



Modern Automotive Technology Chapter 5

The Auto Shop and Safety







The Auto Shop and Safety

- Describe the typical layout of an auto shop
- List the type of accidents that can happen in an auto shop
- Explain how to prevent accidents in the auto shop
- Describe the rules and regulations of the auto shop



- Wear eye protection during any operation that could endanger your eyes
- Avoid anyone who does not take shop work seriously
- Keep your shop and work area clean & organized
- Dress in an appropriate manner
- Never carry sharp tools or parts in your pockets
- Wear full face protection when grinding, welding, or performing other hazardous operations
- Work like a professional
- Use the right tool for the job



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1. The FRONT END RACK is a specialized stall used to work on a vehicle's steering and suspension system.

2. ASPHYXIATION is caused by breathing toxic or poisonous substances.



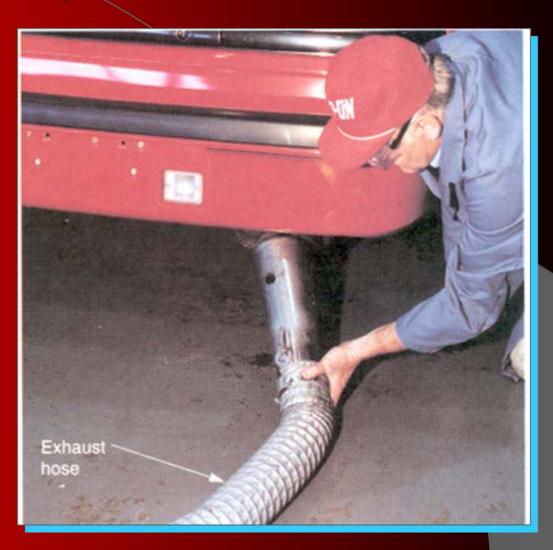
Alignment Rack



Specialized stall used when working on steering and suspension systems

Asphyxiation

Place an exhaust hose over the tailpipe of any car running in an enclosed shop





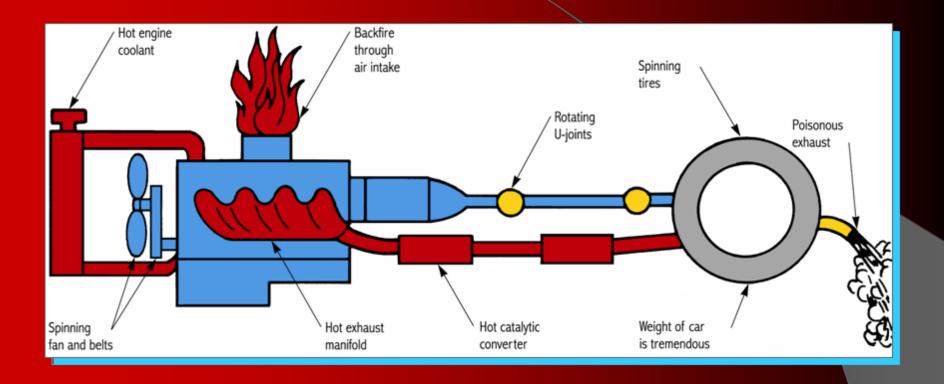
The Auto Shop and Safety

3. PHYSICAL INJURIES can result from hundreds of different accidents.

4. Using an improperly grounded electric power tool can result in an ELECTRICAL SHOCK!



Potential Dangers



Just a few of the dangers present around an automobile

Electric Shock

- Result of electric current passing through parts of your body, causing injury or death
- Can occur when using improperly grounded electric power tools
- Never use an electric tool unless it has a third round prong on the plug socket
- Never use an electric tool on a wet shop floor



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5. The result of a hot wire touching ground (vehicle frame or body) will be an ELECTRICAL FIRE!

6. CHEMICAL BURNS can be caused by solvents, battery acid, and other shop substances.

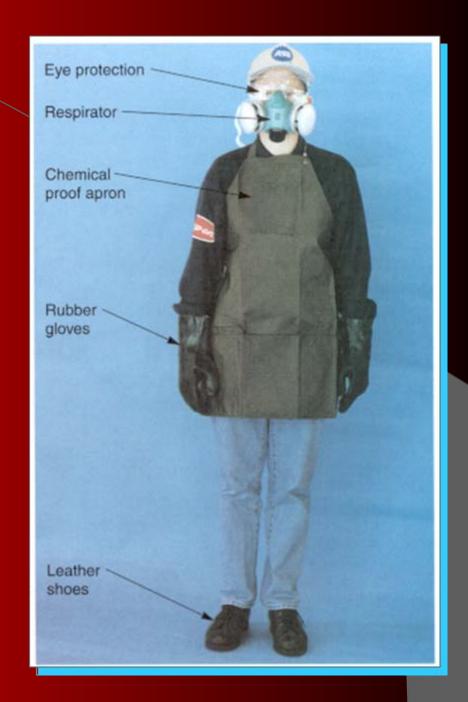


Electrical Fires

- Result when a current carrying wire touches ground
- Wire can heat up, melt the insulation, and burn
- Other wires can then do the same
- To prevent electrical fires, always disconnect the battery when instructed to do so in a service manual

Chemical Burns

Protective gear for preventing chemical burns





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7. A SHOP STALL is an area where a vehicle can be pulled into the shop for repairs.

8. GASOLINE has the potential for causing tremendous fires.



Shop Stall



Work area where a car can be parked for repairs Sometimes stalls are numbered and marked off with safety lines painted on the floor

Gasoline Safety Rules

- Wipe up gasoline spills immediately
- Keep any source of heat away from fuel system parts
- Never use gasoline as a cleaning solvent
- Store gasoline and other flammables in approved, sealed containers
- When disconnecting a fuel line or hose, wrap a shop rag around the fitting
- Disconnect the battery before working on a fuel system



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9. OILY RAGS should be stored in an approved safety container to prevent fires.

10. When hydrogen gas surrounds the top of a battery being charged or discharged, the battery can EXPLODE!



Explosions

- Rapid, almost instant, combustion of a material that causes a powerful shock wave to travel through the shop
- There are several potential causes of explosion in the shop:
 - hydrogen gas emitted by batteries
 - fuel tanks or containers
 - sodium-filled engine valves
 - welding tanks and propane bottles

Harmful Substances



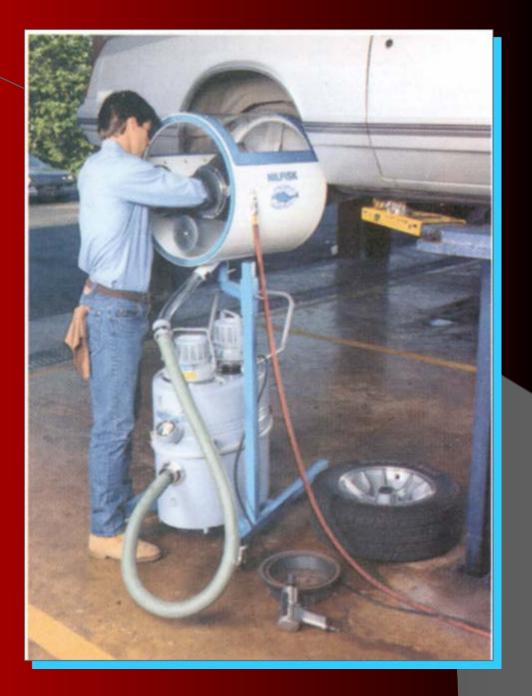
This technician is wearing a respirator for protection from toxic welding fumes

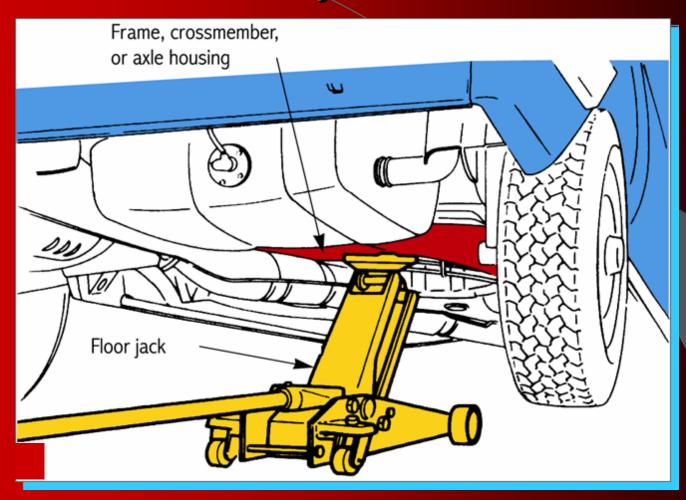


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- MSDS = MATERIAL SAFETY DATA SHEETS
- In our classroom, the MSDS book is located in the back of our classroom, near the door, in a YELLOW holder.
- Safety Glasses MUST always be worn in the shop
- Never throw anything in the shop or classroom
 - Clean up any oil or water spills immediately

Use a vacuum system to remove asbestos dust from parts





Jack up a vehicle slowly and safely



Never work on a vehicle not supported by jack stands

Material Safety Data Sheet

	SHEET		DAT	E PRE	PARED	3/94			
HI-TEMP PRODUCTS CO. 14936 GROVER ST. OMAHA, NEBRASKA 68144	EM	1-402-	PHONE NUMBER 333-8323 359-5796		P.	TELEPHONE NUMBER FOR INFORMATION 1-402-330-3344			FOR
1 PRODUCT NAME:					_				
HT 0801	AKRYA C	ut					. un	ALTH	1
2 PRECAUTIONARY STATEM	- 0	+ HEALTH		-					
	WAR	NING					^ FI		- 0
WEAR SAFETY GLASSES. M	ON	* RE	ACTIV	0					
OCCURS, FLUSH EYES FOR NOT INDUCE VOMITING. DR PHYSICIAN IMMEDIATELY, R INFORMATION. KEEP OUT	INK WATE	R OR MILK MSDS FOR	IN EITH	IER CAS	SE, CAL	L A	0-L 1-S 2-N 3-S	ARD RA EAST LIGHT MODERA ERIOU EVERE	ATE S
3 HAZARDOUS COMPONENT	rs osha -	-> PEL	/TLV		VA .	S	TEL	CE	ILING
INGREDIENTS %	CAS NO	O. ppm	mg/m	ppm	mg/m	ppm	mg/m	ppm	mg/n
ISOPROPYL ALCOHOL <3	67-6	3-0		400	983	500	1230		
4 Tritterering eritating in a city	RACTERIS	STICS 212° F	Specifi	c Gravity	y (H(20=1	1)			N/A
Boiling Point	RACTERIS		Specifi Melting		y (H20=1)			N/A N/A
4 PHYSICAL/CHEMICAL CHA Boiling Point Vapor Pressure (mm Hg.) Vapor Density (Air = 1)	RACTERIS	212° F	Melting	Point ration Ra	ate)			
Boiling Point Vapor Pressure (mm Hg.)	RACTERIS	212° F N/A	Evapor (Butyl	Point ration Ra Acetate	ate = 1)	ZANYADA			N/A
Boiling Point Vapor Pressure (mm Hg.) Vapor Density (Air = 1) Solubility in water		212° F N/A N/A	Evapor (Butyl	Point ration Ra Acetate	ste = 1)	ZANYADA			N/A
Boiling Point Vapor Pressure (mm Hg.) Vapor Density (Air = 1) Solubility in water Appearance and Odor PURPI	LE THICK	212° F N/A N/A MISCIBLE	Evapor (Butyl	Point ration Ra Acetate	ste = 1)	ZANYADA	(IIII		N/A
Boiling Point Vapor Pressure (mm Hg.) Vapor Density (Air = 1) Solubility in water	LE THICK	212° F N/A N/A MISCIBLE	Evapor (Butyl / BANAN	Point ration Ra Acetate	ste = 1)		N/A		N/A
Boiling Point Vapor Pressure (mm Hg.) Vapor Density (Air = 1) Solubility in water Appearance and Odor PURPI 5 Fire and Explosion Hazard D Flash Point N/A	LE THICK	212° F N/A N/A MISCIBLE EMULSION,	Melting Evapor (Butyl BANAN)	Point ration Ra Acetate A ODOR	ste = 1)		N/A		N/A N/A
Boiling Point Vapor Pressure (mm Hg.) Vapor Density (Air = 1) Solubility in water Appearance and Odor PURPI 5 Fire and Explosion Hazard D Flash Point N/A	LE THICK sta	212° F N/A N/A MISCIBLE EMULSION, Flammable L DL DOWN C	Melting Evapor (Butyl BANAN)	Point ration Ra Acetate A ODOR	afe = 1)	L			N/A N/A
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6 HEALTH	HAZAR	D INFOR	MATK	DN - SIG	SNS AND SYMPTOMS OF EXPOSURE					
DISO	RDERS	A STATE OF			REDDENING IN PATIENTS WITH PREEXISTING SKIN NING, AND REDNESS.					
SWALLOWIN BREATHING	DIS	COMFOR	TOR	NAUSEA	THROAT IRRITATION, BURNING, AND POSSIBLE ABDOMINAL A. OF MIST MAY IRRITATE NASAL PASSAGES.					
7 EMERGE	NCY A	ND FIRST	CIA	PROCEI	DURES					
ON SKIN: W	ASH WI	TH SOAP	AND	WATER.	IF IRRITATION PERSISTS, SEEK MEDICAL ATTENTION.					
					RUNNING WATER FOR 15 MINUTES, LIFTING EYELIDS E MEDICAL ATTENTION.					
SWALLOWE		A PHYS			NATELY, DO NOT INDUCE VOMITING. IF CONSCIOUS, DRINK					
BREATHED:		OVE TO I			IVE ARTIFICIAL RESPIRATION IF NOT BREATHING, SEEK NITION.					
8 TOXICITY	DATA									
ORAL: N/A		DERMAL: N/A								
INHALATION	N/A				*27					
CARCINOGE	NICITY	NOT CO	ONSIC	DERED T	TO BE A CARCINOGEN BY IARIC.					
NTP7 N/A		IARC MONOGRAPHS? N/A OSHA REGULATED? N/A								
9 PERSON	AL PRO	TECTION	V							
EYE PROTEI	TION:	TECTION WEAR G	FOF DGGL	ECESSA R MIST C LES OR S	XHAUST. ARY, WEAR A PARTICLE MASK OR AN OSHA APPROVED MASK CONCENTRATIONS. SAFETY GLASSES. R RUBBER GLOVES.					
10 HAZARD	OUS RE	EACTIVIT	Υ							
STABILITY:	UNS	UNSTABLE?		COND	OTTIONS TO AVOID: N/A					
	STAE	STABLE?								
INCOMPATIB	LITY:	N/A								
HAZARDOUS	BYPR	ODUCTS	N/A							
HAZARDOUS		MAY OCCUP		1	CONDITIONS TO AVOID: N/A					
POLYMERIZATION		WILL NOT OC		CCUR	x					



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