper cart). *Squatting may be minimized or avoided by substituting alternate positions of bending, stooping, half kneeling or kneeling. Partial squatting is a preferred lifting posture.*

11.) **FORWARD BEND:**

MAXIMUM FREQUENCY: Frequent

Comments: Bending forward at the waist is performed when retrieving, returning, adjusting , moving, transporting, equipment, controls, and/or supplies (e.g. bend to reach near or far below waist height for maintenance and repair of brakes, tires, engine, apparatus components, water pump, electrical system, fuel pump, fuel tank, pulleys; service transmission, cooling system, air conditioning system; worksite analysis). *Maximum forward trunk flexion required is 80 degrees. Employee may avoid, at times, excessive forward bending of the trunk up to 80 degrees by using alternate positions of bending at the hips, kneeling, half kneeling, stooping, sitting or squatting.*

12.) **TWIST:**

MAXIMUM FREQUENCY: Occasional

Comments: Twisting at the waist is performed when retrieving, returning, adjusting, moving, transporting, equipment, controls, and/or supplies (e.g. twist when performing work under vehicle dashboard; miscellaneous maintenance and repair job assignments; operate/utilize miscellaneous hand and power tools). *Twisting at the waist may be minimized by turning the whole body, including the feet and working from a swivel chair during office work.*

13.) **TURN:**

MAXIMUM FREQUENCY: Occasional

Comments: Turning is performed when retrieving, returning, adjusting, moving, transporting, equipment, controls, and/or supplies (e.g. turn to reach maintenance and repair of brakes, tires, engine, apparatus components, water pump, electrical system, fuel pump, fuel tank, pulleys; service transmission, cooling system, air conditioning system; advising mechanics of repair; instruct in proper use of tools and equipment; diagnosis and/or appraisal of equipment; repair and maintenance analysis; operate/utilize miscellaneous hand/power tools).

14.) **KNEEL:**

MAXIMUM FREQUENCY: Occasional

Comments: Kneeling is performed when inspecting, repairing, maintaining equipment (e.g. kneel when checking vehicle fuses; electrical and other light driveway repairs; trouble shooting; operating testing equipment). *Kneeling may be minimized or avoided by substituting alternate positions of bending, squatting, or half kneeling.*

15.) **CRAWL:**

MAXIMUM FREQUENCY: Seldom

Comments: Crawling is performed when inspecting equipment (e.g. vehicle under carriage inspection for leaks, radales, damage, breaks, wear and tear).

16.) **STAIR CLIMB:**

MAXIMUM FREQUENCY: Not Required

Comments: Stair climb is not required to perform job tasks.

17.) **LADDER CLIMB:**

MAXIMUM FREQUENCY: Seldom

Comments: Ladder climbing is performed onto/off of safety ladders or steps to access equipment and supplies located 8 feet above floor level (e.g. climb for maintenance and repair; vehicle inspection; miscellaneous elevated equipment; worksite analysis). *Variables to overhead climbing will vary according to the employee's height and anthropometric reach.*

18.) **WALK:**

MAXIMUM FREQUENCY:	Frequent

Comments: Walking is performed when retrieving, returning, storing, adjusting, moving, transporting, equipment, controls, and/or supplies (e.g. travel to/from tool box, work bench, vehicles, parts department, office; performing repair, maintenance and inspection of vehicles; to/from main office/shop, storage yard; off-site field visit, meeting site). Walking length varies between 3 feet and 200+ feet depending on job task.

19.) **SIT:**

MAXIMUM FREQUENCY:	Occasional

Comments: Sitting is performed for a maximum of 30-minute intervals when inspecting, repairing, maintaining equipment (e.g. sit while performing dash or steering column work; vehicle road testing; interior wiring; meetings; off-site service).

20.) **STAND:** ***(Static)***

MAXIMUM FREQUENCY:	Frequent

Comments: Static standing is performed for a maximum of 30-minute intervals when retrieving, returning, storing, adjusting, moving, transporting, inspecting, repairing, maintaining, equipment, controls, and/or supplies (e.g. stand for maintenance or repair of brakes, tires, engine, apparatus components, water pump, electrical system, fuel pump, fuel tank, pulleys; service transmission, cooling system, air conditioning system; meetings; operating hand/power equipment).

21.) **BALANCE:**

MAXIMUM FREQUENCY:	Continuous

Comments: Good balance is required for safe walking, standing, climbing, reaching and lifting.

22.) **HAND/FOOT CONTROL:**

	MAXIMUM REQUIREMENT
HAND:	
Right:	Frequent
Left:	Frequent
Both:	Frequent
Either:	Frequent
FOOT:	
Right:	Occasional
Left:	Seldom
Both:	Not Required
Either:	Occasional

Comments: Hand controls are utilized to operate equipment (e.g. hand and power tools; vehicle, shop machinery) when adjusting, equipment, and/or controls (e.g. operating shop tools and machinery; vehicle road testing). Foot controls are utilized to operate equipment (e.g. vehicle, forklift, tire machine).

23.) UPPER AND LOWER EXTREMITY COORDINATION:

MAXIMUM REQUIREMENT	
Simple Grasp:	Frequent
Firm Grasp:	Frequent
Fine Manipulation:	Occasional
Eye/Hand Coordination:	Frequent
Hand/Foot Coordination:	Occasional

Comments: Grasping and coordination activities are performed when retrieving, returning, storing, adjusting, moving, and/or transporting, equipment, controls, and supplies (e.g. vehicle, miscellaneous paper documents, tools).
Simple grasping is utilized to perform job tasks (e.g. lift and handle objects weighing 5 pounds or greater; operating hand and power tools; driving vehicle).
Firm grasping is utilized to perform job tasks (e.g. lift and handle objects weighing 5 pounds or greater; operating hand and power tools; operating truck; applying torque to wrench).
Fine manipulation is utilized to perform job tasks (e.g. keyboard, mouse, handwrite, wiring, soldering, adjusting controls; utilizing small wires, nuts, bolts).
Eye/hand coordination is utilized to perform job tasks (e.g. keyboard, mouse, handwrite, wiring, soldering, adjusting controls; utilizing small wires, nuts, bolts; drive vehicle; inspection).
Hand/foot coordination is utilized to perform job tasks (e.g. operate and drive forklift, tow truck, vehicle).
Depending on individual hand dominance, one hand may be used more frequently than the other when performing job tasks.

24.) CERVICAL (NECK) MOVEMENT:

MAXIMUM REQUIREMENT	
Static Neutral Position:	Frequent
Flexing:	Frequent
Rotating:	Frequent
Extending:	Occasional

Comments: Neck movement is required when performing job tasks (e.g. housekeeping; inspecting, repairing, maintaining vehicles; desktop work; advising mechanics of repair; proper use of tools and equipment; diagnosis and/or appraisal of equipment; drive vehicle, forklift). *Participating in observation of work environment allowing for safe working conditions. Full cervical range of motion is required to safely perform the job tasks.*

Stanislaus County

JOB TASK ANALYSIS SUMMARY

FREQUENCY DEFINITIONS	SELDOM	OCCASIONAL	FREQUENT	CONSTANT
Percent of the Day	1-2%	3-33%	34-66%	67-100%
Material Handling	1-4 Reps	5-32 Reps	33-250 Reps	251-2,000 Reps
Non Material Handling	1-4 Reps	5-32 Reps	33-250 Reps	251-2,000 Reps
Repetitive & Static Work	1-50 Reps	51-250 Reps	251-1,000 Reps	1,001-20,000 Reps

The following is a summary of the physical demands of the Job Task Analysis that were obtained for the position of:

EQUIPMENT MECHANIC, LEAD EQUIPMENT MECHANIC & SERVICE TECHNICIAN

Functional Activities	Maximum Requirements	Functional Activities	Maximum Requirements
***Push** (Force)*[1]	50 pounds	***Stair Climb***	Not Required
***Pull** (Force)*[1]	50 pounds	***Ladder Climb***[1]	Seldom
Stand Up Lift[1]	75 pounds	***Walk***[1]	Frequent
Level Lift[1]	75 pounds	***Sit***[1]	Occasional
Weight Carry[1]	50 pounds	***Stand** (Static)*[1]	Frequent
Overhead Lift/Pull Down	20 pounds	***Balance***[1]	Continuous
Overhead Reach[1]	Occasional	***Hand Control***[1]	Occasional
Forward Reach[1]	Frequent	***Foot Control***[1]	Occasional
Stoop[1]	Occasional	***Simple Grasp***[1]	Frequent
***Squat** (Unloaded)*	Seldom	***Firm Grasp***[1]	Frequent
Forward Bend[1]	Frequent	***Fine Manipulation***[1]	Occasional
Twist[1]	Occasional	***Eye/Hand Coordination***[1]	Frequent
Turn[1]	Occasional	***Hand/Foot Coordination***[1]	Frequent
Kneel[1]	Seldom	***Cervical (neck) Movement***[1]	Frequent
Crawl	Seldom		

[1] The critical demands of the job.

Lyle Andersen, PT

Lyle Andersen, PT, CWCE
Preparer Signature

Date:_____

Contact Person
Title

Date:_____

Contact Person
Title Fleet Manager

Date: 11/25/14

Contact Person
Title

Date:_____

LA/ga