

## CASE STUDY – Lubricating

<b>TASK TITLE: Lubricating</b>	
<b>Task Description:</b>	<p>The Lubricating task is typically one step in routine vehicle maintenance. Lubricating is typically a moderate duration task. Lubricating may be performed on vehicles, (cars, trucks, trailers, etc.) or equipment (sliding doors, carts, etc.).</p> <p>Typical environments in which the Lubricating task may be found can include:</p> <ul style="list-style-type: none"><li>• Vehicle Maintenance and Repair</li><li>• Equipment/Shop Maintenance</li></ul>
<b>Job Performance Measures Most Often Impacted by Lubricating:</b>	<p>Measure of work performance can include (but is not necessarily limited to):</p> <ul style="list-style-type: none"><li>• Time to complete task</li></ul>
<b>Typical Employee Comments about Lubricating:</b>	<p>Employees typically experience discomfort in the shoulders.</p> <p>The shoulder/neck is the body area that most commonly receives a “High” priority rating. The remaining body areas, with the exception of the head/eyes, are more likely to receive a “Medium” priority rating, or lower.</p>
<b>Suggested Level II Analysis:</b>	Postural Analysis, Dynamic Task Analysis

**Shoulder/Neck**

Job Factor	Potential Causes	Corrective Action	Level of Changes		Cost	Impact On	
			✓ Minor Modification	✓ Major Change		Quality	Productivity
1. Reaching	<ul style="list-style-type: none"> <li>Accessing awkward lubrication points</li> </ul> 	149. Provide appropriate tools <ul style="list-style-type: none"> <li>use long flexible lube gun attachments to promote reaching with the nozzle rather than the whole gun</li> <li>use a pneumatic driven lube gun to reduce time in awkward positions</li> </ul> 38. Move closer to the work location <ul style="list-style-type: none"> <li>remove obstructions to lubrication point</li> <li>use a vehicle lift or pit to improve access to lubrication points</li> <li>use a crawler to improve position</li> </ul>		✓  ✓  ✓	low  med  low to med	low  low  med	med  high  low  high  med



**Hands/Wrists/Arms**

Job Factor	Potential Causes	Corrective Action	Level of Changes		Cost	Impact On	
			✓ Minor Modification	✓ Major Change		Quality	Productivity
5. Bent wrists/ repeated wrist movements or repeated forearm rotation	<ul style="list-style-type: none"> <li>• Accessing awkward lubrication points</li> </ul> 	149. Provide appropriate tools <ul style="list-style-type: none"> <li>• use long flexible lube gun attachments to promote reaching with the nozzle rather than the whole gun, and to promote bending the flexible attachment rather than the wrist</li> <li>• use pneumatic driven lube gun to reduce time in awkward positions</li> </ul> 38. Move close to the work location <ul style="list-style-type: none"> <li>• remove obstructions to lubrication point, such as wheels and tires</li> <li>• use a vehicle lift or pit to improve access to lubrication points</li> <li>• use a crawler to improve position</li> </ul>		✓	med	low	low
				✓	med	low	low
			✓		low	low	low
				✓	high	med	high
				✓	low to med	med	med

**Hands/Wrists/Arms**

Job Factor	Potential Causes	Corrective Action	Level of Changes		Cost	Impact On	
			✓ Minor Modification	✓ Major Change		Quality	Productivity
6. Repeated manipulations with fingers	<ul style="list-style-type: none"> <li>Rarely occurs</li> </ul>	N/A					
7. Hyper-extension of finger/thumb or repeated single finger activation	<ul style="list-style-type: none"> <li>Design of gun</li> </ul>	149. Provide appropriate tools <ul style="list-style-type: none"> <li>provide a gun with multi-finger trigger which does not require hyperextension</li> </ul>		✓	med	low	low
8. Hand/grip forces	<ul style="list-style-type: none"> <li>Repeatedly squeezing lubrication gun</li> </ul>	149. Provide appropriate tools <ul style="list-style-type: none"> <li>use pneumatic driven lube gun</li> </ul>		✓	med	low	high
9. High speed hand/wrist /arm movement or vibration, impact or torque to the hand	<ul style="list-style-type: none"> <li>Rarely occurs</li> </ul>	N/A					

**Hands/Wrists/Arms**

Job Factor	Potential Causes	Corrective Action	Level of Changes		Cost	Impact On	
			✓ Minor Modification	✓ Major Change		Quality	Productivity
10. Exposure to hard edges	<ul style="list-style-type: none"> <li>Resting the arm against hard edges while reaching to awkward lubrication points</li> </ul>	9. Eliminate exposure to hard edges <ul style="list-style-type: none"> <li>use high density foam padding for any areas with prolonged contact</li> </ul>	✓		low	low	low
		149. Provide appropriate tools <ul style="list-style-type: none"> <li>use pneumatic driven lube gun to reduce time in awkward positions</li> </ul>		✓	med	low	high
		38. Move closer to the work location <ul style="list-style-type: none"> <li>remove obstruction to point</li> <li>use a vehicle lift or pit to improve access to lubrication points</li> </ul>	✓	✓	low high	low med	low high
11. Hands and fingers exposed to cold temperatures	<ul style="list-style-type: none"> <li>Work area is too cold</li> </ul>	12. Encourage appropriate seasonal clothing	✓		low	low	low
		93. Provide appropriate gloves	✓		low	low	low
		23. Increase room temperature		✓	high	low	low

## Back/Torso

Job Factor	Potential Causes	Corrective Action	Level of Changes		Cost	Impact On	
			✓ Minor Modification	✓ Major Change		Quality	Productivity
12. Repeated forward or sideways bending movements	<ul style="list-style-type: none"> <li>Accessing awkward lubrication points</li> </ul>	149. Provide appropriate tools <ul style="list-style-type: none"> <li>use long flexible lube gun attachments to promote reaching with the nozzle rather than the whole gun</li> <li>use crawlers with adjustable angle head, back and thigh support</li> <li>use pneumatic driven lube gun to reduce time in awkward positions</li> </ul>		✓	low	low	med
				✓	med	med	med
				✓	med	low	high
		✓		38. Move closer to the work location <ul style="list-style-type: none"> <li>remove obstructions to lubrication point</li> <li>use a vehicle lift or pit to improve access to lubrication points</li> </ul>		low	low
				✓	high	med	high
13. Twisting of the lower back	<ul style="list-style-type: none"> <li>Accessing awkward lubrication points</li> </ul>	149. Provide appropriate tools <ul style="list-style-type: none"> <li>use long flexible lube gun attachments to promote reaching with the nozzle rather than the whole gun</li> <li>use crawlers with adjustable angle head, back and thigh support</li> <li>use pneumatic driven lube gun to reduce time in awkward positions</li> </ul>		✓	low	low	med
				✓	med	med	med
				✓	med	low	high

**Back/Torso (cont'd)**

Job Factor	Potential Causes	Corrective Action	Level of Changes		Cost	Impact On	
			✓ Minor Modification	✓ Major Change		Quality	Productivity
	<ul style="list-style-type: none"> <li>Accessing awkward lubrication points (continued)</li> </ul>	38. Move closer to the work location <ul style="list-style-type: none"> <li>remove obstructions to lubrication point</li> <li>use a vehicle lift or pit to improve access to lubrication points</li> </ul>	✓	✓	low high	low med	low high
14. High speed sudden movements or lifting awkward, uneven, shifting or bulky items.	<ul style="list-style-type: none"> <li>Rarely occurs</li> </ul>	N/A					
15. Static, awkward back postures	<ul style="list-style-type: none"> <li>Accessing awkward lubrication points</li> </ul>	149. Provide appropriate tools <ul style="list-style-type: none"> <li>use long flexible lube gun attachments to promote reaching with the nozzle rather than the whole gun</li> <li>use crawlers with adjustable angle head, back and thigh support</li> <li>use pneumatic driven lube gun to reduce time in awkward positions</li> </ul> 38. Move closer to the work location <ul style="list-style-type: none"> <li>remove obstructions to lubrication point, such as wheels and tires</li> <li>use a vehicle lift or pit to improve access to lubrication points</li> </ul>	✓	✓  ✓  ✓  ✓	low med med low high	low med low low med	med med high low high

**Back/Torso (cont'd)**

Job Factor	Potential Causes	Corrective Action	Level of Changes		Cost	Impact On	
			✓ Minor Modification	✓ Major Change		Quality	Productivity
16. Lifting forces	<ul style="list-style-type: none"> <li>Rarely occurs</li> </ul>	N/A					
17. Pushing or pulling	<ul style="list-style-type: none"> <li>Rarely occurs</li> </ul>	N/A					
18. Whole body vibration	<ul style="list-style-type: none"> <li>Rarely occurs</li> </ul>	N/A					

**Legs/Feet**

Job Factor	Potential Causes	Corrective Action	Level of Changes		Cost	Impact On		
			✓ Minor Modification	✓ Major Change		Quality	Productivity	
19. Fixed position standing	<ul style="list-style-type: none"> <li>Rarely occurs</li> </ul>	N/A						
20. Exposure to hard edges on legs, knees, and feet <b>or</b> Standing on hard surfaces	<ul style="list-style-type: none"> <li>Accessing awkward lubrication points</li> </ul> 	9. Eliminate exposure to hard edges	✓		low	low	low	
		<ul style="list-style-type: none"> <li>use high density foam padding for any areas with prolonged contact</li> </ul>						
		149. Provide appropriate tools						
		<ul style="list-style-type: none"> <li>use pneumatic driven lube gun to reduce time in awkward positions</li> </ul>		✓	med	low	high	
		38. Move closer to the work location	✓		low	low	low	
<ul style="list-style-type: none"> <li>remove obstructions to lubrication point</li> <li>use a vehicle lift or pit to improve access to lubrication points</li> </ul>		✓	high	med	high			
95. Provide appropriate knee protection				✓	low	low	low	

**Legs/Feet (cont'd)**

Job Factor	Potential Causes	Corrective Action	Level of Changes		Cost	Impact On	
			✓ Minor Modification	✓ Major Change		Quality	Productivity
21. Awkward leg postures	<ul style="list-style-type: none"> <li>Accessing awkward lubrication points</li> </ul>	9. Eliminate exposure to hard edges <ul style="list-style-type: none"> <li>use high density foam padding for any areas with prolonged contact</li> </ul>	✓		low	low	low
		149. Provide appropriate tools <ul style="list-style-type: none"> <li>use pneumatic driven lube gun to reduce time in awkward positions</li> </ul>		✓	med	low	high
		38. Move closer to the work location <ul style="list-style-type: none"> <li>remove obstructions to lubrication point</li> </ul>	✓		low	low	low
		<ul style="list-style-type: none"> <li>use a vehicle lift or pit to improve access to lubrication points</li> </ul>		✓	high	med	high
22. Awkward foot postures	<ul style="list-style-type: none"> <li>Rarely occurs</li> </ul>	N/A					

**Head/Eyes**

Job Factor	Potential Causes	Corrective Action	Level of Changes		Cost	Impact On	
			✓ Minor Modification	✓ Major Change		Quality	Productivity
23. Difficult to see/light levels too low/too high	<ul style="list-style-type: none"> <li>Accessing awkward lubrication points</li> </ul>	38. Move closer to the work location	✓		low	low	low
		<ul style="list-style-type: none"> <li>remove obstructions to lubrication point</li> <li>use a vehicle lift or pit to improve access to lubrication points</li> </ul>		✓	high	med	high
		18. Improve visual access to work		✓	low to med	med	med
24. Intensive visual tasks, staring at work objects for long periods	<ul style="list-style-type: none"> <li>Rarely occurs</li> </ul>	N/A					

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