OCCUPATIONAL HEALTH AND SAFETY AT ENTERPRISES ENGAGING IN ACTIVITY ON MOTOR VEHICLE REPAIR AND MAINTENANCE SECTOR

Today when motor vehicles are an essential part of our lives, the need of repair and maintenance of these vehicles lead to the generation of a highly big sector named repair and maintenance. In addition to being immensely labour-intensive sector, both the expertise fields of the workers and the size of the enterprises in business vary much. Particularly, being one of the major problems of small-sized enterprises engaging in underground activity and our country and the prevalence frequently encountered in these enterprises making it considerably difficult to tract and supervision of the sector in terms of occupational health and safety. A large part of work accidents or occupational diseases occurring are not recorded at no time. Large enterprises also known as “Authorized services”, because of working as an extension of big companies and being controllable easier by both the national and international companies they are inured in and the government can be accepted at a better level than small enterprises known as “repair shop“ with regards to occupational health and safety. The basic problem in the sector is caused by the small repair shops that do not have more than a couple of workers. When the children employed especially as apprentice commonly and most of the time underground in this small repair shops taken into account, the importance of treatment of occupational health and safety in these enterprises will be understood better. However, unfortunately especially in the workshops where there are several workers working, education is continuing with master-apprentice system and training about occupational safety is either never taken or learnt by hearsay. Enterprises engaging in activity in motor vehicle repair and maintenance sector, with respect to both size and the content of doing and given service vary much. As all of these carry some common risks, most of them carry very different risk caused by the nature of their work. For example, air bags(SRS or air bag) that were not in plenty of vehicles in 1980’s today became a standard equipment in almost every vehicle.

Service of air bags requires special expertise and in case of interference by unauthorized-uneducated persons, this system designed for saving life unfortunately can be a serious threat for human life.

Although it is not possible to count all of them, lots of technological innovation like this made the structure of the vehicles even more complex and harder to work on these cars, made it a necessity to expertise and higher level of vocational education.

Also, like some other labour-intensive sectors in motor vehicle repair and maintenance sector it is not possible to eliminate all the risk and hazard sources. Main rule of safe working is working tidy and neat. Keeping tools and equipment in an organized fashion, removing unused tool or the tool that are not worked on anymore or equipment from workspace, storing the parts waiting to be incorporated or dismantled parts in appropriate fields and removing them from the pathways will both increase the efficiency and help preventing accidents. Unfortunately, excluding some authorized services located in large cities, premises of many of small and medium sized enterprises making repair and maintenance of motor vehicles are not designed and constructed for this purpose. Most of the time, industry sites are designed and constructed as monotype buildings, but with respect to the needs of different branches of
industry they are engaging in, employers rearranging these places but this rearrangements are usually not sufficient enough. Most of the employees working in the sector are both giving service of repair and maintenance and cooking and eating lunches at noons and dealing with personal hygiene and changing clothes in the same place. Most of them even do not have restroom which can be regarded hygienic. Within most of workshops, there is no infrastructure giving possibility to take a shower.

Carbon monoxide produced while internal combustion engines working is a colourless and odourless gas which is accumulated in the body over time can lead to irreversible damages. Also, long-term continuous exposure can result in death. Therefore, in confined spaces that do not have necessary ventilation system vehicles should not be operated for a long time. In force majeures, special local ventilation system that is mounted to the exhaust and removing exhaust gas outside should be used. If this system is not available, area should be ventilated by opening the windows and workshop doors all the way. In most parts of the motor vehicles petroleum-base mineral oils and hydraulics are used. Workers are consistently in touch with these oils as a matter of course. It is very important to protect hands and the other exposed sides of skin against the contact of these substances during work. Workers should certainly be provided protective gloves and made them wear. Commonly seen another malpractice is cleaning dirty hands, which are contaminated with these mineral oils, with gasoline or organic solvents like thinner after the completion of work. This substances are both just as harmful to human health as mineral oils and at the same time known to kill the fatty tissue of skin. Therefore, volatile substances like gasoline, oil fuel and thinner should certainly not used on personal hygiene.

Air compressors are tools which usually used in vehicle repair shops and their maintenance are often neglected. Whether if it’s air hand tools like screwing machine or wearing machine or a spray guns that used in a paint shop or for compressed air hoses which used for cleaning purposes, the air needed are all provided with these compressors.

Compressors with neglected maintenance are in general due to their excessive pressure cause severe injuries or deaths most of the time.

For this reason, the maintenance of air compressors in the shops should not be neglected, it must be sure that all the security components are working; security systems should not be interfered.

The hand tool chosen should be appropriate for the work. Especially, the hand tools must always be in a good condition and have to be maintained. Hand tools with broken edges, damaged or the hand tools not fully functioning should not be used. After using the hand tools’ holding parts should be degreased and should be kept this way. Hand tools and gears should never be carried in working clothes or in workwear’s pockets. Another issue to be considered is; when dismantling a bolt or nut, the force applied on the hand tool should be pulled towards the body not pushed towards outside. When using electrical or air tools, eyes should absolutely be protected. Otherwise a particle which has been thrown fast from these tools could seriously cause damage to eyes. When using pneumatic screw gun for tightening or loosening screws or nuts, to use with these guns with specially hardened steel and fasteners/fittings/couplings should be used along with these guns.
It’s known that, the systems that contain 220 V or 380 V (three-phase) voltages which is used in many repair shops have danger of death. Contact with this voltage is carrying the risk of cardiac and respiratory arrest. Safety rules should be obeyed when working with equipment that works with 200 or 380 V. It should be ensured that isolation of the equipment should be complete and undamaged. It should be sure of that all the electrical tools that’s used should be grounded in a proper way and workshop’s electrical installation should be designed in a way so that it should compensate the current that these tools and equipment uses. Portable lighting equipment that works with 24 V voltages should be preferred for portable lighting equipment which is safer.

The capacity of the equipment that’s used in lifting the vehicle should be checked whether the weight is appropriate or not. The load which is above the maximum load capacity stated on the lift or jack should never be lifted. It should never be getting under a vehicle which is lifted with a hydraulic or mechanical jack unless additional support has been placed. Before getting under a vehicle it is necessary that the vehicle is mounted on a rigid support. In case of a vehicle that will be lifted with an electric lift, lifting arms should be placed correctly on the lift points beneath the vehicle and the consideration of vehicle’s center of gravity is utmost important. Otherwise the vehicle might slip through lifting arms and might fall on the worker causing injuries or even death. To prevent this; the vehicle should always be lifted equally from its four edges; it should be ensured that lifting arms should perfectly fit to the lifting points beneath the vehicle.

Belongings that have a high possibility of sticking into motor or other moving components like ring, name tag, watch should be removed, work clothes with loose neck or floppy sleeves should not be chosen. If the worker’s hair is long he/she should tie his/her hair up from behind appropriately. Otherwise in case of the contact of person’s hair or any accessories that stuck to moving parts like radiator fan, the result of serious injuries or deaths is possible.

Except obligatory situations, there shouldn’t be any operation in a vehicle which its engine is on. As a basic safety precautions; before working on vehicle (-) battery terminal should be dismantled, thus the possibility to take action without the knowledge of people working on the vehicle should be abolished. However, in case of that the vehicle needs to be running, handbrake (parkbrake) should be pulled, chocks should be placed before and after the tires, it should be ensured that gear should be idle. Pressurized cooling systems are commonly used in today’s vehicles. Before working on these systems, the systems should be waited to cool, if this is not possible the pressure in the system should be discharged firstly.

Ignition system used in gasoline engines uses boosted voltage electricity. This high voltage can end up with 40,000 Volts. Therefore except for obligatory situations ignition system parts of a working engine should not be touched by bare hands, this should be done after wearing rubber gloves with high electrical resistivity and shoes with thick rubber soles.

In addition, people who carry a medical implant like heart pacemaker should not work in these systems under any conditions. Sparkling near vehicle’s battery should be avoided; workers should never go near the battery with an open flame. Another danger about battery is that sulphuric acid solution in the battery. To prevent contact between sulphuric acid and skin protective gloves and clothes should be worn.
Gases which used in vehicle air conditioning bear several risks. Gases can freeze any subject instantly when they contact are in contact, including human skin. This can cause frostbite that may end up with tissue damages on workers’ skin. If there will be maintenance on the system, gas in the system should definitely be released by the help of machines and then shall be moved on to dismantling. Thick leather gloves that protect from elbows to hands, full face shields and in addition protective eyewear that fits perfectly to eyes should definitely be used.

One of the most common types of workplace which maintenance and repair of the motor vehicle in, is fire and explosions while welding works. Especially the results of the explosions while welding over the fuel tanks are terribly serious. This subject has gained more importance in recent years with the commonly usage of LPG in vehicles as fuel. If it needs to be weld on the fuel tank Regardless of the type of fuel used by the vehicle, first the tank must be removed from vehicle and the fuel in the tank must be completely emptied, it must weld after it filled with water.

While asbestos fibers in brake pads are located within the vehicle as long as the hard case does not pose a danger, problems arise with the brake pad wear during use. These fibers into the air during operation of the employee involved settle in the lungs of the employee, they cause particularly lung cancer and many other occupational diseases.

Certainly compressed air should not be used to clean the parts, be used spray cleaners made specifically for this purpose.

The most common types of accidents during maintenance and repair of suspension systems are the vehicle's springs (spirals) those that occur during disassembly and reassembly. Without taking the necessary precautions and use proper equipment while attempting dismantlement spirals, spirals may remain free, can cause injury to people near it by jumping out and even can cause their death. To prevent such accidents, manufactured special equipment must be used. Screw the compression equipment and a compressed helical should never be stored and transported like this, the voltage should be taken immediately from these parts after it has been removed over the vehicle, but then stored or trasported.

One of the jobs often occurring especially hand and arm injuries while working on the body is removing and installing the glass works vehicles. If the utmost care is not taken while using tools in cutting jobs, the tools can easily displace and cause injury to the person who is cutting jobs, because of using extremely sharp tools during this procedure. Likewise, during the cutting process, small glass fragments occur and especially when they get in the eye, they can cause some serious health problems. To avoid such situations should be very careful when working with cutting edges, must use protective gloves, which are suitable for the job, not easily slaughtered and thick, and goggles which are suitable for the job.

Today, in many rural areas and roads motor vehicles are serving our country every day, this means that maintenance and repair services sector can be said to employ a large number of employees. When we examined the causes and consequences of occupational accidents occurring in businesses operating in the sector, the vast majority are caused from not following simple safety precautions. At present, considering that the vast majority of employees in sector still are composed of young people deprived of vocational education and unconscious, the greater need for qualified vocational education emerges. Especially in small cities and towns, the motor vehicle maintenance and repair workshops, usually 2-3 people work doing the work and the vast majority of businesses cannot be controlled in a healthy...
way because of the activities which are of the record. Because of the relationship between employees often kin-relative in these small businesses, it is accepted as “shame” (especially in small settlements) when you report any accident occurring. When combined these and other reasons, difficulty in collecting accurate data, which is the first phase of the industry to improve occupational health and safety, is better understood. Which is also widespread among workers in other sectors "will not happen to me" approach is seen, unfortunately, quite common in this industry. Accidents that occur on the employee's job, seriously affect the integrity of the limbs and body sees serious damage such as eye or hand functionality.

The vocational education quality, which raises staff for the sector and plays a key role in the creation of occupational health and safety awareness, Obviously must be enhanced for protecting the health of workers in the sector and avoiding the burden of accidents and occupational diseases to country's economy, and informally working and especially the child labor will be prevented by increasing the inspection over the sector.