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MARINE CORPS EXCHANGE 0131
MARINE CORPS BASE
CAMP LEJEUNE, NC 28542-5003

IN REPLY REFER TO:

Ex0 5100.1E
MCEX-12
19 Aug 87

EXCHANGE ORDER 5100.1E

From: Marine Corps Exchange Officer
To: Distribution List

Subj: EXCHANGE SAFETY REGULATIONS

Ref: (a) BO P5100.3
(b) Ex0 5101.2

- Encl:
- (1) Safety Regulations, Service Stations
 - (2) Safety Regulations, Food Activities
 - (3) Safety Regulations, Warehouse
 - (4) Safety Regulations, Cleaning and Pressing Shops
 - (5) Safety Regulations, Barber Shops
 - (6) Safety Regulations, Beauty Shops
 - (7) Safety Regulations, Property and Maintenance
 - (8) Safety Regulations, Cobbler Shop
 - (9) Safety Regulations, Vehicle Safety Seatbelts

1. Purpose. To promulgate safety regulations for Exchange activities and employees.

2. Cancellation. Ex0 5100.1D

3. General

a. Reference (a), which also applies to Exchange activities located at Marine Corps Air Station, New River sets forth policies and procedures for the Base Safety Program.

b. Reference (b) addresses the requirement for managers/supervisors to report all on the job accidents and the requirement for all managers/supervisors to report to the Non-Appropriated Personnel Office to execute the supervisors report of on the job accidents.

c. Safety must be a paramount consideration at all times. Enclosures (1) through (9) are provided to assist managers/supervisors in ensuring that work performed is always accomplished in a safe manner.

Ex0 5100.1E
19 Aug 87

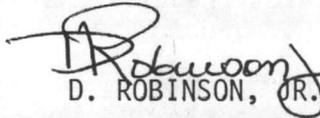
d. Exchange employees should always:

- (1) Report unsafe conditions to their supervisor
- (2) Warn others when they are in danger of being injured through unsafe procedures
- (3) Wear proper clothing and use equipment in the prescribed manner.
- (4) Ensure accidents are immediately reported to their supervisor

e. Managers/supervisors are responsible for:

- (1) Enforcement of safety regulations
- (2) Instructing employees in safe work practices
- (3) Immediately correcting unsafe working conditions by own action, reporting condition to Property and Maintenance or notifying the Exchange Safety Manager.
- (4) Ensure prompt completion of supervisors accident reports

4. Action. Managers/supervisors will become familiar and comply with the provisions of this Order.


D. ROBINSON, JR.

DISTRIBUTION: "A"

Copy to: AFGE, Local 2065, P. O. Box 251, Jacksonville, NC 28540
Internal Audit Team #2, Box 136, Tarawa Terrace, NC 28543

EXCHANGE SERVICE STATIONS

1. General Housekeeping

a. Cleanliness of floors and other exposed areas of the garage, gas station or workshops shall be thoroughly inspected daily and maintained in a scrupulously clean condition. Hazards on floors such as grease, oil or loose tools shall be eliminated as quickly as possible.

b. Particular care shall be taken to maintain cleanliness in the area around the lubrication rack as well as the rack itself. At the close of business each day, clean the lubrication rack and floor.

c. Loose stones, gravel and ice shall be removed from workshops and drives. Icicles will be removed from eaves of buildings.

d. Garages and repair shops shall be well ventilated for protection against carbon monoxide gas from running engines. If the shop is not sufficiently ventilated to ensure maximum safety, the vehicle will be driven outside as soon as its engine is started.

e. Adequate illumination shall be provided and utilized for all work areas.

f. When construction work, repair work or painting of buildings is in progress, warning signs and barricades will be used to protect and inform personnel.

g. Tripping hazards will be eliminated. Man hole covers, fuel tank openings and pipe openings shall be kept covered. When open, barricades will be used to protect personnel. All tools and equipment shall be kept in their proper places when not in use and shall be positively kept out of walkways.

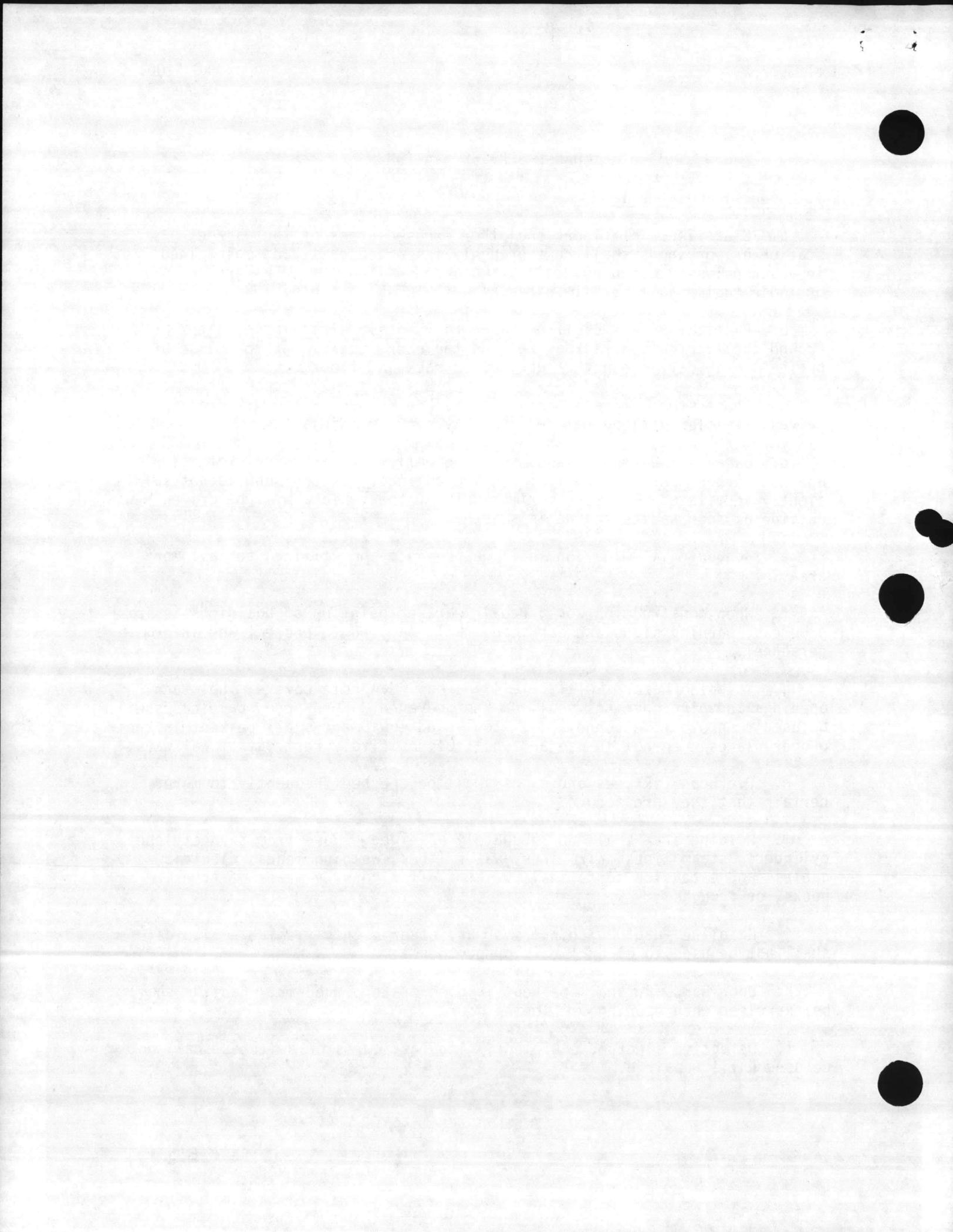
h. Overhead fixtures and signs shall be checked frequently to make certain that they are secure.

i. Welding area shall be adequately shielded. Hose from oxyacetylene cylinders, steam lines, air lines, water lines, welding leads, electric cables, and extension cords shall be kept off floors by means of trees, hooks, or troughs.

j. Gasoline, naphtha, thinners or any other highly flammable liquids shall not be used to clean floors or parts.

k. Door hardware shall be kept in good state of repair. Caution shall be exercised when opening or closing doors.

l. Defective electric equipment, fixtures, cords or switches shall not be used until repaired.



2. Protection of Personnel

a. Mechanics and all other shop personnel of the garage or gas station shall wear goggles, rubber gloves, aprons, safety shoes, and special gloves as needed.

b. Goggles shall be worn for all grinding, chipping, cutting, chiseling, and welding work, or similar operations, and when using compressed air.

c. Rings shall not be worn on fingers by workmen servicing batteries or working on motor vehicles.

d. Neckties, extremely loose clothing; shirt tails out of trousers, bracelets, and key rings will not be worn by personnel working on or around motor vehicles or machinery. Neckties under coveralls or jackets and not free swinging may be worn.

e. No protruding object shall be carried in the pockets of work clothes.

f. Non-safety type matches will not be carried or used in the service or shop area.

g. When lifting material of any type, the lifter shall stand close to the load, with feet solidly placed and slightly apart. With knees bent, he shall grasp the object firmly and then lift by straightening the legs, keeping the back as nearly verticle as possible.

3. Fire Precautions

a. Fire-Fighting apparatus shall be kept in proper working condition and well distributed, with location conspicuously marked. Personnel will be trained in the operation of this equipment.

b. Smoking or the carrying of lighted cigars, pipes, or cigarettes near pumps, batteries, vent pipes, or in the garage shops, except in authorized areas as posted, is prohibited.

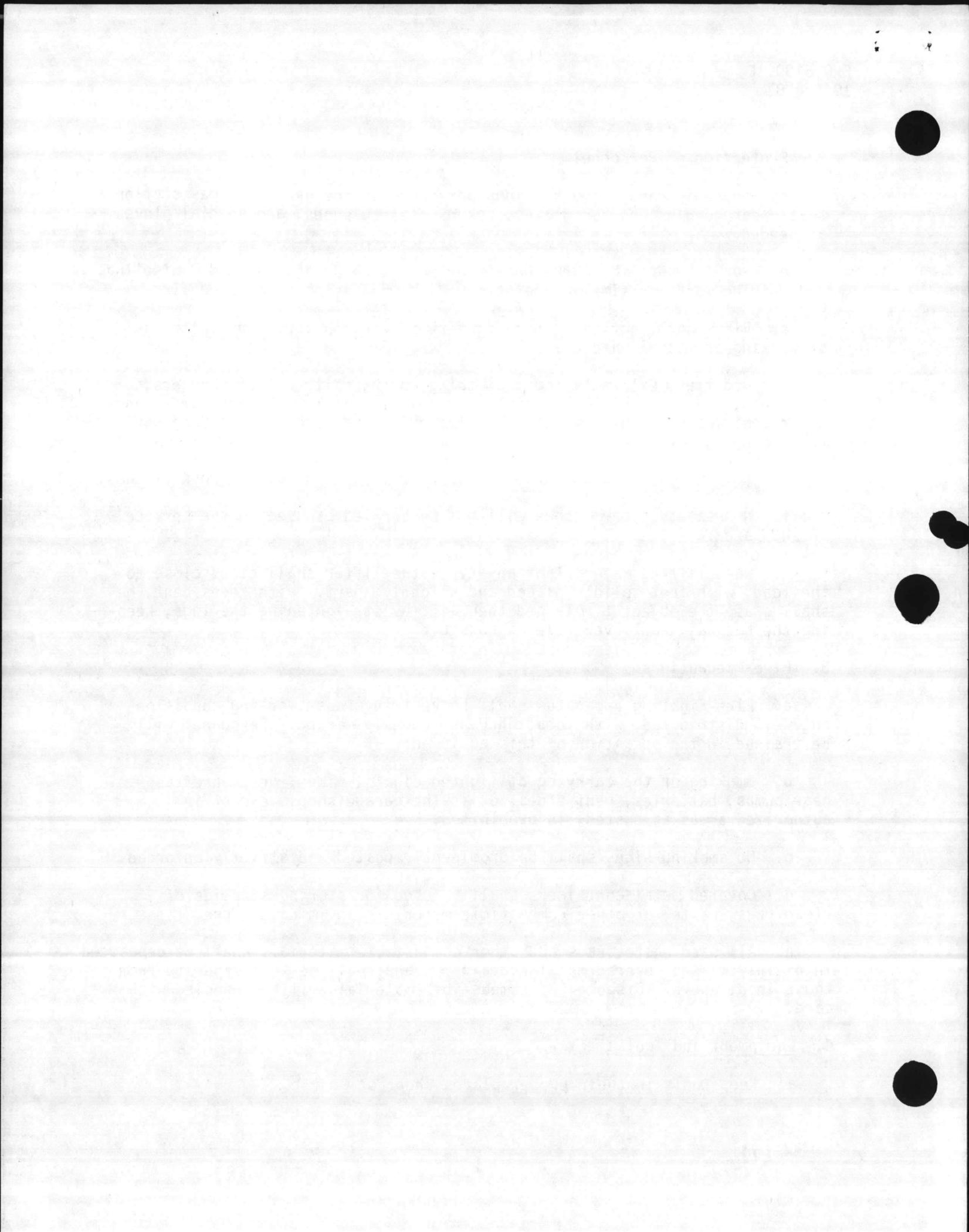
c. No smoking signs shall be prominently posted and strictly enforced.

d. Covered metal containers shall be used for storing supplies of clean rags, waste, or other combustible materials in immediate use.

e. All used waste, rags and other combustible materials shall be deposited in plainly marked covered metal containers, and shall be kept separate from those in d. above. Disposal of combustible materials will be handled with care.

4. Equipment and Tools

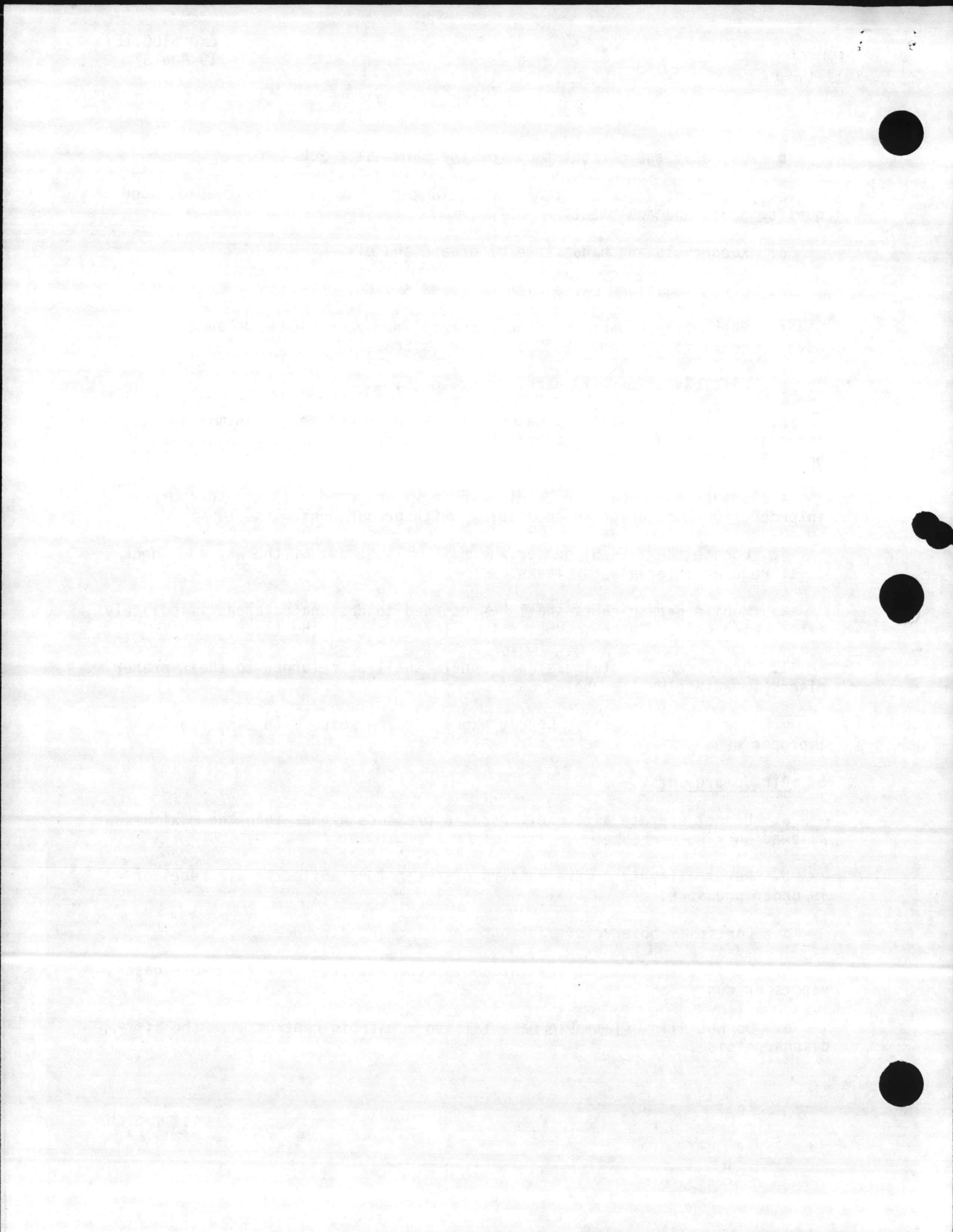
a. Keep tools in their proper places when not in use.



- b. Use only the correct tool for the particular job.
- c. Never use defective tools or equipment. Use only serviceable, good quality tools and equipment.
- d. Keep tools and hands free of grease and oil.
- e. Clean tools and parts with approved solvent only.
- f. When using a bar, work the bar away from your face. Be sure you have a secure footing and that your body is braced.
- g. Lift batteries with carriers or tongs.
- h. Blow torches will not be used to clean crankcases, transmissions, radiators, or grease guns. Steam, hot water, or suitable degreasers shall be employed for this purpose.
- i. Grease guns shall be handled properly and used only for the purpose intended. Do not engage in "horseplay" with grease guns.
- j. Locate the lube dispenser where it will be out of the way and check it at regular intervals for leaks.
- k. Mobile grease carts shall be returned to designated areas immediately after being used. The hose must not be left lying on the floor.
- l. Drain cans, containers and funnels shall be returned to their proper places immediately after being used.
- m. Use tools properly. Do not expose fellow workers to danger by improper use.

5. Air Compressors

- a. Do not operate air receivers at a pressure higher than the maximum allowed working pressure.
- b. Never attempt to make repairs of any nature while the air receiver is under pressure.
- c. Carefully observe precautions for cleaning air receiver.
- d. Be sure that air at the intake is cool and free from flammable gases, vapors or dust.
- e. Do not allow flammable materials to remain in contact with the air discharge pipe.



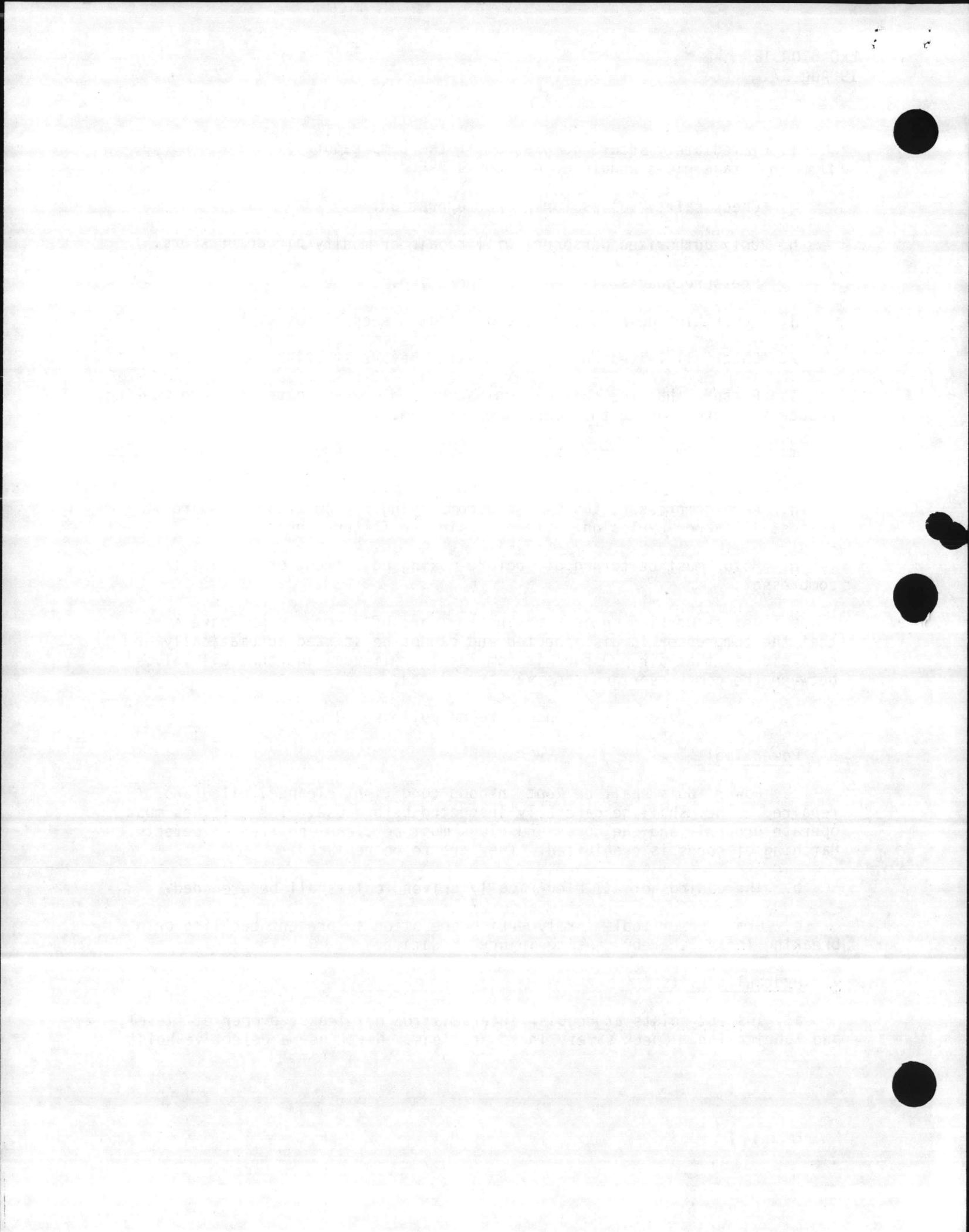
- f. Immediately secure compressor if the temperature of air discharged from any stage rises unduly or exceeds 400°F.
- g. Check safety valves for proper operation.
- h. Only authorized personnel will repair or modify air compressors.
- i. Pressure gauges will be kept operative.
- j. Never kink hose to stop the air flow. Keep clamps tight.
- k. Check all valves and safety devices before starting compressor.
- l. Be sure that the control, unloading and governing devices are working properly before leaving the compressor station.
- m. Lubricate air compressors regularly. Use grade of oil recommended by the manufacturer.
- n. Keep compressor, tanks, and accompanying piping clean to guard it against oil vapor explosion. Clean air intake filters periodically.
- o. Motor must be turned off before making adjustment or repairs to compressor.
- p. Before working on or removing any part of a compressor, make sure that the compressor is disconnected and cannot be started automatically or by accident, that air pressure is completely relieved, and that all valves between the compressor and receiver are closed.
- q. Safety guards will be used around pulleys and belts.

6. Power Tools

- a. Power tools shall be kept in good condition, cleaned, oiled and repaired. They shall be carefully inspected before use. The switches must operate properly and the cords and plugs must be clean and free of defects. Patching of cords is prohibited. They are to be replaced.
- b. The casings of all electrically driven tools shall be grounded.
- c. Grasp power tools firmly during operation to prevent buckling or breaking loose, thereby causing injury or damage.

7. Hydraulic Lifts

- a. Inspect hoists at regular intervals for oil leaks, proper oil level, and lubrication. Check safety locks and legs. Never use a defective hoist.



b. Do not stand in front of a hoist while a vehicle is being guided onto it.

c. Never permit occupants to remain in a vehicle while it is to be lifted. Before lifting, set brakes, shut off ignition, close all doors, and, on roll-on type lifts, block wheels.

d. Balance car properly on lift.

e. When hoist is raised, use safety leg and check safety catches for security.

f. Do not rock the car when the hoist is raised. Raise and lower hoist slowly.

g. Do not exceed hoist capacity in weight.

h. Except for cleaning purposes, never raise the hoist when not in use.

8. Jacks

a. Jacks shall be inspected visually for cracks, looseness, and wear. If condition is doubtful, don't use it.

b. Block vehicle when working under it. Do not depend entirely on jacks.

c. Center the jacks on the work. The jack should always be on solid footing.

d. Use proper capacity jack for the load to be lifted. Never exceed the load capacity of a jack.

e. Remove jack handle from the jack when under load. Place the jack so that the swinging of its handle is unobstructed. Never lean over the jack handle under load. Block wheels of the car to prevent rolling.

9. Repairing and Servicing Vehicles

a. When a car is being driven into a garage, personnel shall stand clear of its path. A moving vehicle will not be serviced.

b. The hood of a vehicle will be secured in the open position before work under the hood is started. Hood clamps, bars or locking devices will be used.

c. Broken glass is dangerous. Avoid injuries by using care.

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DEPARTMENT OF CHEMISTRY

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d. Release radiator caps slowly to 1st stop position to relieve pressure. Protect hands and eyes from a steaming radiator, let steam escape before removing cap. Matches shall not be used to look into radiators as an explosion may result.

e. Engines will not be started in the shop until the handbrake is set, the gearshift is in neutral, and personnel are cleared from front and rear of vehicle.

f. Vehicles equipped with automatic transmission will be checked with hand brake set and gearshift in neutral before engine is started or transmission gear is engaged to check fluid or service transmission. Front and rear of the vehicle will be clear of personnel.

g. When moving heavy parts, lifts, hoist, jack or dolly will be used.

h. Use only approved solvents for cleaning parts. Gasoline will never be used for this purpose.

i. Approved metal stands shall be used under vehicles when work is being performed under the car, on the floor. Hydraulic lifts may be used but wooden horses or blocks shall not be used.

10. Tires

a. In replacing tires, take care that rims are intact.

b. See that lock rings are properly installed and servicable. This is to be done before the tire is inflated.

c. When inflating a tire, check for defects and determine proper pressure before inflating. Use a safety cage for inflating tires removed from vehicle if possible. Tires on wheels with lock rings must be inflated in a safety cage.

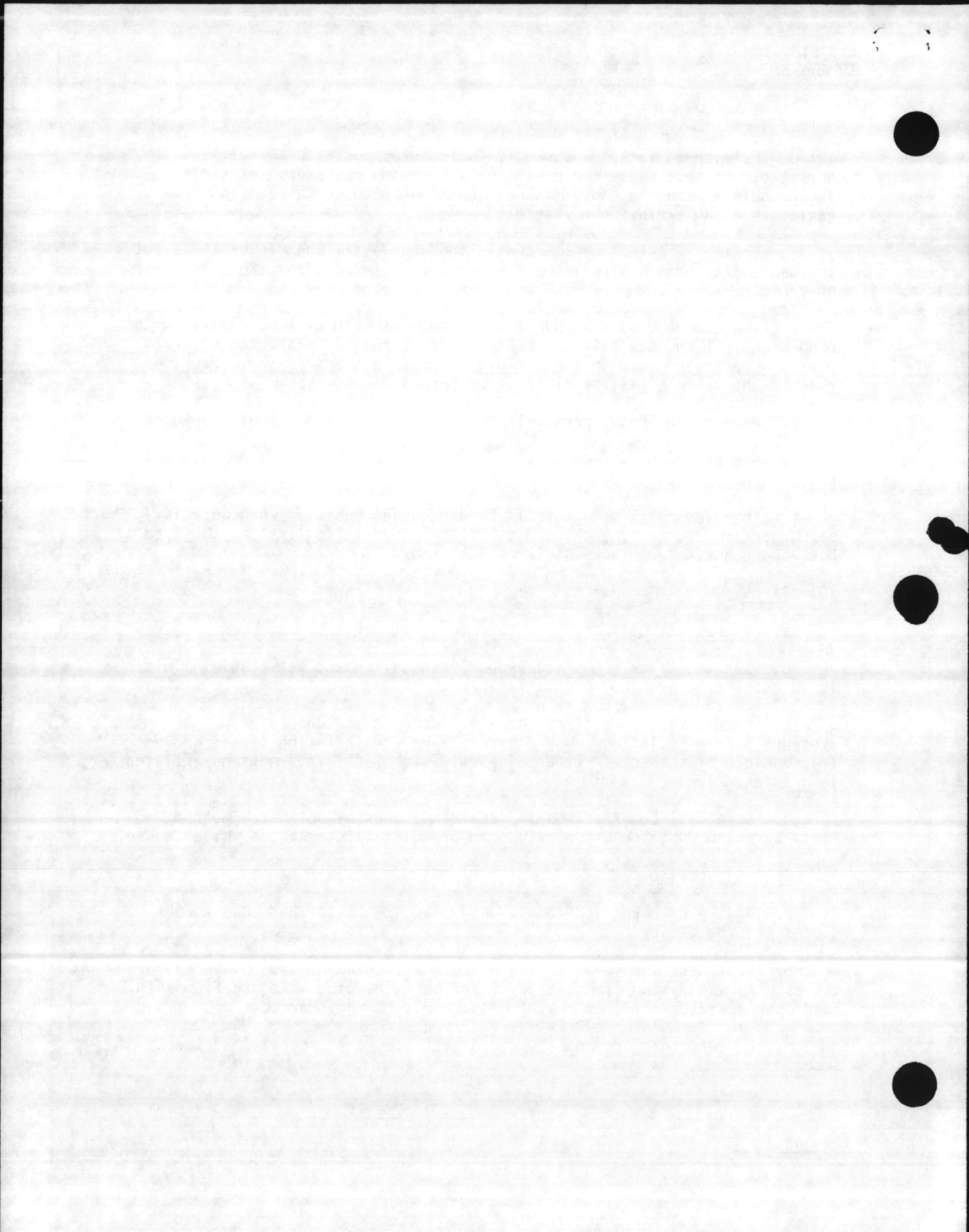
d. Care will be exercised in repairing tubes by hot patch method. Avoid burns, do not touch hot patch can or vulcanizing machine while in use.

11. Battery Service

a. Beware of burns and shocks when charging batteries. Use rubber gloves when necessary.

b. Vent caps shall be replaced before attaching or detaching charger cables. Fumes arising from batteries on the recharging line are flammable. Keep open sparks and flames away from batteries being charged.

c. Be sure charger connections to batteries are properly made and secured.



d. Care will be used in handling battery acids. When preparing electrolyte, the ACID shall always be poured INTO the water slowly.

e. Batteries will be charged only in well ventilated places.

f. When servicing batteries, avoid overfilling and splashing. Bring fluid level just above plates.

g. Remove grounded cable when working on batteries, or removing or installing electrical apparatus.

12. Fueling - Gasoline

a. Be sure that electrically operated pumps are shut off after gasoline has been dispensed.

b. Check regularly for leaks, at pipe connections, boxes, meters, pumps, hoses, and nozzles. Do not attempt to repair leaks. Secure the pump from service until an authorized repairman repairs leak. Do not make electrical repairs on pumps. Call an authorized repairman.

c. Spark proof tools only will be used when working on gasoline lines.

d. Do not create sparks around gasoline.

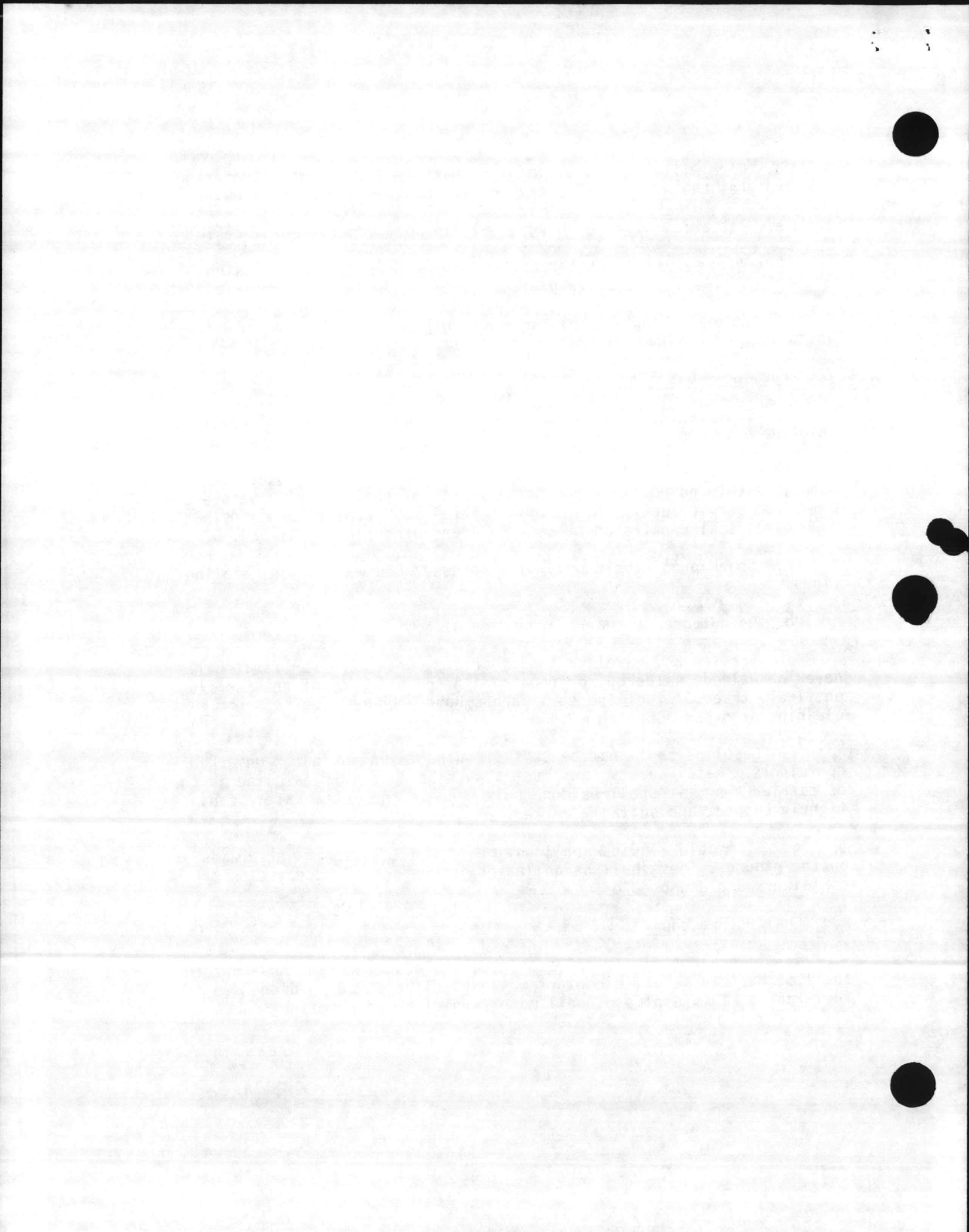
e. Fuel tanks, gasoline tanks, or any containers for fuel shall never be welded, soldered, or repaired in the presence of an open flame until all trace of fuel and fuel vapors have been removed by steam cleaning or other approved method.

f. Gasoline shall not be left standing in unlabeled or unmarked containers. Metal safety cans must always be used. If gasoline is to be carried away, it shall be done only when in the metal safety can, tightly capped, and suitably marked.

g. Flammable liquids shall not be poured into sewers or drains or on the ground. They shall be collected in designated receptacles or containers and disposed of.

13. Fueling Procedure

a. To prevent electrical static discharges, tank and hose nozzle shall be kept in metallic contact while gasoline is being dispensed into fuel tanks. This applies to all motor vehicles and gasoline trucks.



b. To minimize the effects of gasoline fumes, the face should be turned away from the fuel tank pipe while dispensing gasoline. Always drain the nozzle before removing it from the gas tank of the vehicle.

c. If the gasoline tank is located near battery terminals, extra care must be taken to avoid striking battery terminals with the hose nozzle.

d. Do not overfill gasoline tanks.

e. If fire should break out in the fuel spout during fueling, shut off nozzle, remove hose from fuel tank spout immediately, use CO2 extinguisher, dirt, sand, or wet cloth.

f. Replace gas tank caps or tank pumps after fueling.

g. Completely secure pumps before closing daily operation.

h. Turn measuring can bottom up and dry thoroughly before storing.

14. Personal Hygiene, Gasoline Handlers

a. After handling gasoline, wash hands thoroughly before eating. Change clothing immediately if soaked with gasoline, as this will prevent burns and dermatitis of the skin.

b. Gasoline soaked rags shall never be carried in the pockets.

15. Welding and Cutting (Gas)

a. Welding and cutting operations should be conducted in locations specifically designated for the purpose.

b. When welding or cutting is to be done in any location other than one specifically designated for such purposes, approval of the job and of precautions to be taken shall be obtained from the Service Manager before operations are started.

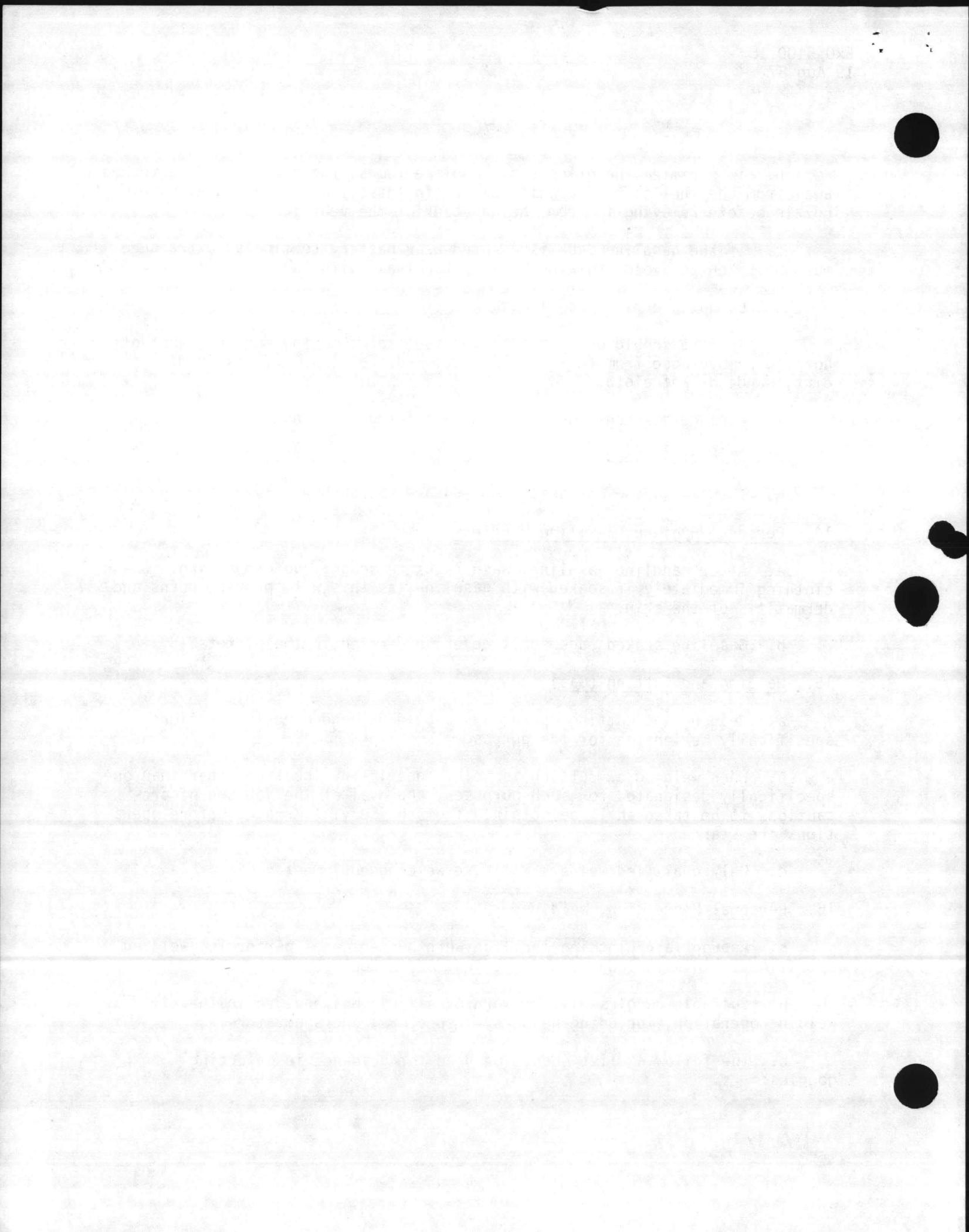
c. Only qualified welders will use welding equipment.

16. Personal Protection, Welding

a. Appropriate clothing shall be worn by personnel performing welding operations. This includes shoes, gloves, and headpieces.

b. Suitable goggles will be worn by all persons engaged in the welding operation, including helpers, inspectors, and spectators.

c. The following list should be used for guidance in selecting goggles:



SHADE OF LENS

KIND OF WORK

Clear glass in spectacle type (side shielded) or up to shade 4 in any type

Light electric spot welding or for protection from stray light from nearby welding.

No. 5 Filter

Light gas cutting and welding

No. 6 Filter

Gas cutting, medium gas welding, and arc welding up to 30 amperes.

No. 8 Filter

Heavy gas welding and arc cutting and welding, 30-75 amperes.

No. 10 Filter

Arc cutting and welding 76-200 amperes.

No. 12 Filter

Arc cutting and welding 201-400 amperes.

No. 14 Filter

Arc cutting and welding exceeding 400 amperes.

d. Helmet and goggles should not be transferred from one person to another without antiseptic cleaning.

e. Welding operations shall be shielded.

f. Do not look at welding flame or arc with naked eyes. Use goggles.

g. Respirators will be used when an operator is welding or cutting lead bearing steels, lead or cadmium bearing paint.

h. Be careful of burns from torch tips, nozzles, hot metals, splattering or areas in close proximity to welding operation.

i. Hot metal shall be marked or some other means of warning to other workers must be made.

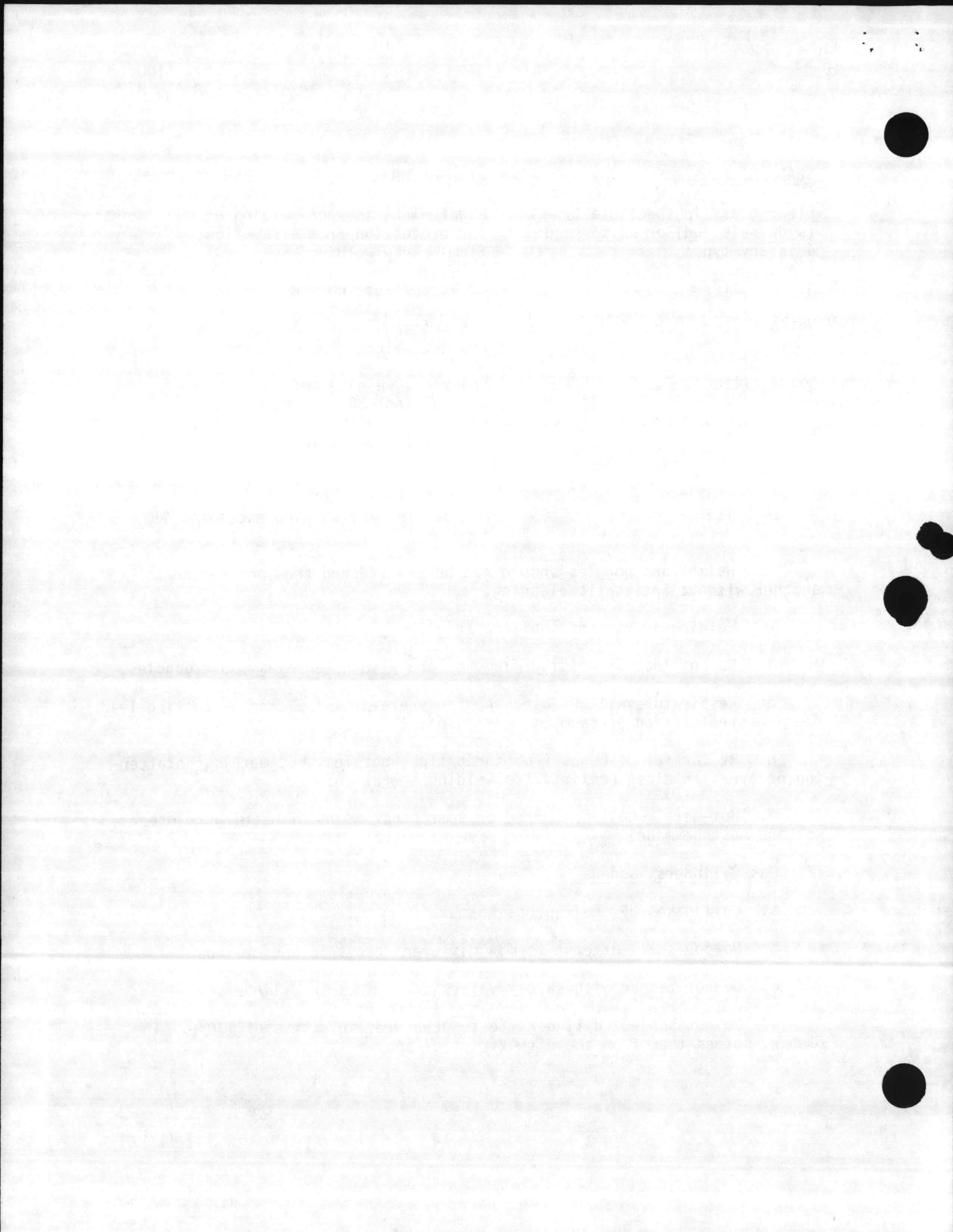
17. Gas Cylinders, General

a. Call gases by their proper names.

b. No one shall attempt to mix different gases in one cylinder.

c. Do not tamper with safety valves or devices in cylinders.

d. Do not subject cylinders to temperatures in excess of 130°F. In summer, screen them from the direct rays of sun.



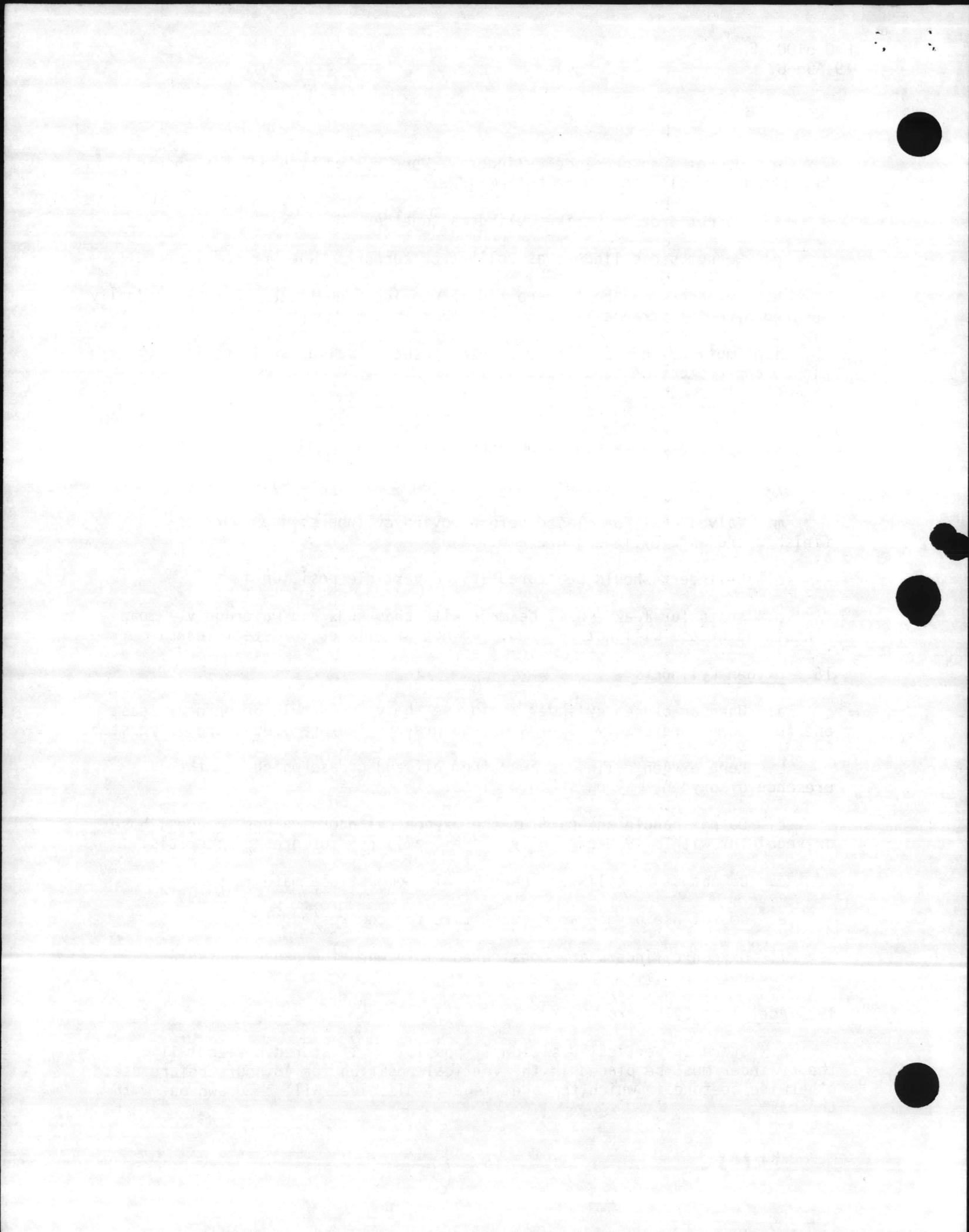
- e. Do not drag or slide cylinders. When rolled by hand they should be tilted and rolled on their bottom edge.
- f. Do not drop or strike cylinders together.
- g. Do not use cylinders as rollers or supports, whether empty or full.
- h. Cylinders may be transported in wheeled hand trucks when individually secured by metal strap clamps.
- i. Empty cylinders will be tagged as such. Valves shall be tightly closed and protection caps installed.
- j. Leaking cylinders will not be used. Repairs will not be attempted.
- k. Cylinder valves shall be opened slowly.
- l. Do not force, tamper with, or attempt repair to valves.
- m. Valves shall be closed before moving cylinders; when work is finished and when cylinders are empty.
- n. Cylinders should be stored in the verticle position.
- o. Tests for leaks shall be made with soap suds and water only. Soap containing grease will not be used. Do not use flames to detect leaks.

18. Oxygen Cylinders

- a. When an oxygen cylinder is in use the valve should be open at least one full turn, preferably all the way to prevent leakage around the valve stem.
- b. Keep oxygen cylinders away from oil and grease which, in the presence of oxygen, may burst into flame.
- c. Do not handle any part of the oxygen cylinder, valves, gauges, hose or regulator with oily hands, oily gloves, oily rags or grease materials.
- d. Do not store cylinders near highly combustibile materials.
- e. Do not use oxygen as a substitute for compressed air.
- f. Oxygen cylinders are considered empty when the gauge pressure fails below 25 p.s.i.

19. Acetylene Cylinders

- a. Store in vertical position if possible. If stored horizontally, the cylinder must be placed in the vertical position for 48 hours before use, otherwise acetone in which the acetylene is dissolved will be drawn out with the gas.



b. Open valve $\frac{1}{4}$ to $\frac{1}{2}$ turn only. This will permit an adequate flow of gas and allow the valve to be closed quickly in case of emergency.

c. Under no circumstances will acetylene gas be generated or used at a pressure in excess of 15 p.s.i. gauge pressure.

20. Pressure Regulators

a. Cylinders will not be used until an approved pressure reducing regulator is attached to the valve.

b. Before attaching regulator, crack the cylinder valve open about $\frac{1}{4}$ turn to clean dirt or dust from the valve fitting.

c. After attaching regulator, open valve slightly so that pressure gauge hand moves slowly; then open valve according to type gas being used. If pressure is suddenly released it is likely to damage the regulator and pressure gauge.

d. Oxygen regulator outlets, hose couplings, and torch valve inlets have right handed threads. Acetylene threads on the same units are left handed. (Note: Threads on acetylene cylinder valve outlets are right handed but of different pitch from the oxygen cylinder valve outlets. Do not force threads.)

e. Acetylene outlets should be pointed away from the oxygen outlets located on cylinders.

f. Modifications of regulators is prohibited.

g. Do not test oxygen gauges with oil.

h. Before removing a regulator, close the cylinder valve and release gas from the regulator.

i. Do not use regulators, pressure gauges, manifolds and related equipment which are provided for a particular gas on cylinders containing different gas.

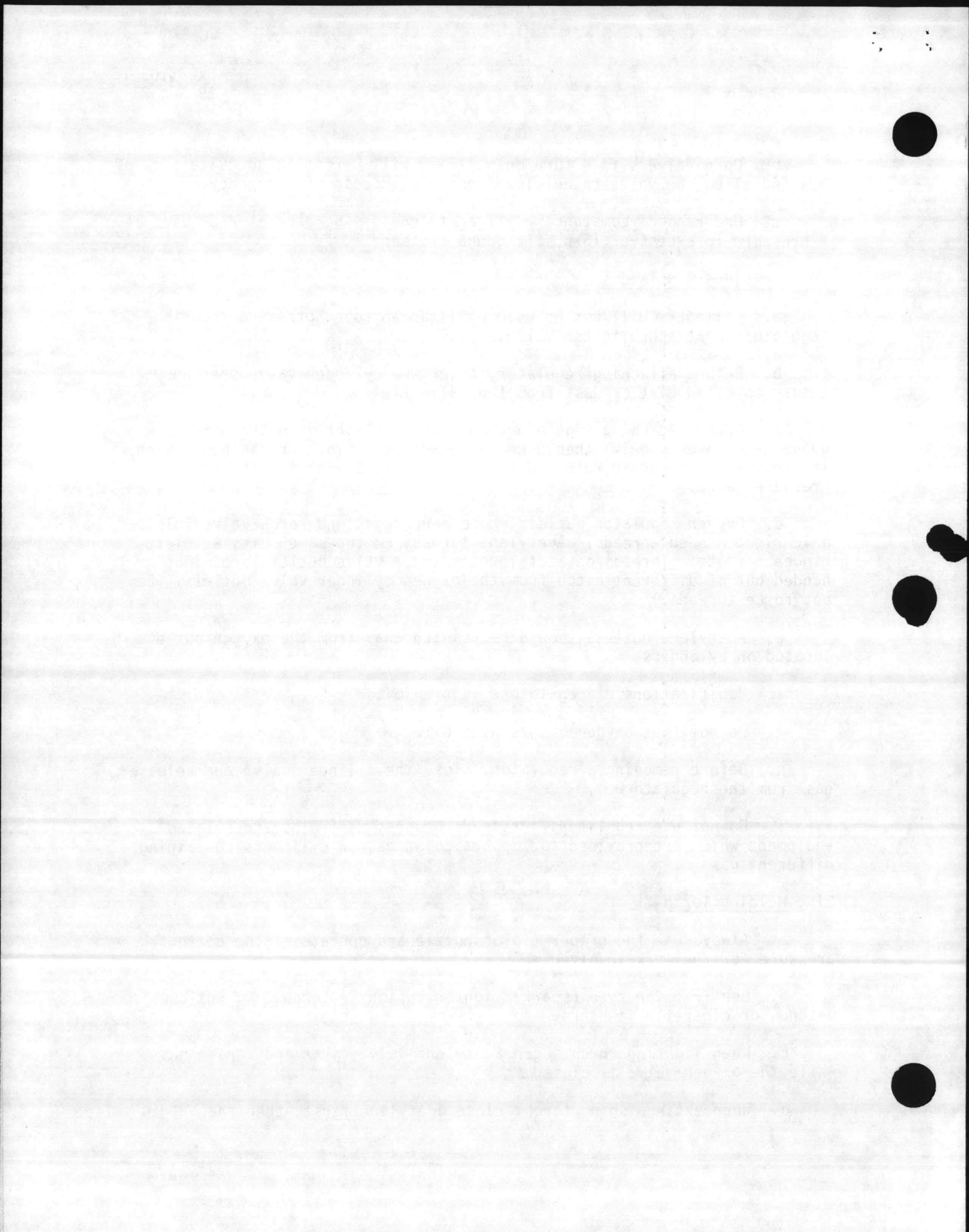
21. Welding Torch

a. Always use the proper tip or nozzle and operate at the correct pressure for the work involved.

b. Use friction type (spark) lighter to ignite torch. Do not use matches or cigarette lighters.

c. When lighting torch, open acetylene valve first and ignite gas while the oxygen valve is closed.

d. When extinguishing torch, close acetylene first, then the oxygen valve.



e. Secure equipment when not in use as follows:

- (1) Extinguish the torch.
- (2) Close both acetylene and oxygen cylinder valves.
- (3) Open acetylene valve on torch to allow gas to escape. Close valve.
- (4) Open oxygen valve on torch and allow gas to escape. Close valve.
- (5) Close both regulators.

22. Welding Hose

- a. Acetylene hose is colored red. Oxygen hose is colored green or black.
- b. Hose shall be frequently inspected for worn spots and defective connections. Hose defective in any way shall not be used.

23. Gasoline Hazards. The hazard of handling gasoline is related to its flash point. The flash point of liquid is the lowest temperature at which it gives off vapor near the surface of the liquid or within a vessel in sufficient quantities to form flammable mixtures with air. Products which give off flammable vapors at or below 80°F, such as gasoline, solvents, and most crude oils, are the most hazardous of all petroleum products to handle.

a. Flash Points

- (1) Gasoline at minus 45°F.
- (2) Crude Oil at plus 60°F.
- (3) Lubricating Oil at plus 80°F.

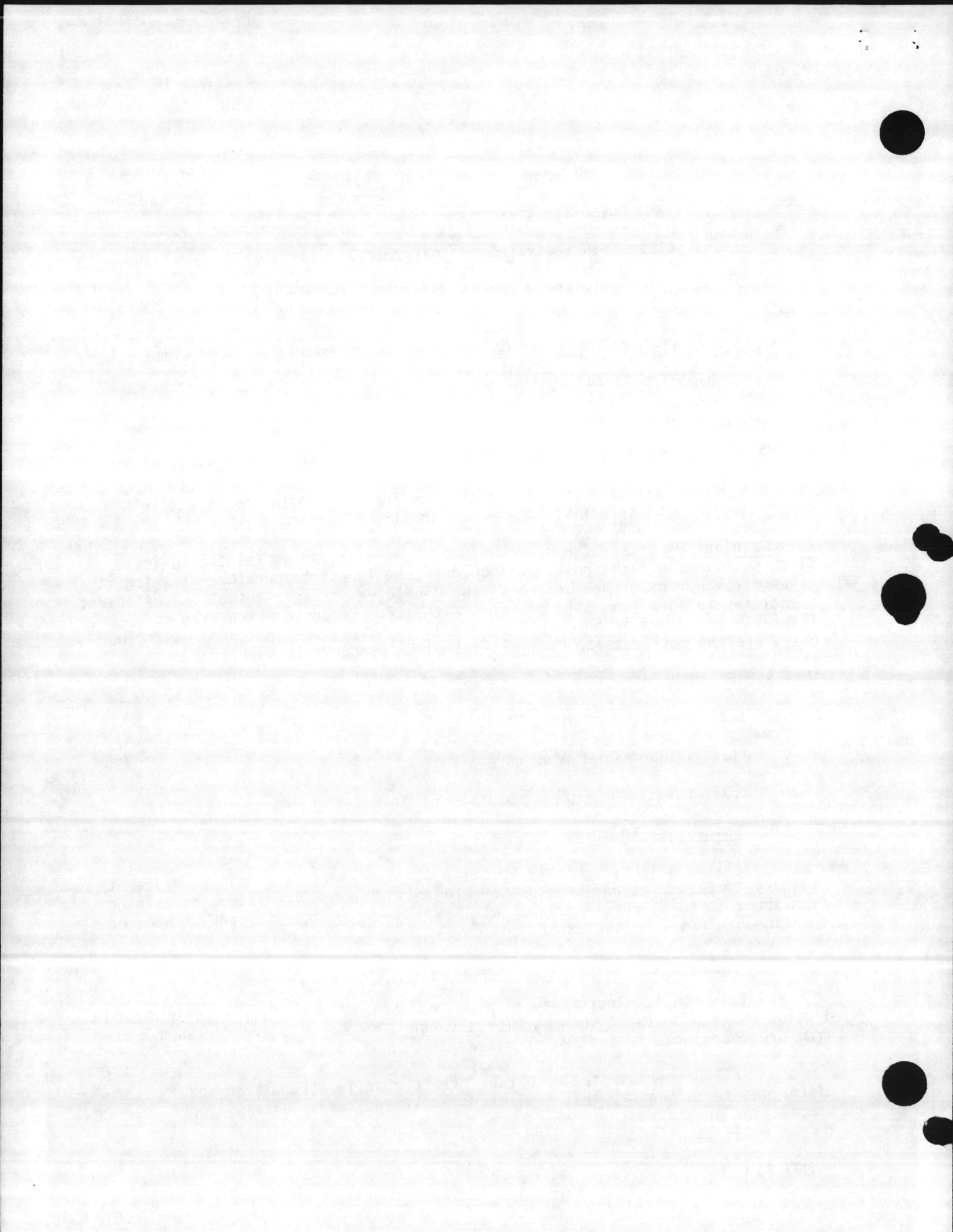
b. Combustion Factors

(1) Gasoline, a highly volatile flammable product, will vaporize at ordinary temperatures and pressures. A gasoline vapor-air mixture containing from about 1% to 6% gasoline vapor will explode or ignite if spark, flame, or spontaneous ignition is present.

c. Static Electricity

(1) Static electricity is produced when gasoline or similar flammable liquids undergo movement such as flow through a hose, agitation, or when poured from one receptacle to another or passed through a filter.

(2) Dangerous static charges are frequently accumulated and discharged in such a way that explosions and fires result unless proper precautions are taken.



(3) Moving vehicles create static electricity.

d. Static Electricity Precautions

(1) The metal nozzle at the end of the hose should be bonded to the coupling which is attached to the pump by a copper wire inside the hose. The nozzle should be held in contact with any metal tank or receptacle which is being filled with gasoline. Metallic contact will be made prior to releasing the flow of gasoline.

(2) Metal funnels placed in a container will be tightly sealed and the nozzle of the hose will be placed in metallic contact with the funnel so that a bond is made. If the funnel is loosely placed in the container, an induced charge of electricity of considerable voltage may be accumulated by the friction of fuel flowing through the metal funnel.

(3) All metal receptacles, funnels, etc. used in the handling of gasoline should be in contact with each other, or should be bonded together and grounded.

(4) Plastic clothing creates static electricity by movement and will not be worn while handling gasoline.

e. General Precautions

(1) Electrical apparatus should be inspected frequently. Conditions likely to cause sparks shall be corrected. Whenever possible, open switches and pull fuses before work is done on electrical equipment.

(2) Hammering on any part of gasoline storage or dispensing equipment containing gasoline with other than approved tools (non-sparking) is prohibited.

(3) Allow no smoking while gasoline is being dispensed.

(4) Vents containing flame arresters will be kept free of paint, soot, dirt, or lint. No smoking in the vicinity of vents is allowed.

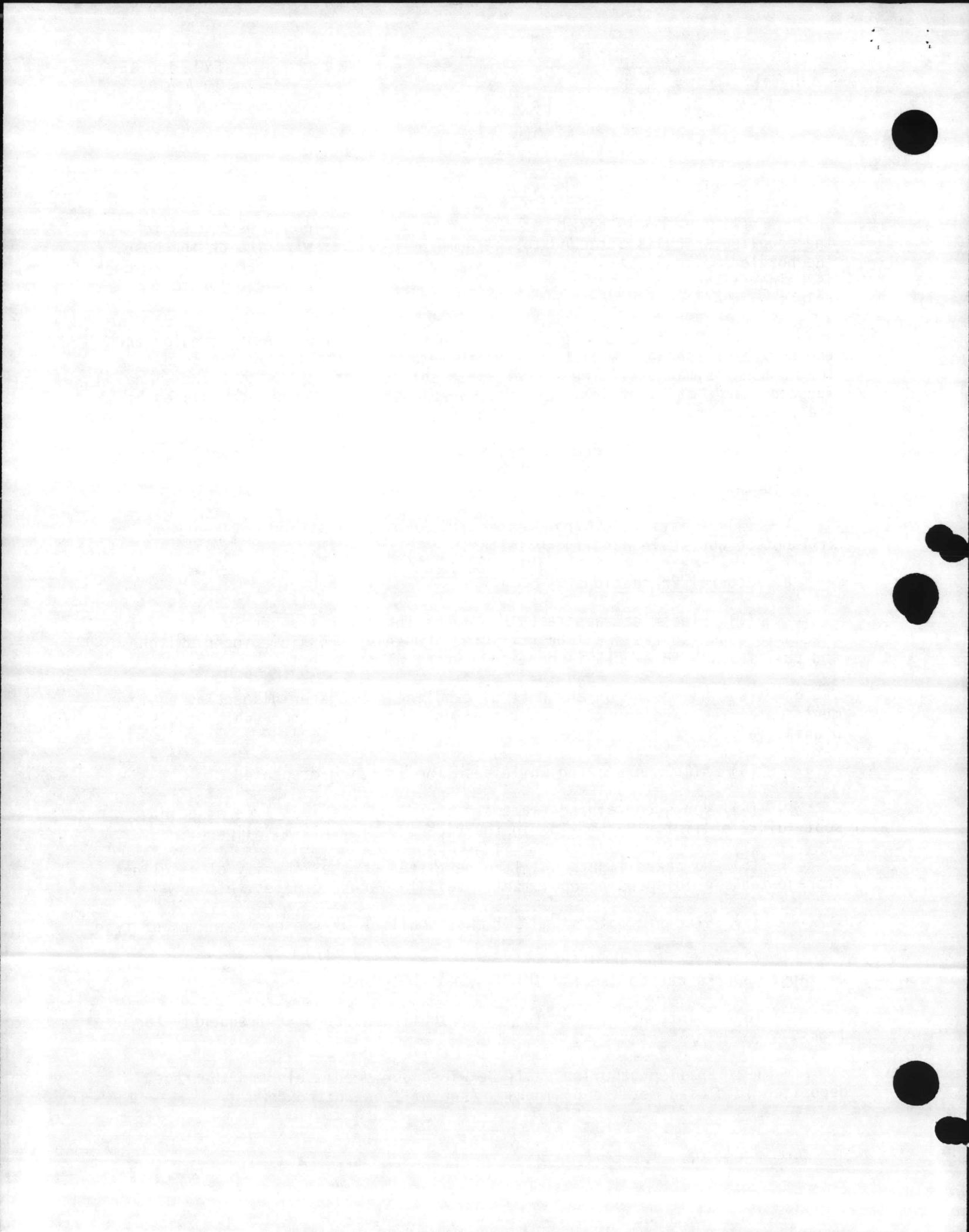
(5) No naked lights shall be permitted in the vicinity of gasoline storage tanks or dispensing equipment. (Oil lanterns, candles, etc.)

(6) Electric motors and switches shall be of the explosion proof type.

(7) Gasoline handlers will not wear shoes with exposed ferrous nails or taps. Sparks can be created this way.

(8) Joints and valves in piping shall be inspected frequently for leaks.

(9) Spilled gasoline shall be wiped up immediately and the rags deposited in closed metal containers. Area will be wetted down.



(10) No vehicle of any type will be refueled while the engine is running.

(11) Gasoline is prohibited in use as a cleaner for any purpose.

f. Toxicity

(1) Vapors of many petroleum products are highly toxic when inhaled or ingested. Petroleum vapors in a concentration of 0.1% by volume can cause vertigo at the end of 6 minutes. 0.1% can cause vertigo to the extent of inability to walk straight in 4 minutes. Longer exposure or greater concentration may cause unconsciousness or death. First symptoms of exposure to toxic vapors are headaches, nausea, and dizziness. At first signs get fresh air. If persons are overcome, get medical treatment immediately, prevent chills, and apply artificial respiration, if needed.

(2) Anti-knock additives in gasoline such as tetraethyl lead are very poisonous. Lead poisoning may result from repeated exposure to gasoline vapors. If operation personnel are exposed constantly or consistently to leaded gasoline, they should be rotated on the job, if possible, in order to limit the period of individual exposure.

g. Injury to Skin and Eyes

(1) Gasoline may cause skin irritation if allowed to remain in contact with the skin, particularly under soaked clothing or gloves.

(2) Gasoline soaked clothing, shoes and gloves should be removed at once.

(3) Gasoline should be washed from the skin with soap and water.

(4) Protective cream will be rubbed on hands before handling gasoline and each time after hands are washed.

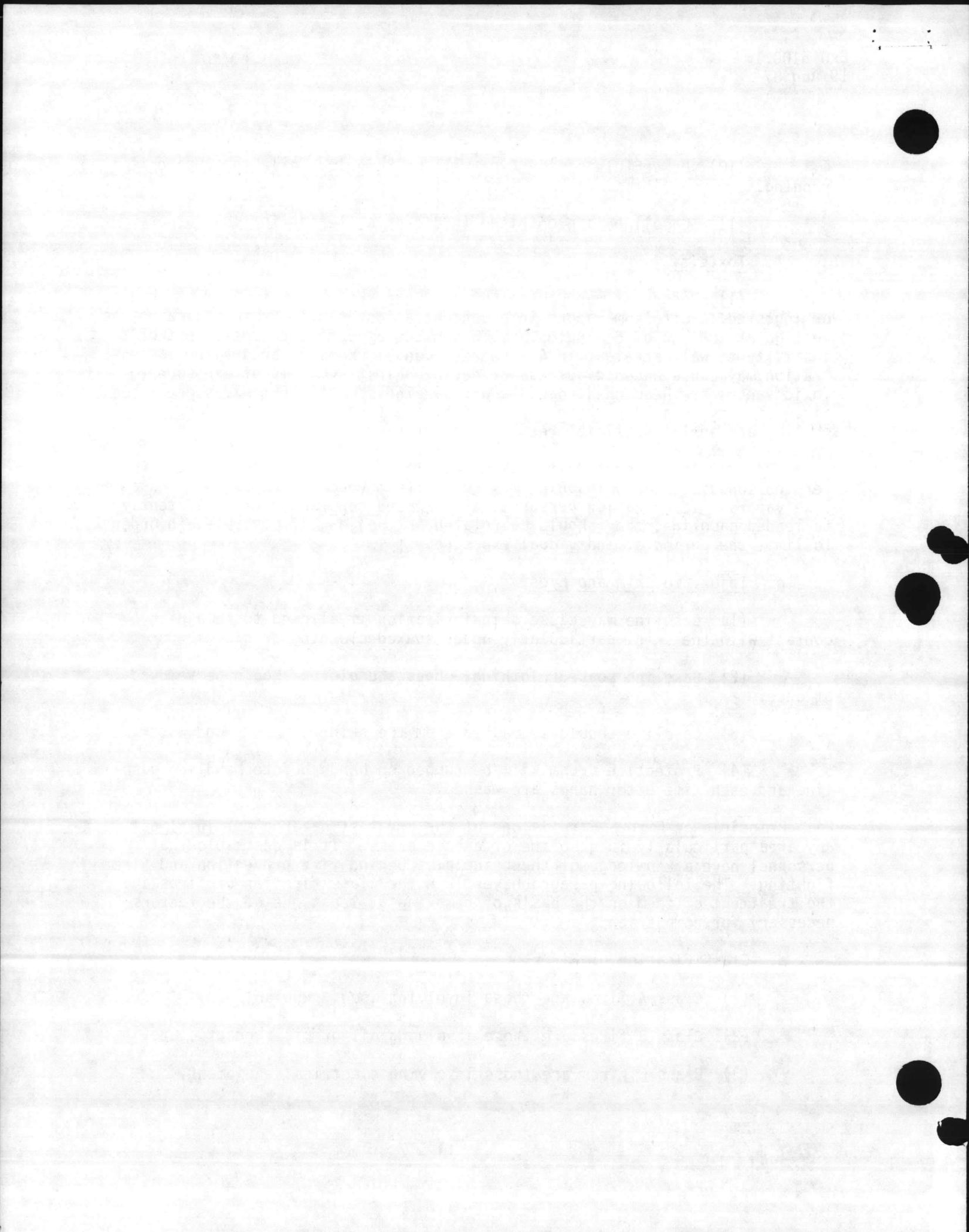
24. Principle of Fire. Fire is one of the greatest hazards met in almost any area particularly in gasoline or garage areas. It is desirable that personnel have a knowledge of the principles behind fire prevention and fire fighting. The following paragraphs explain the classification of fires and the treatment of them on the basis of removing at least one of the factors necessary for combustion.

a. Classification of Fires

(1) Class A fires are those involving wood, rubbish, etc.

(2) Class B fires are those involving oil or oil products, etc.

(3) Class C fires are those involving electrical equipment.



b. Cause of Combustion. Three factors are necessary for combustion, (1) fuel in the form of vapor; (2) oxygen, and (3) sufficient heat to raise a combustible material to its ignition temperature. All three must be present at the same time in order to have fire. When anything burns, it is not the actual substance which is being consumed by the flame, but the vapor of the substance in combustion with the oxygen in the air. A piece of wood held in a flame will not catch fire until it has heated to a point where vapor is given off. Therefore, highly volatile products, such as gasoline, which are vaporized at ordinary temperatures and pressures, present a most serious fire hazard.

c. Spontaneous Ignition. If large masses of certain combustible materials which have been soaked in oil are allowed to stand, and the heat generated by the slow oxidation process is not allowed to escape, the temperature of the mass rises. If this heating is allowed to proceed, the material reaches its ignition point temperature and starts to burn.

For this reason, paint soaked rags, gasoline soaked rags, and oily waste must be stored in a way least likely to accelerate oxidation, and most likely to cause any heat oxidation to be absorbed by the surroundings. Use only self closing metal receptacles for discarding oily rags, waste, and gasoline soaked rags, and dispose of such collections daily.

d. Extinguishing Fires. To extinguish a fire, one of three factors necessary for combustion must be eliminated.

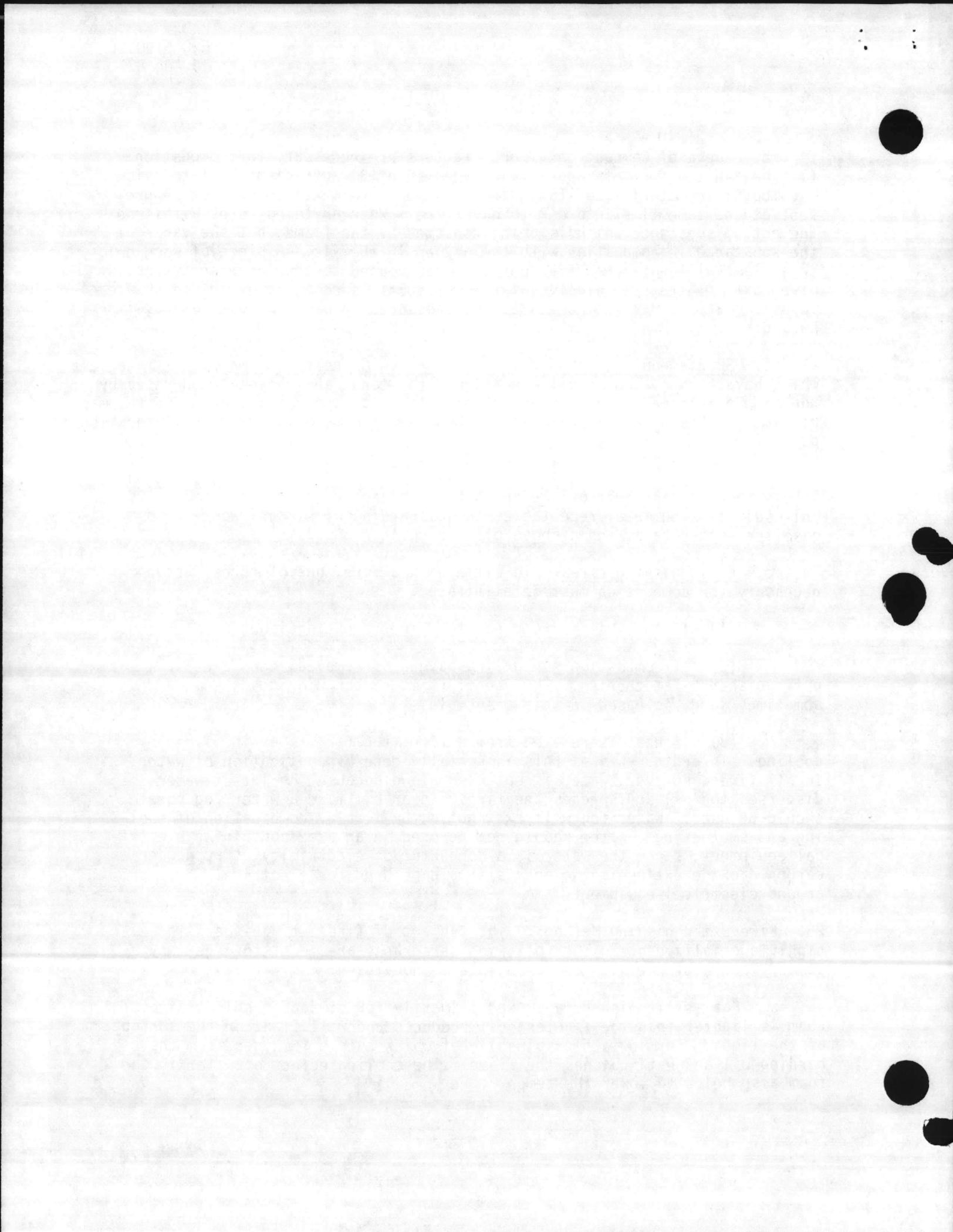
(1) If the fuel is removed, the fire is extinguished by starving.

(2) If combustion supporting oxygen is removed, the fire is extinguished by smothering. The use of foam, carbon dioxide, steam, and sometimes sand, is based on this principle.

(3) If heat is removed from a fire, the fire is extinguished by cooling. In ordinary fires this is normally done by application of water. In oil fires, however, water is not used alone because the jet of water disperses the oil and spreads the fire. In an oil fire a water fog nozzle should be used. Water fog will extinguish the fire by combination of cooling and smothering. Water should not be used in an area containing electrical equipment, since the water is a conductor of electricity. Dry powder or carbon dioxide extinguishing agents should be used for electrical fires or around electrical equipment.

25. Fire Extinguishing Methods. The subject of fire extinguishers is a highly specialized one. The following paragraphs are meant to give many a summary acquaintance with the principle methods used.

a. Foam extinguishers are used primarily for oil and gasoline fires. Foam is lighter than the lightest oil products and will float on the surface of the liquid, forming a flexible blanket which cuts off oxygen from the burning oil and extinguishes the flame. The cooling effect of water in the foam also helps to lower the temperature.

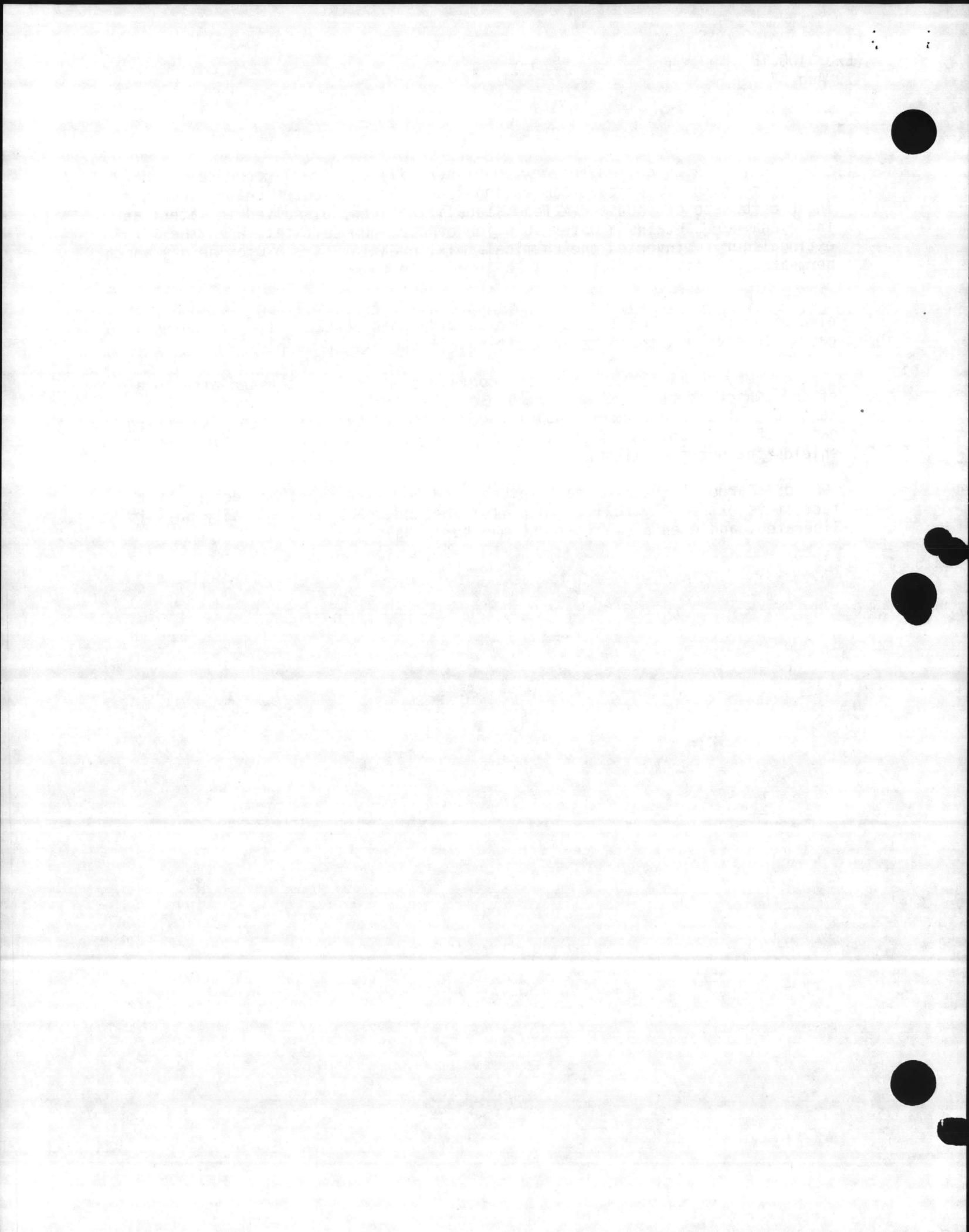


(1) A 2½ gallon foam extinguisher will chemically produce 20 to 22 gallons fo foam. Chemical foam extinguishers have an outer chamber contain- ing bicarbonate of soda and a foam stabalizing agent dissolved in water; an inner chamber contains a water solution of aluminum sulfate. When the extinguisher is inverted the chemicals mix, creating carbon dioxide gas which permeates the liquid and forms a tough durable foam.

b. Carbon dioxide extinguishers are used effectively on oil and electrical fires. The liquid carbon dioxide upon contact with air turns into gas which blankets the fire by shutting off the oxygen supply.

c. Dry chemical extinguishers contain chemically processed bicarbonate of soda which is released when a turn of the hand wheel punctures an inner cartridge of carbon dioxide and nitrogen. The chemical releases smothering gas on the fire and at the same time releases a cloud of dry chemical which shields the operator from heat.

d. Carbon tetrachloride is prohibited for fire fighting because of the fact it is extrememly toxic. When it is heated, phosgene, a deadly gas, is liberated, and even a small amount may be lethal.



SAFETY REGULATIONS
FOOD ACTIVITIES

1. STOCK ROOM

a. Storing Merchandise. When storing merchandise, the following rules should be observed.

- (1) Use shelving of sturdy construction.
- (2) When possible, arrange merchandise so that it is available without moving other merchandise. Always arrange merchandise so that articles likely to be needed first will be easily accessible.
- (3) Place the heaviest material on the bottom of stack, and overlap the upper material pyramid fashion.
- (4) Do not stack merchandise so high that it may fall.
- (5) Do not place merchandise on shelves, in bins, or elsewhere in such a manner that it protrudes into the aisles.
- (6) Place flammable materials in lockers or in approved safety cans provided for them. Store the containers on lower shelves only.

b. Ventilation. The stock room should be properly ventilated if possible. When an employee enters a closed stock room which has not been properly ventilated, he should arrange for another person to stand outside in case of emergency. The door should remain open.

c. Securing a Stock Room. It must be determined that everyone is out of a stock room before it is secured.

d. Repairs. Rough areas, splintered edges, and other such hazardous conditions should be repaired as soon as possible.

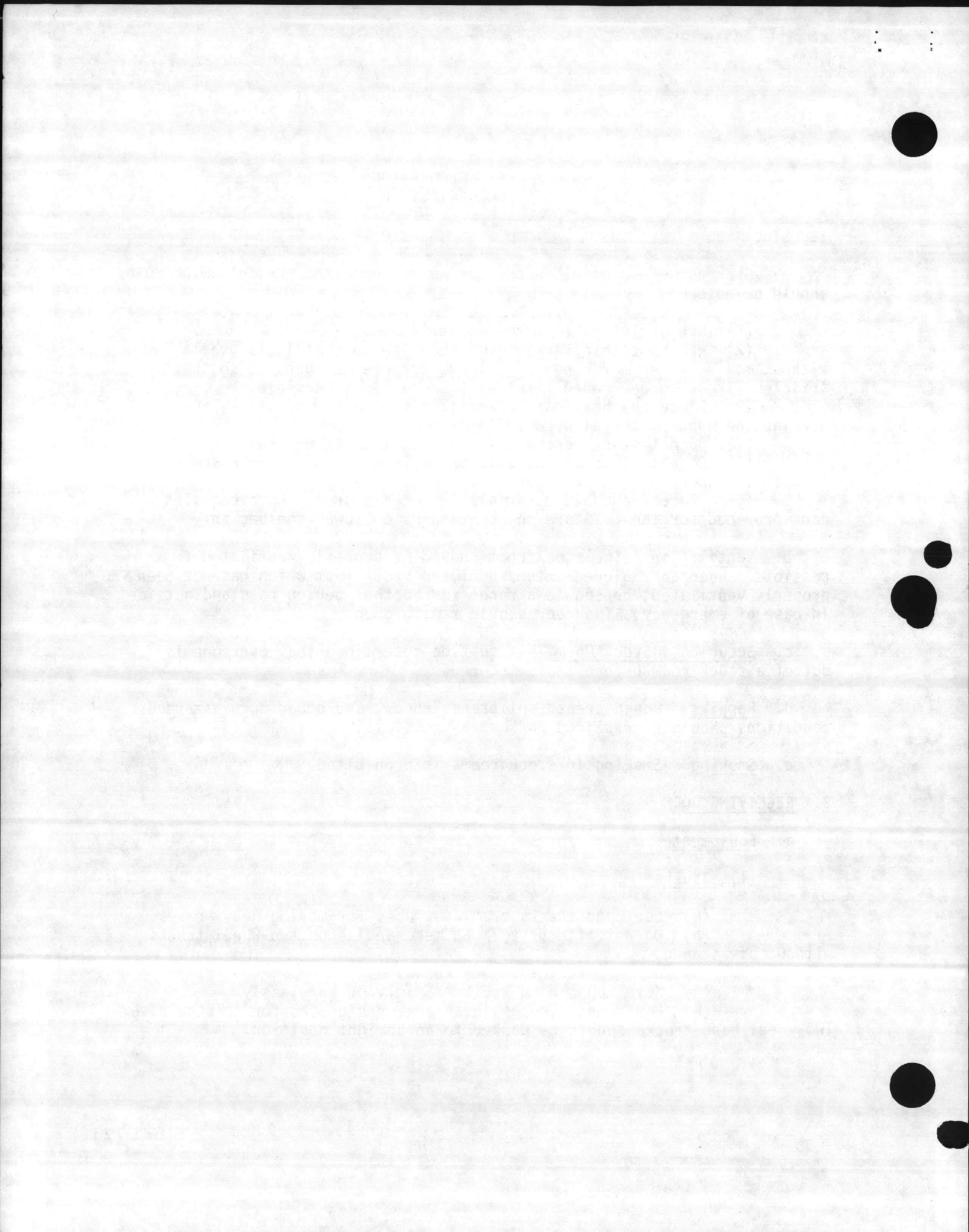
e. Smoking. Smoking in stock rooms is prohibited.

2. RECEIVING ROOM

a. Equipment

(1) Trucks

- (a) Use hand-trucks or flat-trucks for moving heavy cases.
- (b) Do not attempt to load merchandise on two-wheel trucks without assistance.
- (c) Do not overload hand-trucks.
- (d) Never push hand-trucks rapidly or carelessly.
- (e) Park empty trucks in an area designated for this purpose. Two-wheel hand-trucks should be parked in an upright position.



(2) Gloves

(a) Gloves should be worn when an employee is handling wooden crates or performing other duties in which there is danger of injury to his hands.

(3) Goggles

(a) Safety goggles must be worn when cases are being opened for protection against flying splinters and flying ends of bailing wire or metal stripping.

(4) Tools

(a) Cartons and cases are to be opened with appropriate tools.

(b) Cartons which are not to be used again should be opened with a safety carton opener.

(c) Cartons which are to be used again should be opened with a spatula-shaped instrument.

(d) Cases should be opened with any of the following tools necessary: pinch bars, nail pullers, wire cutters, and steel strapping cutters. Hammers, lather's hatchet, ax, etc., should not be used for opening wood boxes or crates.

b. Unpacking Merchandise. Merchandise shall be unpacked in accordance with the following regulations:

(1) Wear gloves when unpacking merchandise.

(2) Unpack merchandise as soon as possible after its receipt.

(3) Remove protruding nails, staples, and wire from boxes and barrels before unpacking their contents.

(4) Beware of broken glass when reaching into packing cases in which glass items have been shipped.

(5) Do not pick up broken glass with bare hands.

(6) Stack unpacked merchandise in a safe location and in safe piles to prevent its toppling or being trampled.

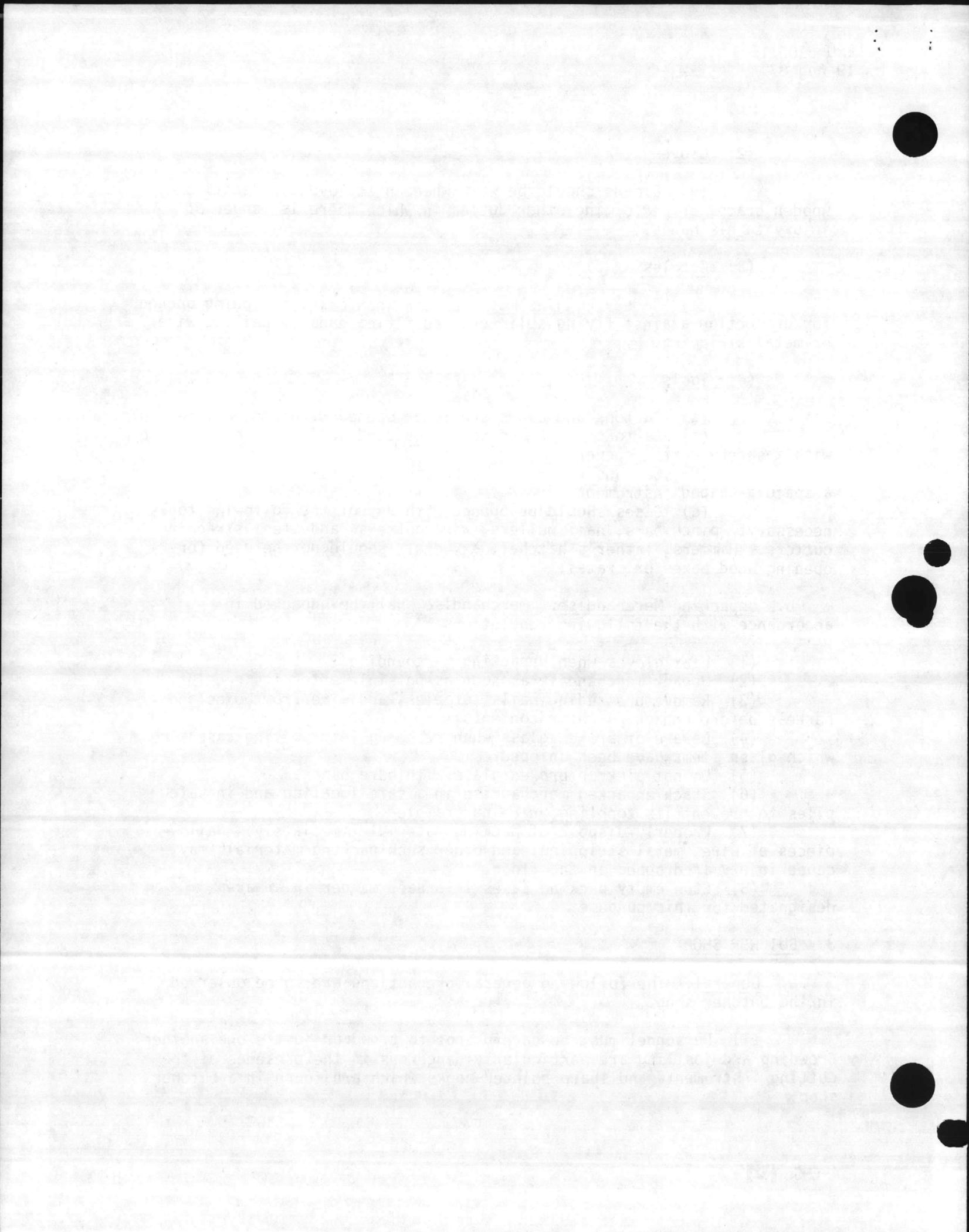
(7) Properly dispose of packing material immediately. Nails, pieces of wire, metal stripping, and other such packing materials may cause injury if dropped on the floor.

(8) Stow empty packing cases in a safe manner in an area designated for this purpose.

3. BUTCHER SHOP

a. General. The following general precautions are to be observed in the butcher shop.

(1) Personnel must be careful not to crowd or jostle one another. Crowding and jostling are particularly dangerous in the presence of the cutting instruments and sharp pointed hooks which are found in a butcher shop.



(2) In addition to observing general housekeeping precautions, personnel in the butcher shop should be especially careful not to let meat trimmings lie about on the floor. They not only attract flies and insects, but create extremely dangerous slipping hazards.

b. Cutting and Slicing Operations. Butchers must pay particularly close attention to their work with cutting or slicing equipment. The slightest miscalculation or a minor slip can lead to a serious injury.

c. Hand-Operated Tools. The following precautions with reference to hand-operated tools are to be observed.

(1) Maintain a complete set of tools at each block so as to avoid unnecessary injuries which may be suffered from carrying the tools about.

(2) Keep the handles of tools clean and dry. Greasy or wet handles may cause accidents.

(3) Grip instruments firmly.

(4) Be sure your fingers are below the guard when using a sharpening steel.

(5) Use only sharp knives. Dull knives are greater accident hazards than sharp knives during cutting operations.

(6) Never hold a knife in your hand when carrying any other object.

(7) Be careful not to lay a piece of meat on a knife. The meat may conceal the cutting edge.

(8) Do not place knives in the wash water until ready to wash them. Lay them in plain view beside the sink.

(9) When using a cleaver, keep your free hand as far from the path of the cleaver as is necessary to assure safety.

(10) Use a hand meat hook when lifting or boning meat.

(11) Use a scoop to handle shrimp.

(12) Keep the surfaces of meat blocks level.

(13) Store tools in their proper places.

d. Electrically Operated Equipment. The following precautions are to be observed when using electrically operated machines in the butcher shop.

(1) Power Meat Saw

(a) Adjust the blade before the machine is started.

(b) Do not twist the blade while operating the machine.

(c) Never leave the machine running when it is not in use.

Turn it off immediately upon completion of the cutting operation.

(d) Disconnect the machine before cleaning it.

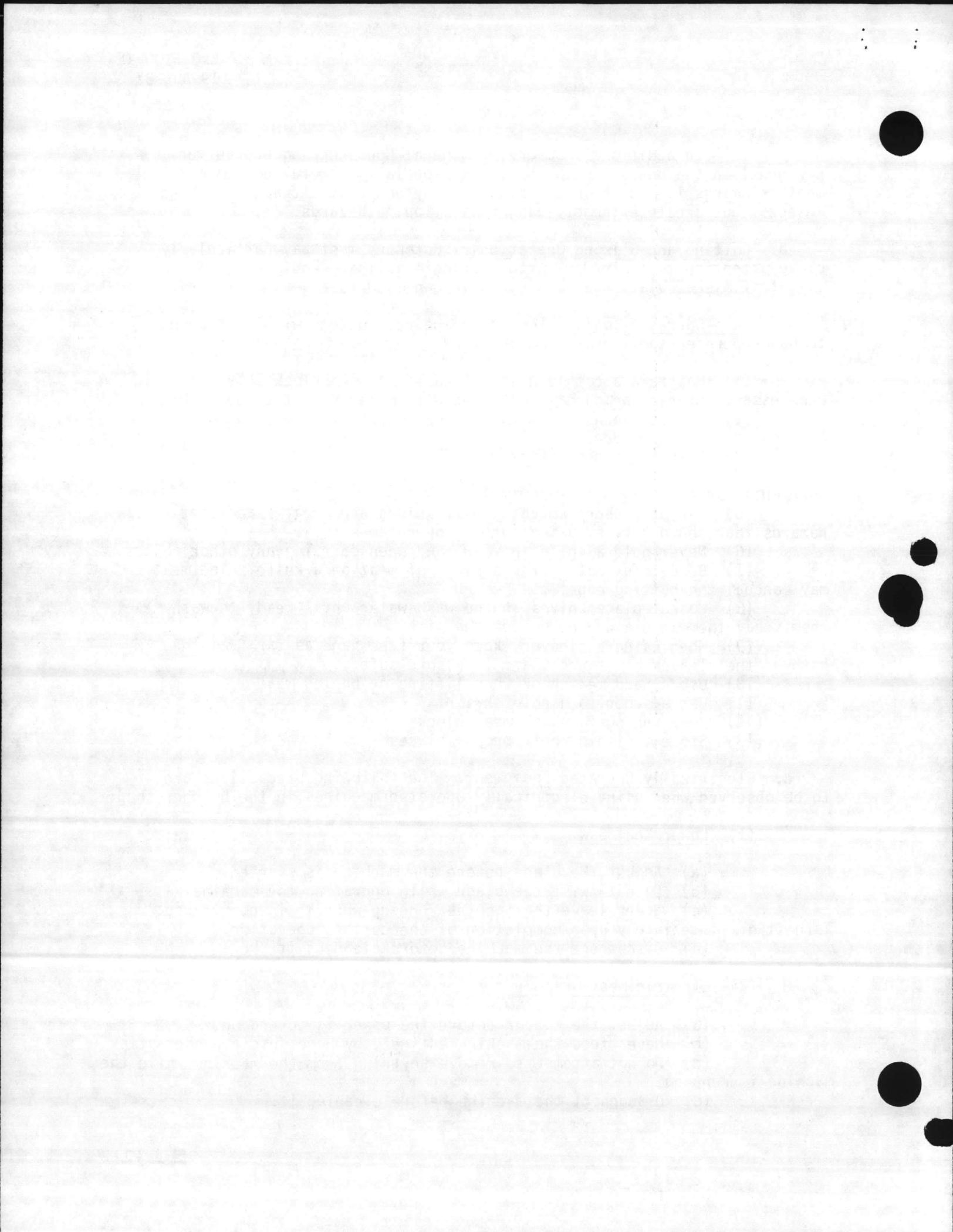
(2) Electric Meat Grinder

(a) Adjust the cutter before the power is turned on.

(b) Never feed the machine entirely by hand; use a pusher-stick.

(c) Do not attempt to remove anything from the machine while the machine is running.

(d) Disconnect the machine before cleaning it.



(3) Cube Steak Machine

- (a) Do not permit your hand to get too near the feed slot when feeding meat into the machine.
- (b) Disconnect the machine before cleaning it.

(4) Slicing Machine

- (a) Adjust the blade for size of cut before turning on the power.
- (b) Make sure all guards are secured before operating the machine. Never use the slicer when the blade guard is off.
- (c) Do not operate the machine with wet hands.
- (d) Keep your hands away from the blade when the machine is running.
- (e) Never put your hands under the guard on the slicer.
- (f) Disconnect the machine before cleaning it.
- (g) Use a cloth on a stick to clean the blade. Wipe from the center of the blade toward the cutting edge.

e. Other Equipment

(1) Walk-in Boxes

- (a) Do not enter freezing rooms without proper clothing.
- (b) The signal light which signifies whether anyone is in the box shall be checked daily to determine that it is in working condition.
- (c) Report immediately any evidence of escaping refrigerator gas.
- (d) Do not carry objects which are large enough to obscure your view.
- (e) Be careful not to snag yourself on meat hooks.

(2) Display Cases

- (a) Maintain proper temperature in refrigerator display cases.
- (b) Report immediately leaks or loose connections.
- (c) Be sure that electrical refrigeration compressors are grounded.

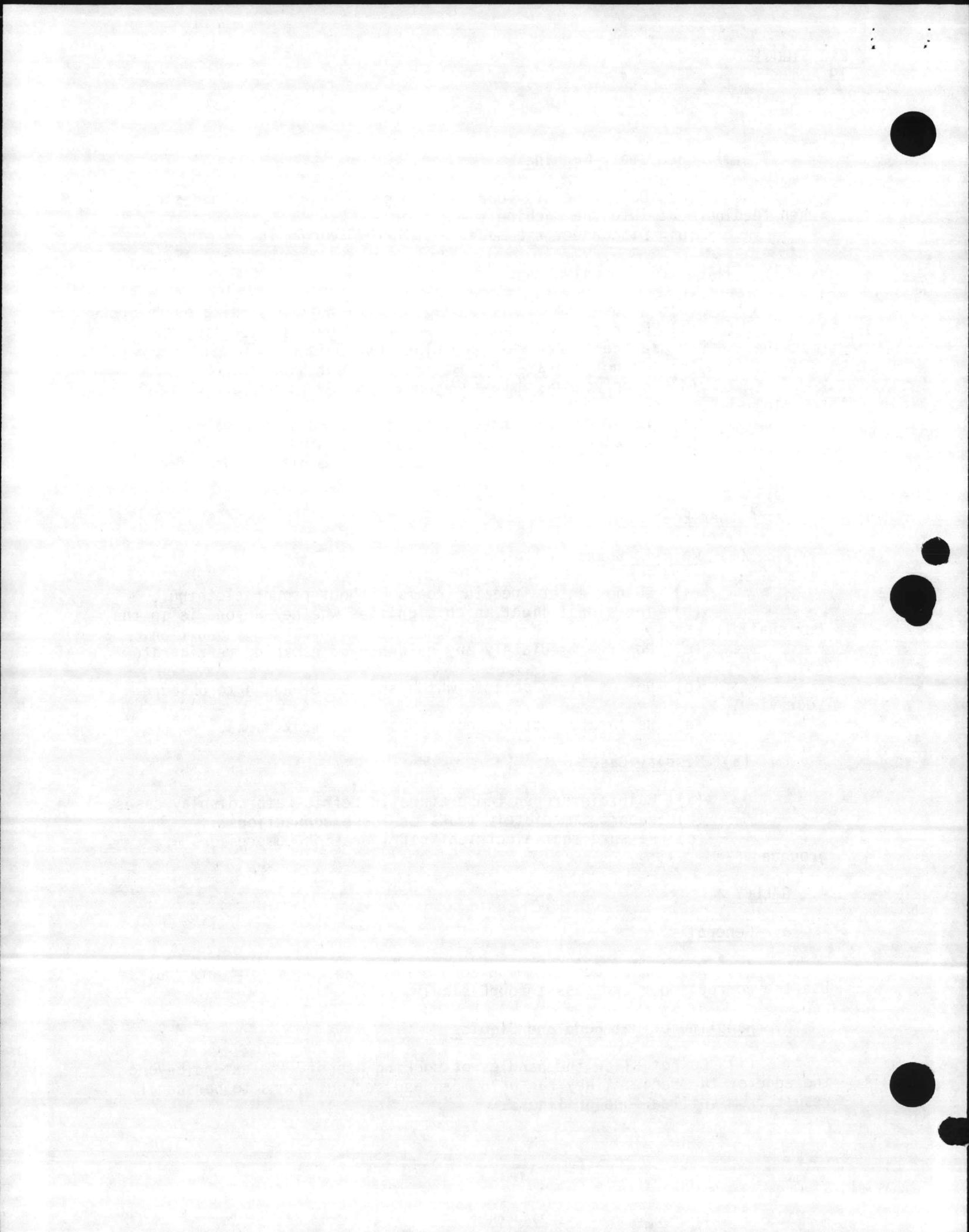
4. GALLEY

a. General

- (1) Marking of Doors. Mark double swinging doors "IN" and "OUT". Use the correct door and pass through slowly.

b. Handling of Hot Food and Liquids

- (1) Do not allow the handles of cooking utensils to extend beyond the edge of the range. They can be bumped and serious burns to personnel result from spilled food or liquid.



- (2) Before removing foods from hot ranges and ovens be sure there is a clear place on which to set them.
 - (3) Use only the proper implements, such as pot holders and tongs, for handling of hot foods.
 - (4) Carry hot liquids in covered containers with covers securely in place.
 - (5) Do not bump into anyone when hot food is being carried.
 - (6) Mop up immediately grease which is spilled on the floor.
- Greasy floors are doubly hazardous. They can cause fires as well as falls.

c. Proper Use and Care of Utensils

- (1) Use only the proper implements for opening cans and other containers.
- (2) Hold knives firmly. This cannot be done if the handles are wet or greasy.
- (3) Knives are to be kept in a drawer designated for this purpose only. The handles should be kept to the front and the cutting edges should face in one direction.
- (4) Keep utensils and other implements in their proper places when they are not in use.

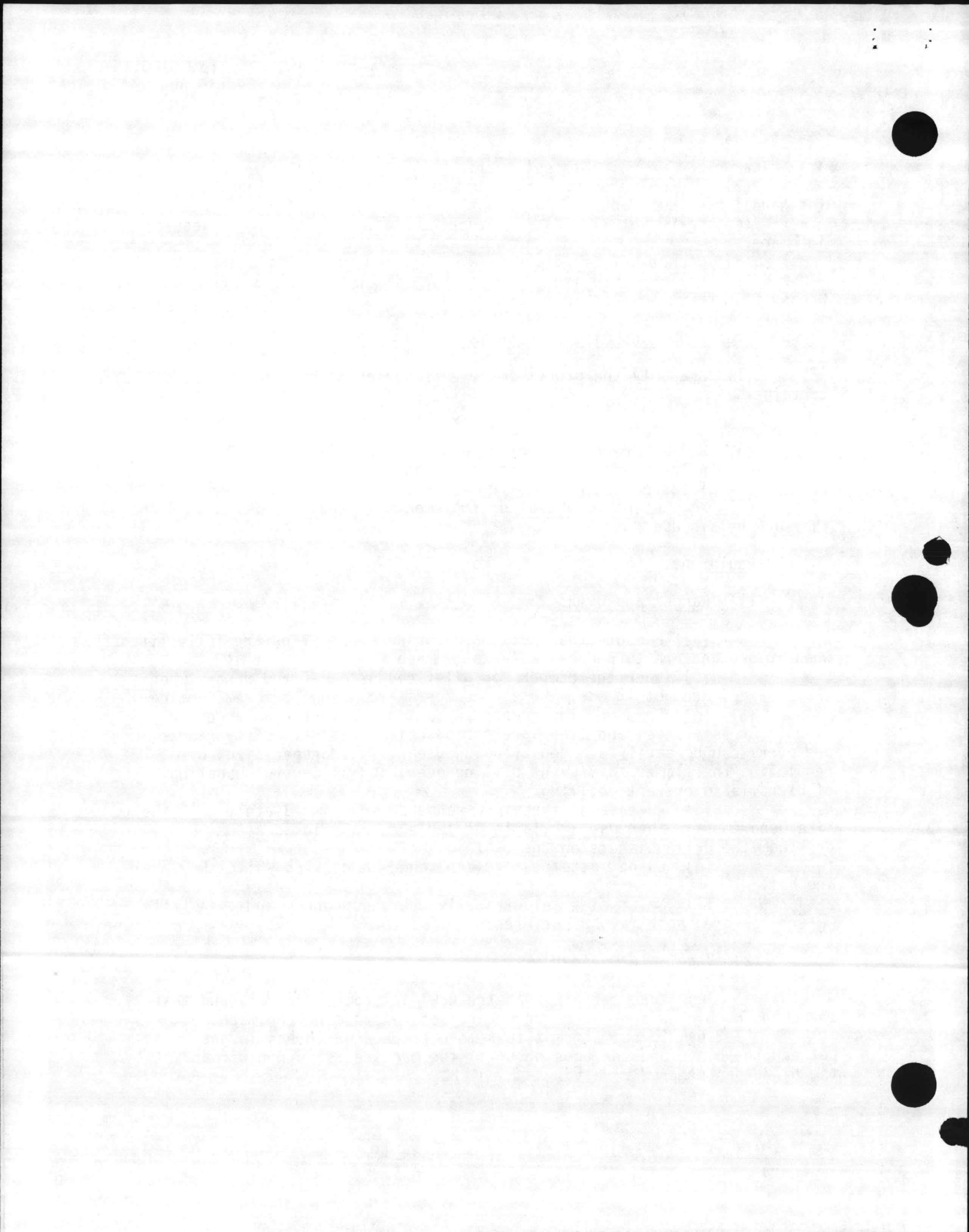
d. Equipment

(1) Ranges and Ovens

- (a) Be sure that jets on gas ranges and ovens are fully lit when in use and are turned off when not in use.
- (b) Open the dampers on oil-fired or gas-fired ranges when these ranges are not in use. Be sure dampers are opened before lighting.
- (c) Do not allow grease to collect anywhere on ranges or ovens. Greasy ranges and ovens are serious fire hazards. Dirty ranges and ovens can be partly avoided by using utensils of proper size, by regulating the flames to prevent boiling over, and by careful handling of utensils to prevent spilling.
- (d) In case of fire in a range or oven immediately call the Fire Department. Then use available portable carbon dioxide (CO₂) or dry chemical extinguishers on the blaze.
- (e) Do not attempt to clean ranges and ovens while they are hot.
- (f) Never clean electrically operated ranges and ovens with water. Severe shock may be suffered.

(2) Vegetable Chopper

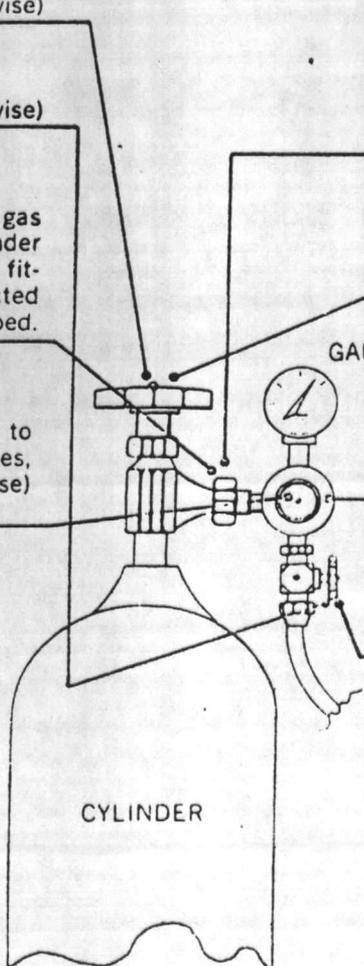
- (a) Make certain that the bowl is seated properly and that the chopping blades and guard are secure before starting the machine.
- (b) Do not attempt to remove produce which has lodged between the blade and the housing until the machine is turned off and the blade has stopped revolving.



- d. Full CO₂ cylinders will never be stored in a lying down position.
- e. CO₂ cylinders will be charged as shown on the diagram below:

CHANGING THE CO₂ CYLINDER

On Regulators with a Shut-Off valve as pictured below, use the following procedure to change gas cylinder:

- 
1. Shut off to the right (clockwise)
 2. Shut off to the right (clockwise)
 3. Disconnect slowly allowing gas to escape. Leave used cylinder secured to wall until all the fittings have been disconnected and all gas noises have stopped.
 4. Loosen Lock Nut and turn to the right till all gas escapes, then to left (counterclockwise) till very loose.
 5. Remove old cylinder and secure new cylinders to wall.
 6. Connect to new CO₂ cylinder using good or new washer.
 7. Open to the left (counterclockwise) slowly till gas noise stops, then all the way.
 8. Turn to the right (clockwise) to set to desired pressure and tighten locknut.
 9. Open to the left (counterclockwise).

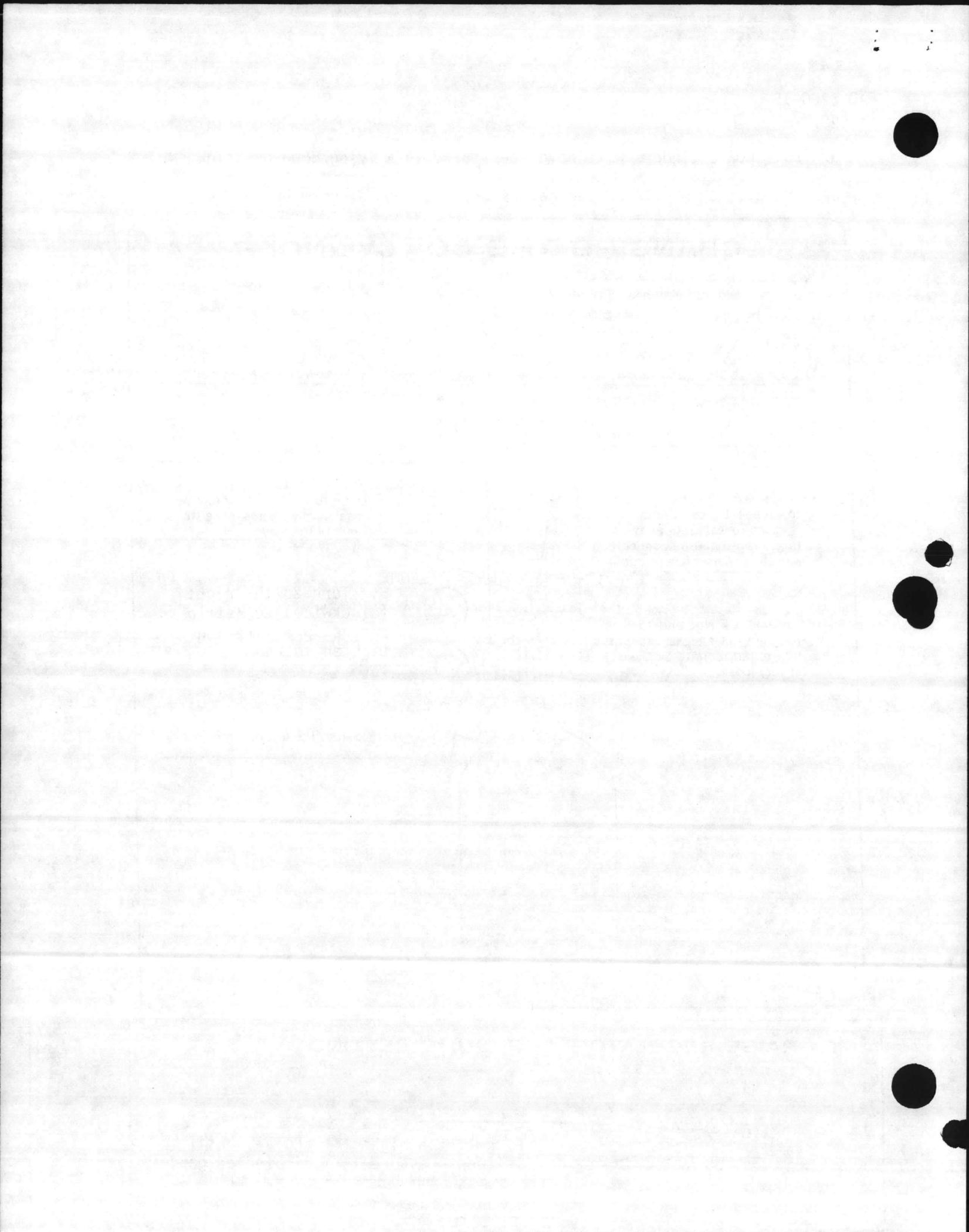
TO RAISE REGULATOR PRESSURE SETTING



Loosen Locknut

Turn to the right (clockwise) until desired pressure is indicated on gauge.

Retighten locknut



(3) Fountain

(a) Use duck-boards between the fountain and the back bar area if it is possible to do so.

(4) Ice Cream Freezer Unit With Cabinet

(a) Never run hot water into any cold freezer
(b) Lock the switch in the "off" position before cleaning the mixing drum

6. SCULLERY

a. Dishes

(1) Do not stack glassware and dishes so high that there is danger of their toppling.
(2) Never pick up broken glassware and dishes with bare hands.
(3) Immediately place broken pieces in containers provided for that purpose.
(4) Do not load silverware baskets too heavily for safe handling
(5) Do not expose your hands to dishwashing solution. It is a strong alkaline preparation which is unsuitable for laundry or personal use.

b. Equipment

(1) Pre-Rinsing Machine

(a) Keep hands outside the hopper while the machine is in operation
(b) Watch for sharp edges which may occur on the strainer, and make the necessary repairs.

7. HANDLING OF CO2 CYLINDERS

a. Fully charged CO2 cylinders are extremely dangerous when dropped, struck sharply, or otherwise mishandled and can propel shrapnel as deadly as that of a hand grenade.

b. Rapidly escaping CO2 gas, such as results from broken or improperly installed regulators and fittings, causes extreme temperatures capable of freezing flesh to metal.

c. All charged CO2 cylinders in use will be secured by an iron strap or chain in an upright position.



(3) Potato Peeler

- applied.
is running.
- (a) Never operate the peeler unless water has been properly
 - (b) Do not put your hand in the machine while the machine
 - (c) Do not adjust the peeler unless the power has been shut off.

(4) Food Cutter

- (a) Be sure that the knives are in proper position and the guard is securely in place before starting the machine.
- (b) Do not put your hand in the bowl while the knives are revolving.

(5) Food Chopper

- (a) Feed the food chopper with a wooden push stick; never feed it with your hands.
- (b) Keep the same knife and plate together, as they wear to fit each other. Improperly fitted knives can break and fly off the machine.

(6) Food Mixing Bowl

- machine.
- (a) Properly attach the mixing bowl before starting the
 - (b) Keep your hands away from the mixing chamber while the machine is in operation.

(7) Dough Mixer

- (a) Be sure the mixing tub and the wire whip are seated properly before using the kettle.
- (b) Do not tamper with the safety valve or tie it closed. It is there to prevent the kettle from exploding.

5. MESS

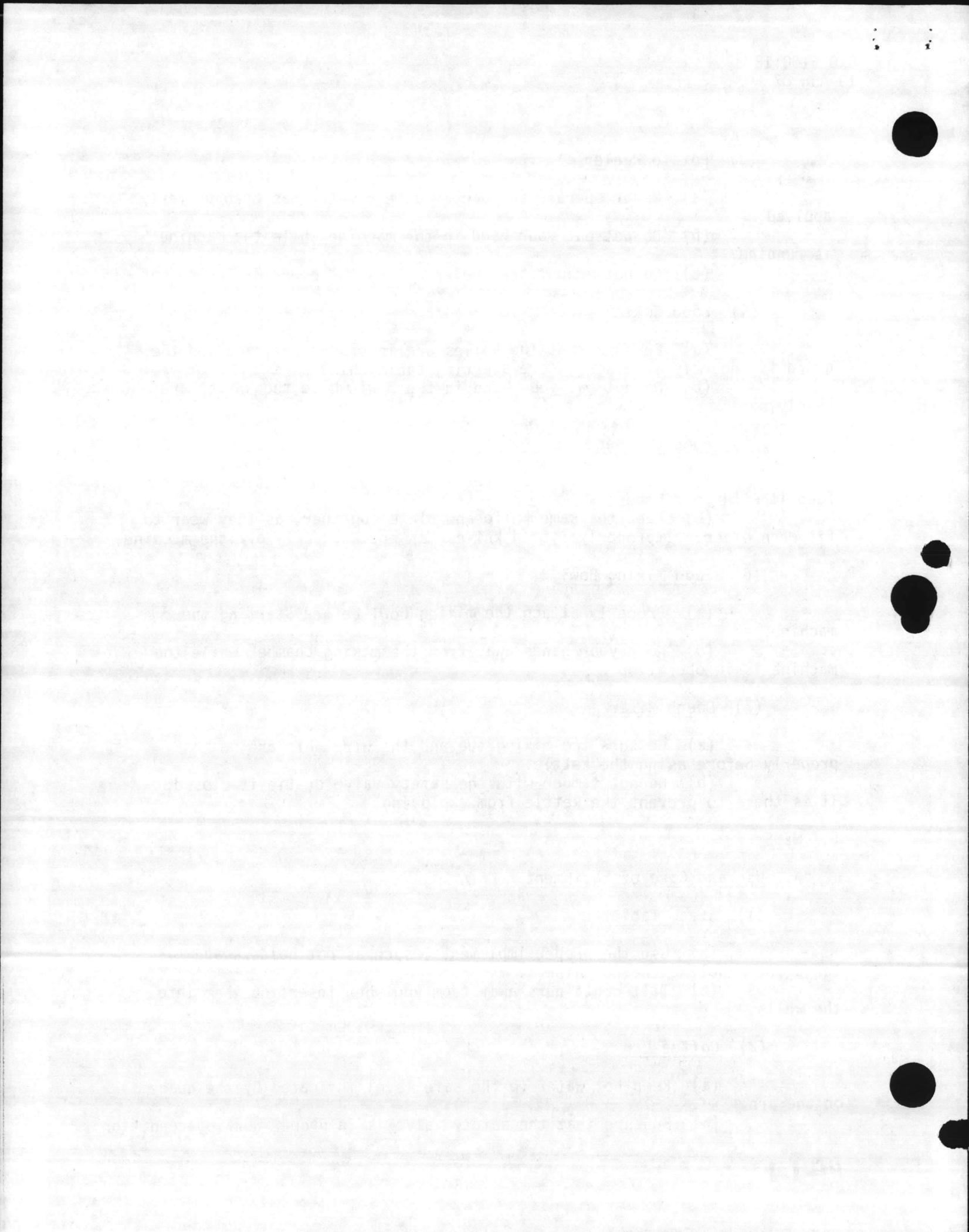
a. Use and Care of Equipment

(1) Steam Table

- (a) Use the proper implements, such as pot holders and tongs for handling the containers.
- (b) Tilt containers away from you when inserting them into the wells.

(2) Coffee Urn

- (a) Keep hot water to the safe level indicated by the gauge on the urn.
- (b) Be sure that the safety valve is in proper working condition.



SAFETY REGULATIONS
WAREHOUSES

1. Care of Buildings

a. Maintaining Order. Working spaces, new constructions, and repair areas shall be regularly policed to maintain order and cleanliness, and to reduce fire hazards.

b. Warning Signs. It is inevitable that a building will have transitory hazards such as floor openings or protrusions; also vehicles will have overhanging materials and equipment. When such hazards are present, warning signs (such as flags or arresting colors, traffic markers, or barricades) with adequate lighting shall be provided.

c. Rubbish Disposal

(1) Scrap. Rubbish and scrap material shall be disposed of in properly identified cans, receptacles, or bins. All rubbish shall be cleared from buildings daily and work areas shall be maintained free from accumulations of combustible debris.

(2) Flammables. Oily rags, steel wool, waste paper, and other flammable materials shall be kept in tightly closed metal containers and their contents shall be disposed of at the end of the work day.

(3) Ashes. Ashes shall be deposited in noncombustible container. The containers must have covers and must be located at least 2 feet from combustible walls, partitions, or stored material.

d. Walkways and Aisles

(1) Free of obstructions. Ample, well-defined space for aisles shall be provided in buildings and in offices and shall be kept free from all obstruction, including such devices as extension cords.

(2) Blind Corners. Collision hazards at blind corners can usually be eliminated by the installation of a mirror set at the proper angle.

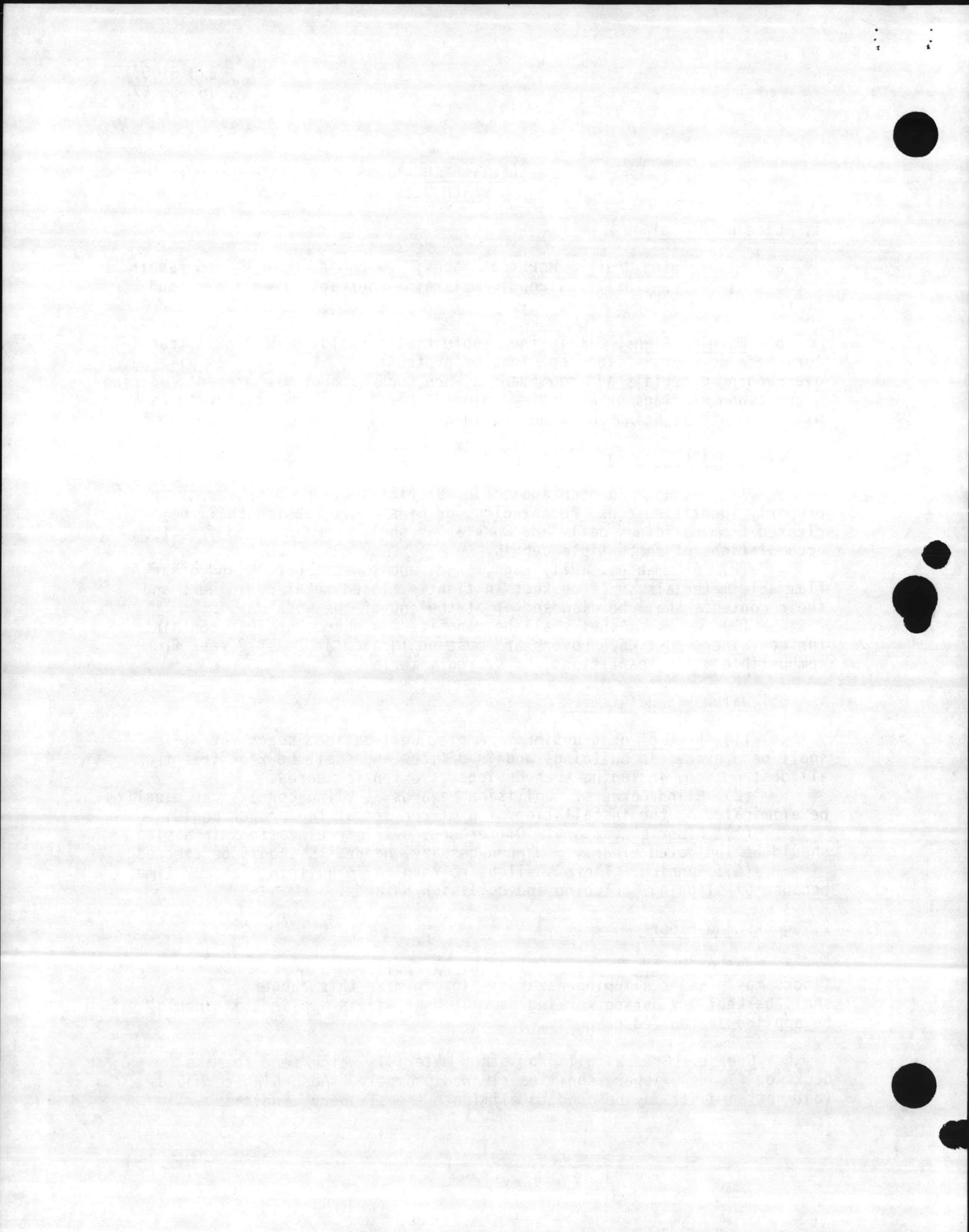
(3) Floor Elevations. Differences of floor elevations in aisles should be indicated clearly. When necessary, handrails should be erected.

(4) Running. There shall be no running in buildings at any time because of slipping, tripping and collision hazards.

2. Decks and Floors

a. Wet or Waxed Floors. Wet or highly polished linoleum-covered floors may present slipping hazards. To minimize this danger, floors shall be kept dry during working hours. When wax is applied, it should be applied and buffed properly.

b. Grease. Grease, oils, or other materials which tend to make decks or floors slippery shall be cleaned promptly. Absorbing compounds (but not sawdust) may be used to eliminate the slippery condition.



c. Floor Coverings. Rugs shall be laid smoothly, and loose or torn floor covering shall be promptly repaired, replaced or removed.

d. Hose and Cable. Welding areas shall be adequately shielded. Hose from oxyacetylene cylinders, steam lines, air lines, electric welding leads, electric cables and extension cords shall be kept off decks and floors by means of trees, hooks, or troughs.

e. Cleaning Liquids. Gasoline, naphtha, thinners, or any other highly flammable liquids shall not be used to clean floors.

f. Tripping Hazards. Floors and decks shall be kept free from protruding nails, splinters, holes and loose boards.

3. Electrical Installations

a. Care of Equipment and Outlets

(1) New Installations. All electrical installations should be made in compliance with the rules and regulations contained in the National Electrical Code. Electric light pull chains and keyed metal sockets shall be of the insulated type.

(2) Grounding. Frames or housing of office machines and appliances shall be grounded.

(3) Defective Equipment. Defective electric cords, lighting fixtures, appliances, and switches shall be repaired or removed. Loose outlet plates may result in short circuits and cause shock through contact with them.

(4) Supervision. There shall be no unauthorized or improperly supervised connections or repairs made in a building.

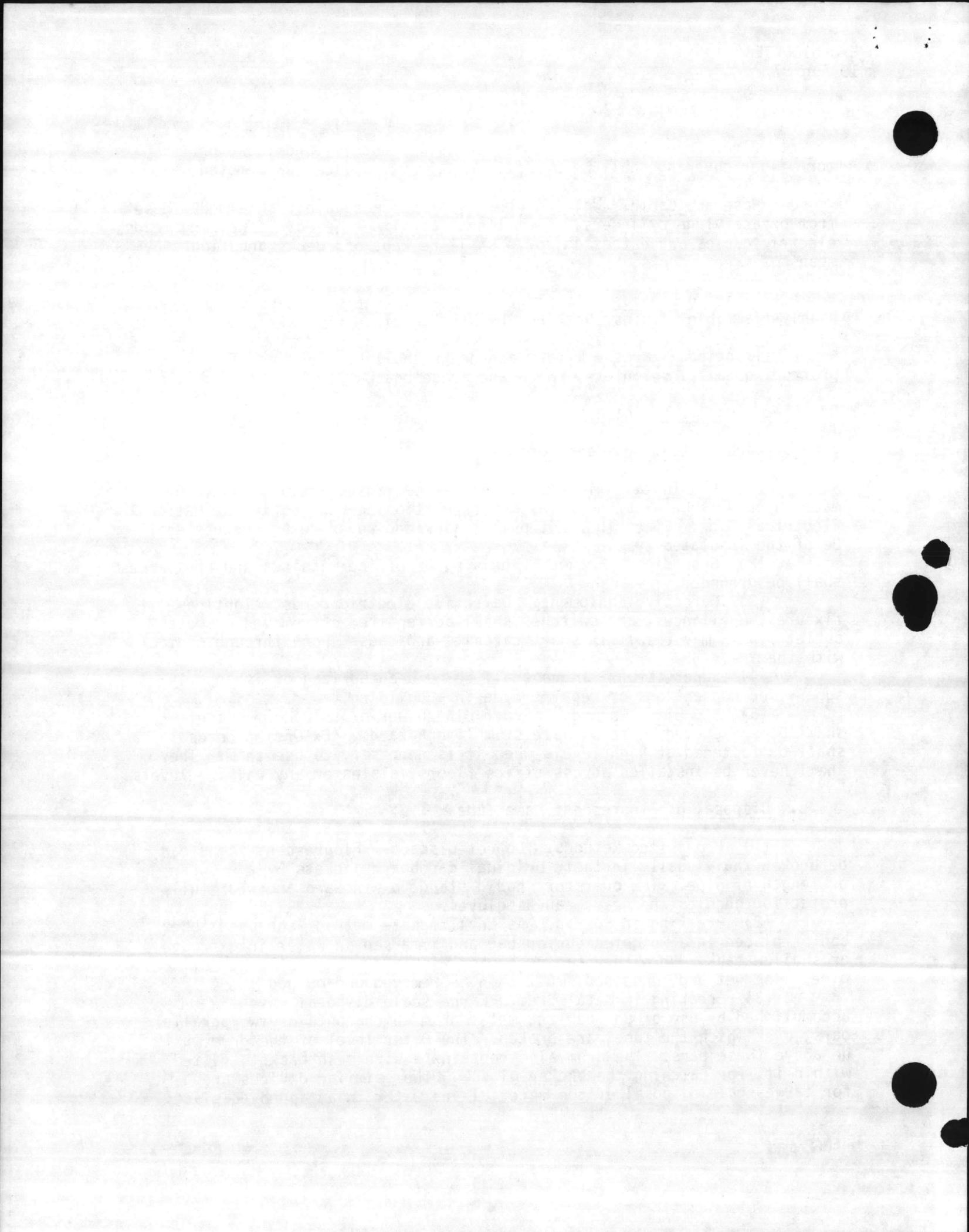
(5) Stumbling Hazards. Protruding power or telephone outlets shall be so located as to obviate stumbling hazards. Extension cords shall be fastened at high levels when it is necessary to use them. They shall never be installed across office floors, aisles or any walking levels.

b. Disposal of Fluorescent Lamp Tubes

(1) Prohibited Methods. Do not discard. Fluorescent lamps can be broken individually in their original cardboard jackets by a crowbar or length of pipe. The operator should stand to windward and wear full protection goggles and heavy canvas gloves.

(2) Breaking in Burlap. As an alternate method, the used tubes can be placed in a weighted burlap bag and immersed in water in a trough or shallow tank, where they can be broken with a crowbar or length of pipe. The wet bag, unopened, must then be removed and dumped.

(3) Breaking in Metal Drum. Large-scale disposal may be accomplished by use of an open-end metal drum which contains two parallel bars, over which the tubes are broken. The water level of the drum must be above these bars. The drum also contains a wire mesh basket, fitted within it, for catching the broken glass. Other similar devices are for large-scale disposal of the material and water in an approved place.



c. Electrical Machinery

(1) When maintenance is required on electrically operated machines, the machines should be unplugged until work is completed.

(2) Frayed or broken plugs should be replaced as soon as it is discovered.

(3) Areas surrounding machines should be well lighted and care be taken to keep hands, clothing, etc., a safe distance from the machine while in operation.

(4) Electric heaters will not be left unattended and they will be unplugged 30 minutes prior to securing the building.

4. Tools and Equipment

a. Tools shall not be left on floors, decks, platforms, scaffolds, stairs, ladders, ledges, rafters, or the moving parts of machines.

b. Lockers, cribs, bins or storerooms shall be provided for the proper storage of tools and equipment.

c. Machinery and equipment shall be properly installed to prevent hazardous movements during operation.

d. All stock handling equipment such as hand carts, lift trucks, skids, etc., are to be returned to proper place when not in use.

e. In handling stock the proper equipment will be used.

f. Lift trucks will not be ridden at any time, and will be pulled not pushed around blind corners to avoid the possibility of colliding with any person or object.

g. Merchandise will not be stocked on skids in such a manner as to prevent visibility on all sides.

h. Skids shall be pulled or pushed at speeds that will allow the operator to make an emergency stop without difficulty.

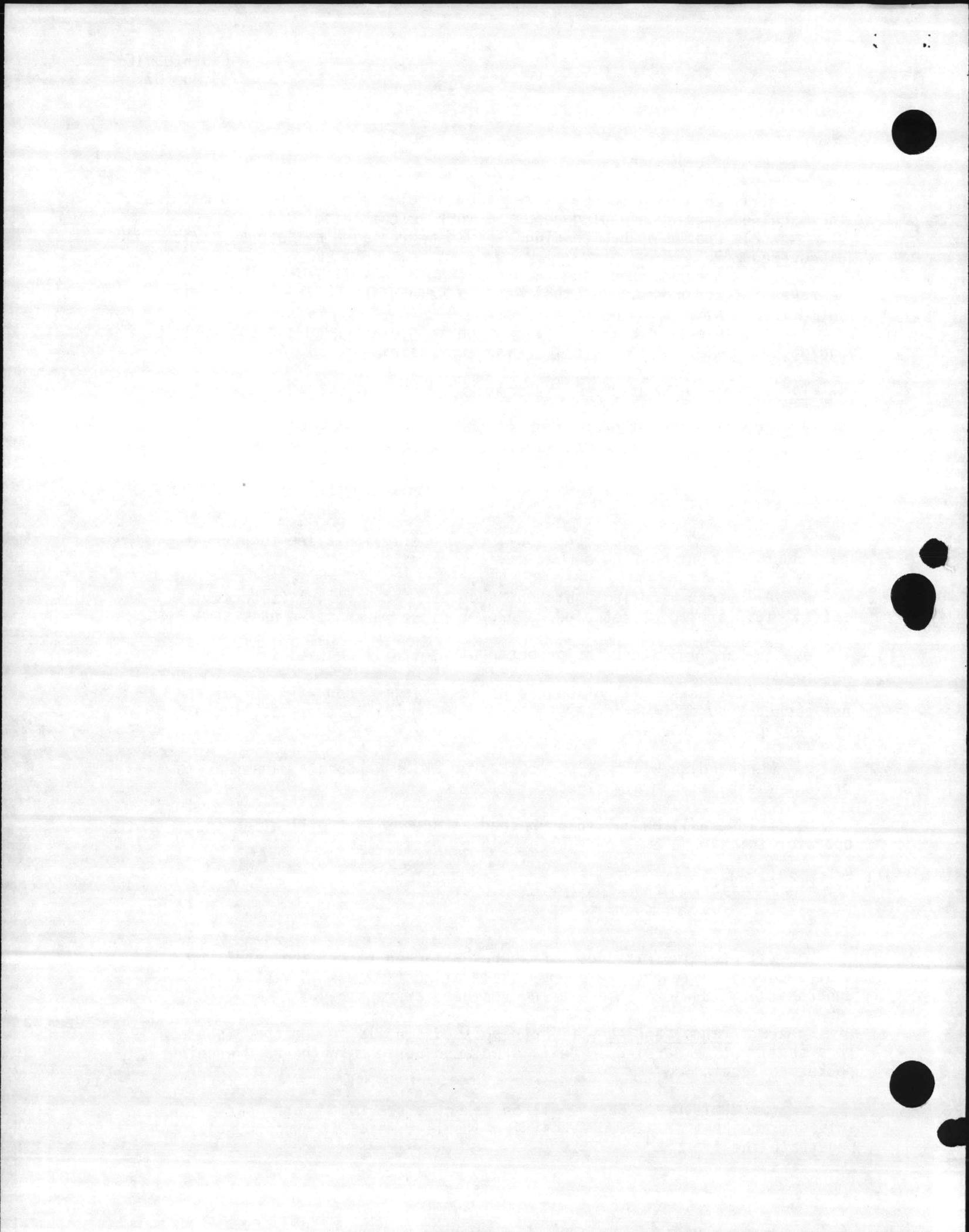
5. Office Safety

a. General

(1) Ceiling Fixtures. Fixtures attached to ceilings shall be kept securely fastened. Personnel shall at no time work directly underneath fixtures which are being replaced or repaired.

(2) Pencil and Pens. Sharp-pointed pencils or uncapped fountain pens shall not be carried in belts or placed upright in the handkerchief pockets of coats.

(3) Scissors. Care shall be taken to see that sharp-pointed scissors are kept in a secure position at all times. If dropped, they can penetrate the foot.



b. Desks

(1) Splinters. Splinters and loose veneer on desks should be covered or sandpapered before the desk is used.

(2) Creeping. It is advisable to equip desks and other pieces of furniture with rubber feet to prevent "creeping". This is especially true when desks are placed in close proximity, since in such cases employees often injure their fingers or hands in attempting to realign desks.

(3) Typewriter Desks. The handle should always be used when closing disappearing typewriter compartments. Because of the weight of the typewriter, this section of the desk closes rather rapidly and may cause injury to fingers or hands.

(4) Sharp Objects. Points of pencils, pens, and other sharp objects should always be laid on the desk with the point away from the person sitting at the desk. When possible, containers should be provided in which to keep sharp objects when not in use. Razor blades should have the cutting edge covered when kept in a desk drawer.

(5) Glass Tops. Broken glass tops should be disposed of promptly and the desk should not be used until the broken top has been removed. Glass tops should not be used unless absolutely necessary because the reflected light causes eyestrain.

(6) Protruding Equipment. Pencil sharpeners and other equipment should not protrude from tops of desks or other furniture.

(7) Open Drawers. Desk drawers should never be left open, since a person can inadvertently strike or stumble over them and suffer serious injury.

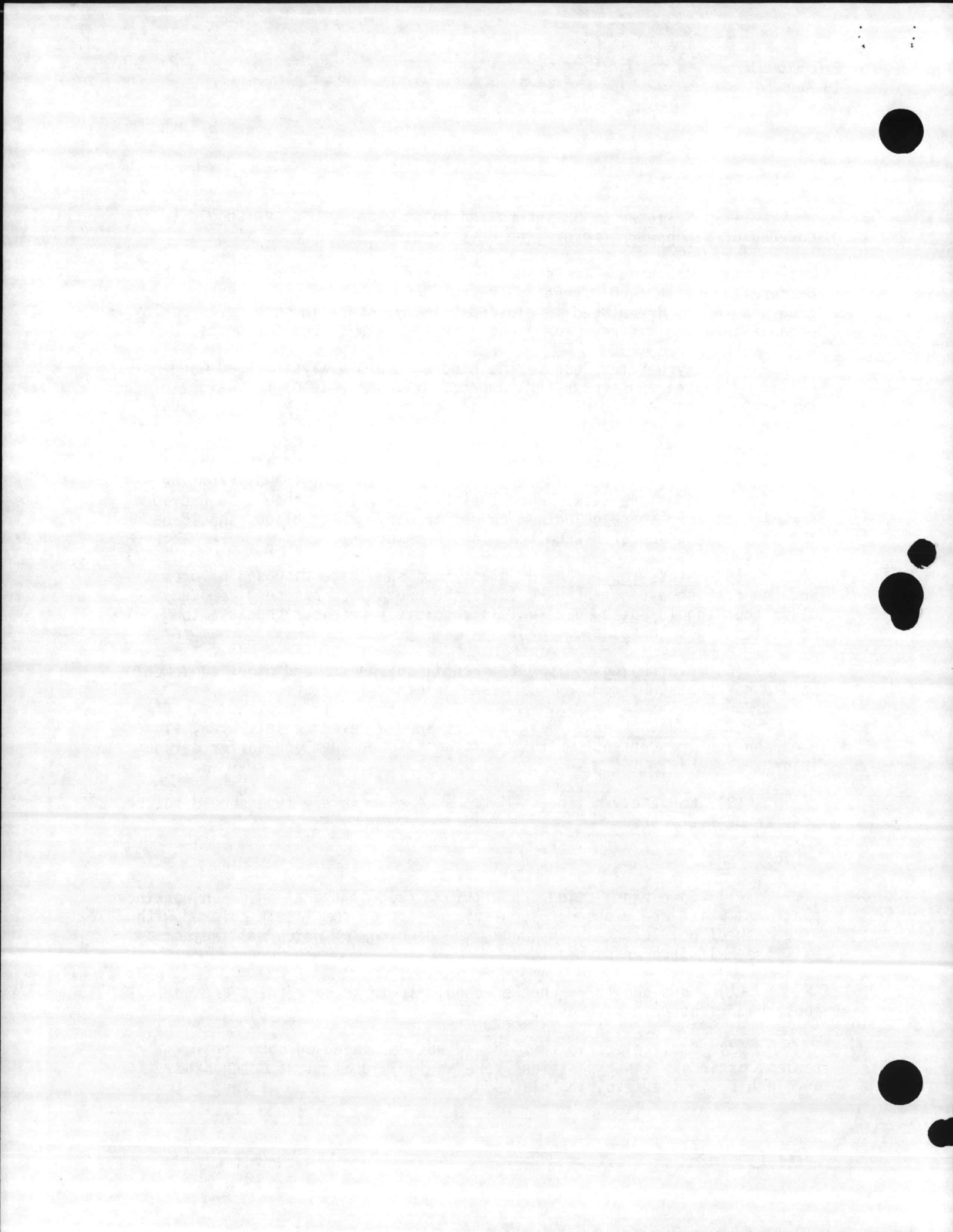
(8) Nonsafety Matches. Matches of a nonsafety type should not be left in desk drawers.

c. Fans

(1) Each ventilation fan within 7 feet of the floor or on working platforms which are exposed to contact, should be completely covered with wire mesh of not less than 20 gauge, the openings of which will reject a ball one-half inch in diameter.

(2) Fans should be checked regularly to be sure there are no loose blades or defective guards.

(3) Small electric fans should not be placed on boxes or low tables, or in any other position where an individual might catch hands or clothing in the revolving blades.



d. Baskets

(1) Personnel should not put broken glass in wastebaskets. If a tumbler or other piece of glassware has been broken, it is suggested that this material be packed in heavy paper, marked "broken glass" and placed alongside the wastebasket at the end of the day so that the person removing waste paper will not be cut accidentally.

(2) Distorted or damaged metal or wire baskets should be repaired or replaced promptly, since sharp edges and points can cause injury.

e. Ladders

(1) Small ladders and stands used in some offices shall be equipped with treads of nonslip material and safety feet.

(2) Rolling and trolley-type ladders shall be provided with braking attachments.

f. Marking Spirit Containers

(1) Fluid containers should be provided with warning labels with such information as "Poison - Flammable. Do not take internally. Do not breathe excessive vapors. Avoid skin contact as much as possible."

(2) UNDER NO CIRCUMSTANCES WILL CARBONTETRACHLORIDE BE USED IN CLEANING OFFICE MACHINES.

6. Principles of Fire

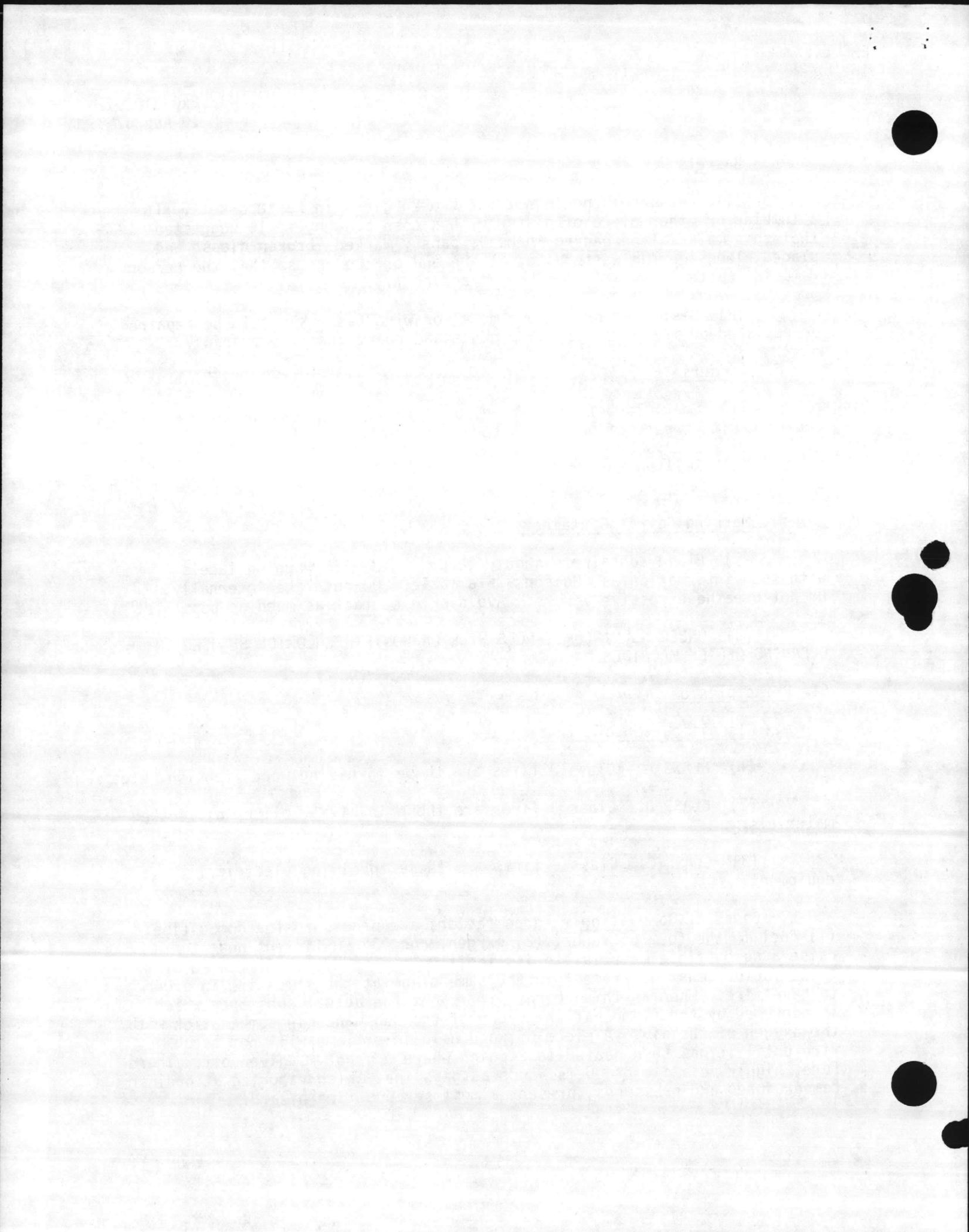
a. Classification of Fires

(1) CLASS A. Class A fires are those involving wood, rubbish, etc.

(2) CLASS B. Class B fires are those involving oil or oil soaked materials.

(3) CLASS C. Class C fires are those involving electrical equipment.

b. Cause of Combustion. Three factors are necessary for combustion: (1) fuel in the form of vapor; (2) oxygen; and (3) sufficient heat to raise a combustible material to its ignition temperature. All three of these factors must be present in the same place at the same time in order to have fire. When anything burns, it is not the actual substance which is consumed by the flame but the vapor of the substance in combination with the oxygen of the air. A piece of wood held in a flame will not catch fire until it has been heated to a point where a vapor is given off. Therefore, highly volatile products, such as gasoline, which vaporize at ordinary temperatures and pressures, present a most serious fire hazard.



c. Spontaneous Ignition. If large masses of certain combustible materials which have been soaked in oil are allowed to stand, and the heat generated by the slow oxidation process is not allowed to escape, the temperature of the mass rises. If this heating is allowed to proceed, the materials reaches its ignition temperature and starts to burn. For this reason paint-soaked rags and oily waste must be stored in a way least likely to accelerate oxidation to be absorbed by the surroundings. Use only self-closing metal receptacles for discarding oily waste and dispose of such collections daily.

d. Principles of Extinguishing Fires.

(1) Starving. If the fuel is removed, the fire is extinguished by starving.

(2) Smothering. If combustion-supporting oxygen is removed, the fire is extinguished by smothering. The use of foam, carbon dioxide, steam and sometimes sand, is based on this principle.

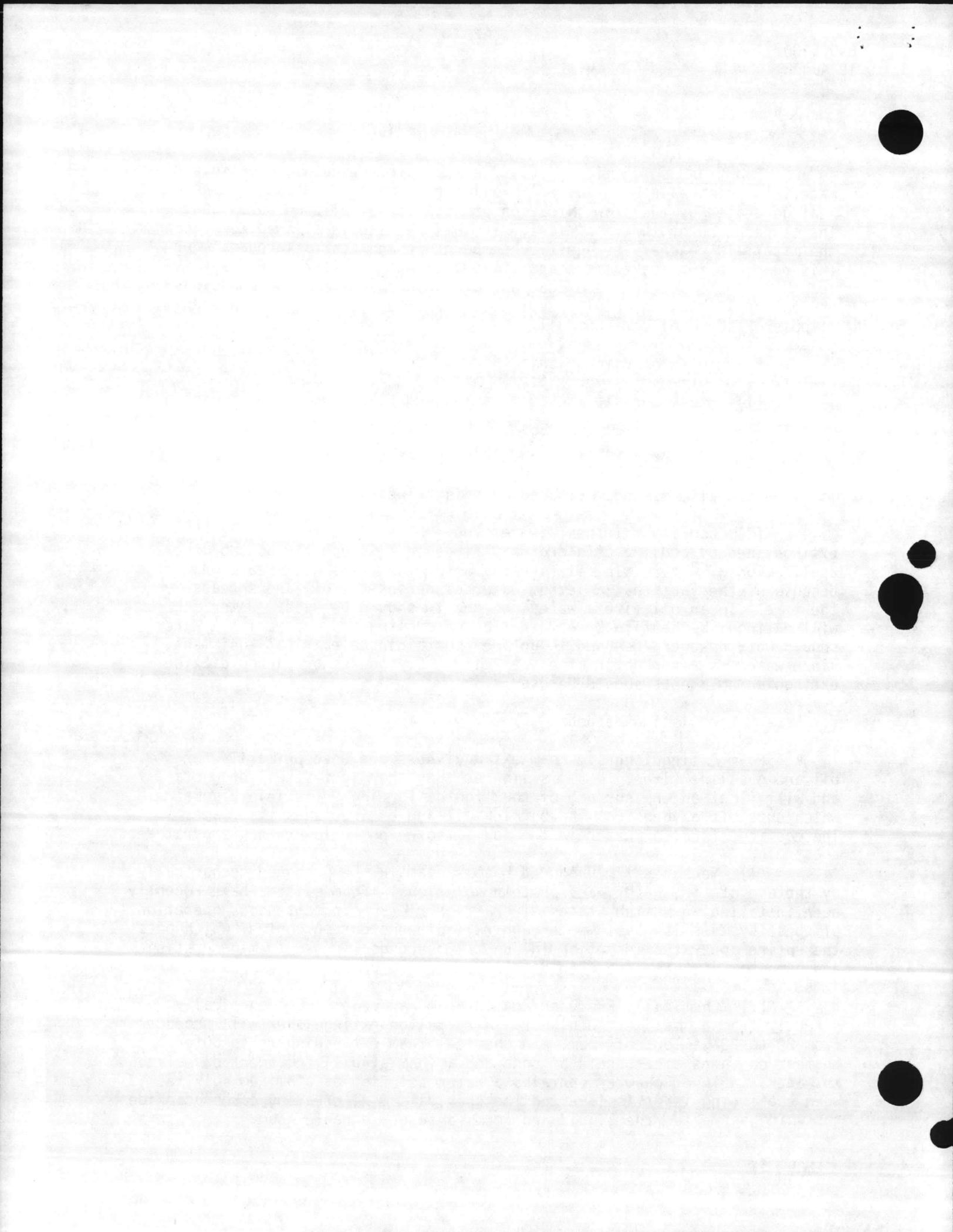
(3) Cooling. If heat is removed from a fire, the fire is extinguished by cooling. In ordinary fires this is usually done by the application of water. In oil fires, however, water is not used alone because of the fact that a jet of water disperses the oil and spreads the fire. In an oil fire a water fog nozzle should be used. Water fog will extinguish the fire by combination of cooling and smothering. Water should not, however, be used in an area containing electrical equipment, since water is a conductor of electricity. Dry powder or carbon dioxide extinguishing agents should be used.

7. Fire-Extinguishing Methods

a. Foam Extinguishers. Foam extinguishers are used primarily for oil and gasoline fires. Foam is lighter than the lightest oil products and will float on the surface of the liquid, forming a flexible blanket which cuts off oxygen from the burning oil and extinguishes the flame. The cooling effect of water in the foam also helps to lower the temperature.

(1) Mechanically Produced Foam. Foam may be produced mechanically by the use of air, water, and protein solutions. Foam systems have recently been installed in United States aircraft carriers. Instantaneous operation of these systems is possible through reliable pushbutton control which puts the entire apparatus in motion in about 12 seconds. A new foam-generating and pumping unit has also been developed for use on land.

(2) Chemically Produced Foam. Foam may be produced chemically directly from a small extinguisher. A 2½ gallon extinguisher will produce from 20 to 22 gallons of foam. In chemical foam extinguishers an outer chamber contains bicarbonate of soda and a foam-stabilizing agent dissolved in water; an inner chamber contains a water solution of aluminum sulfate. When the extinguisher is inverted the chemicals mix, creating carbon dioxide gas which permeates the liquid and forms a tough, durable foam.



- (2) Before removing foods from hot ranges and ovens be sure there is a clear place on which to set them.
 - (3) Use only the proper implements, such as pot holders and tongs, for handling of hot foods.
 - (4) Carry hot liquids in covered containers with covers securely in place.
 - (5) Do not bump into anyone when hot food is being carried.
 - (6) Mop up immediately grease which is spilled on the floor.
- Greasy floors are doubly hazardous. They can cause fires as well as falls.

c. Proper Use and Care of Utensils

- (1) Use only the proper implements for opening cans and other containers.
- (2) Hold knives firmly. This cannot be done if the handles are wet or greasy.
- (3) Knives are to be kept in a drawer designated for this purpose only. The handles should be kept to the front and the cutting edges should face in one direction.
- (4) Keep utensils and other implements in their proper places when they are not in use.

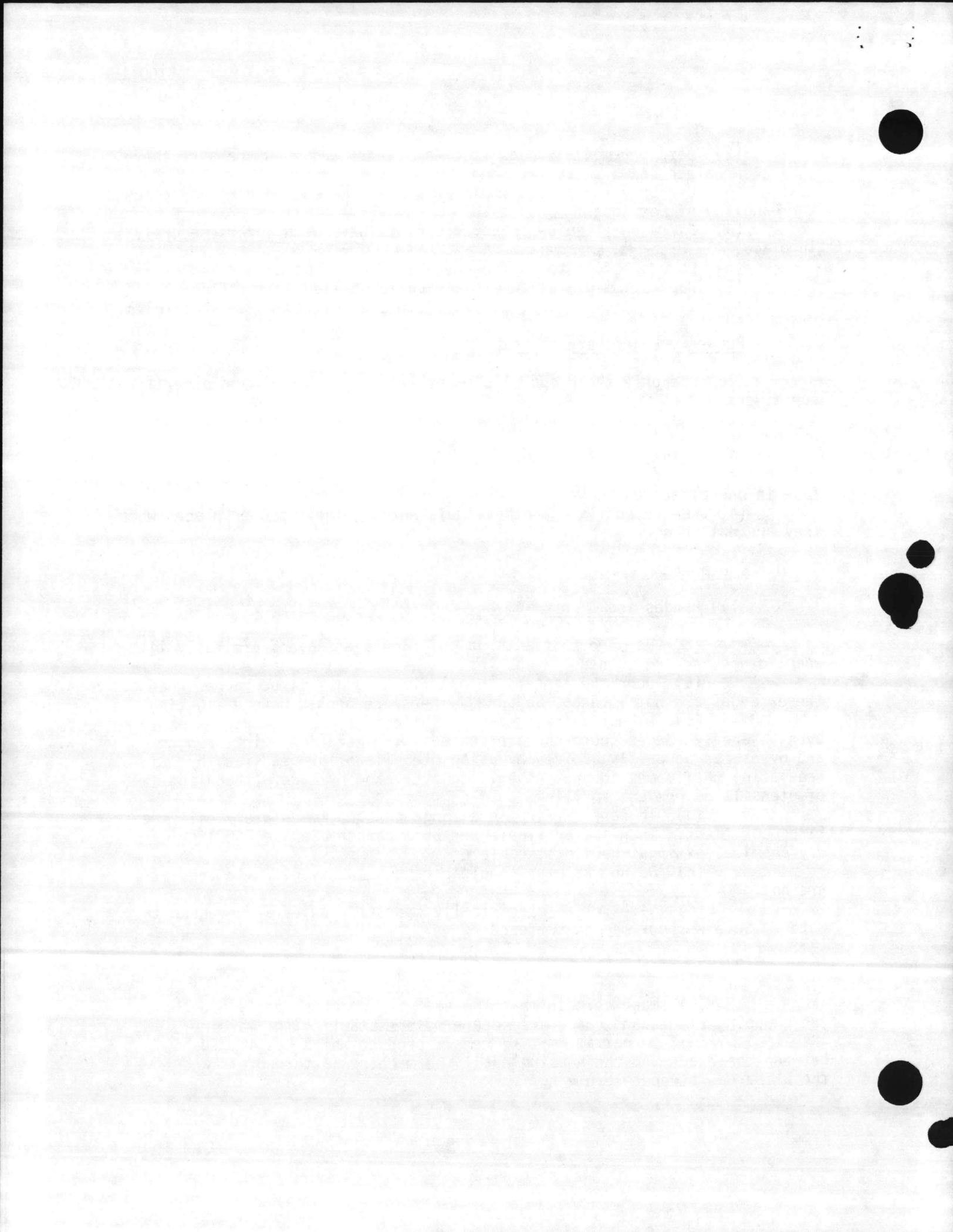
d. Equipment

(1) Ranges and Ovens

- (a) Be sure that jets on gas ranges and ovens are fully lit when in use and are turned off when not in use.
- (b) Open the dampers on oil-fired or gas-fired ranges when these ranges are not in use. Be sure dampers are opened before lighting.
- (c) Do not allow grease to collect anywhere on ranges or ovens. Greasy ranges and ovens are serious fire hazards. Dirty ranges and ovens can be partly avoided by using utensils of proper size, by regulating the flames to prevent boiling over, and by careful handling of utensils to prevent spilling.
- (d) In case of fire in a range or oven immediately call the Fire Department. Then use available portable carbon dioxide (CO₂) or dry chemical extinguishers on the blaze.
- (e) Do not attempt to clean ranges and ovens while they are hot.
- (f) Never clean electrically operated ranges and ovens with water. Severe shock may be suffered.

(2) Vegetable Chopper

- (a) Make certain that the bowl is seated properly and that the chopping blades and guard are secure before starting the machine.
- (b) Do not attempt to remove produce which has lodged between the blade and the housing until the machine is turned off and the blade has stopped revolving.



b. Carbon-Dioxide Extinguishers. Carbon dioxide extinguishers are used effectively on soil and electrical fires. The liquid carbon-dioxide upon contact with air turns into a gas which blankets the fire by shutting off the supply of oxygen.

c. Dry Chemical Extinguishers. Dry chemical extinguishers have been in general use in the Navy only since World War II. They contain chemically processed bicarbonate of soda which is released when a turn of the hand wheel punctures an inner cartridge of carbon dioxide and nitrogen. The chemical releases smothering gas on the fire, and at the same time releases a cloud of dry chemicals which shields the operator from the heat.

8. Ventilation

a. Control of Contaminants. Whenever materials, substances or their by-products which release contaminants are being processed, adequate preventative measures shall be taken to eliminate these contaminants, either at the point of origin or by local exhaust.

(1) Exhaust System. Exhaust systems shall be so constructed as to provide air velocities recommended for the capture of dust, fumes, smoke, mist, gases, and vapors at the point of operation. Atmospheric contaminants removed by exhaust systems shall be disposed of in such a manner that they do not reenter the breathing zone of workers.

(2) Before securing any unventilated area, care will be taken to assure no one is inside.

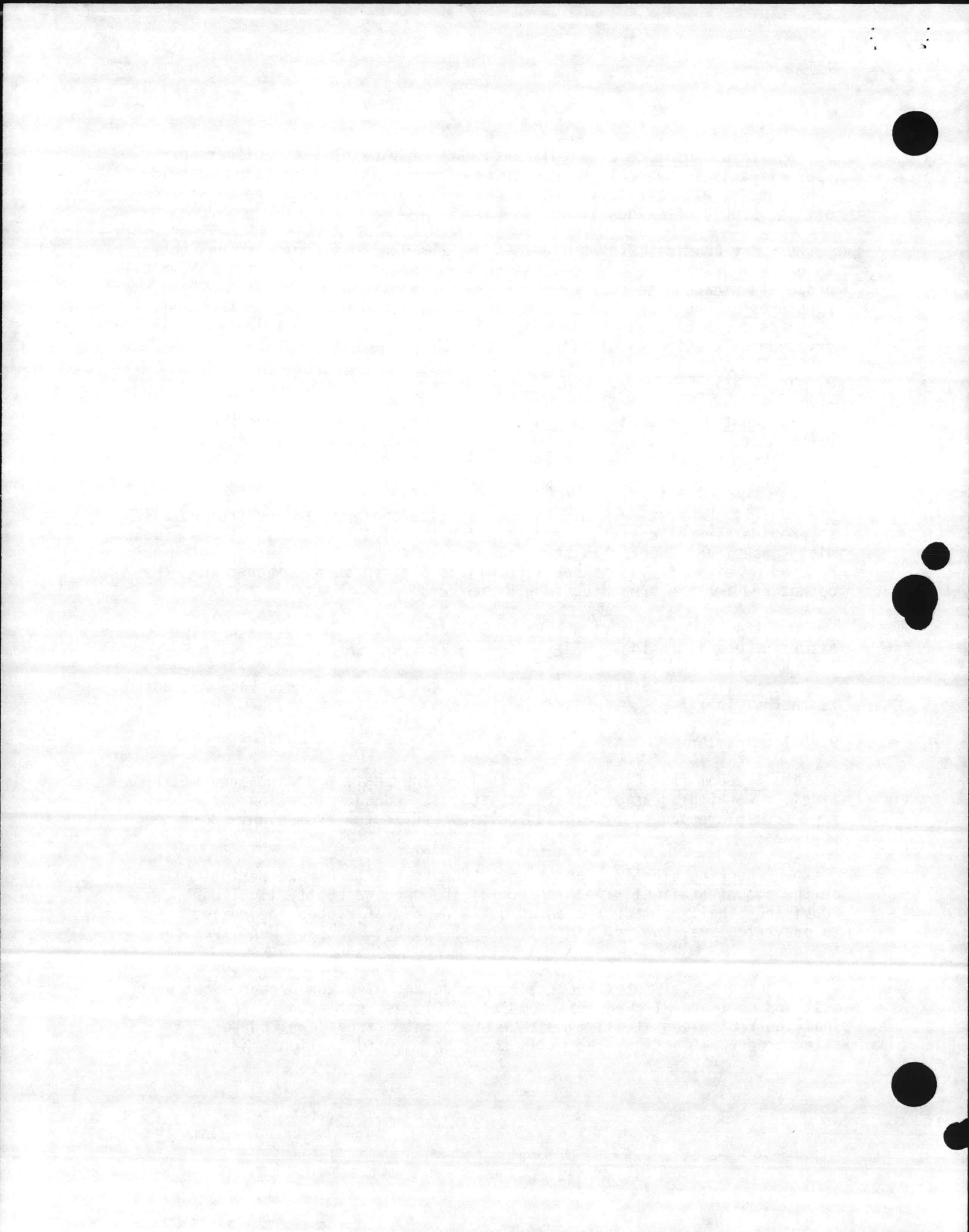
b. Heating. Heating equipment using carbonaceous fuel shall be vented to the outside.

9. Illumination

a. Freedom from Glare. Adequate lighting shall be maintained at all times in working areas and traversed spaces, and such lighting shall be free from glare caused by exposed bulbs or reflected from highly polished surfaces.

b. Checking Lighting Conditions. Checks shall be made periodically on the amount of light, the presence of shadow, and spotty lighting. Provisions shall be made for an adequate number of globes and reflectors to prevent glare, and for lamps of proper voltage, wattage, and type for the area.

c. Cleaning. Globes and reflectors do not give the proper light when dust and soot are allowed to accumulate. Globes, reflectors, and walls shall be kept clean at all times. Where painted areas are too dark to allow proper reflection, the walls shall be painted in light shades.



10. GENERAL PRECAUTIONS IN WAREHOUSE

a. Cartons containing merchandise will be opened with safety carton opener.

b. Merchandise will be placed on skids for transporting from Receiving room to Marking room in a manner to be safe from the merchandise falling and injuring personnel.

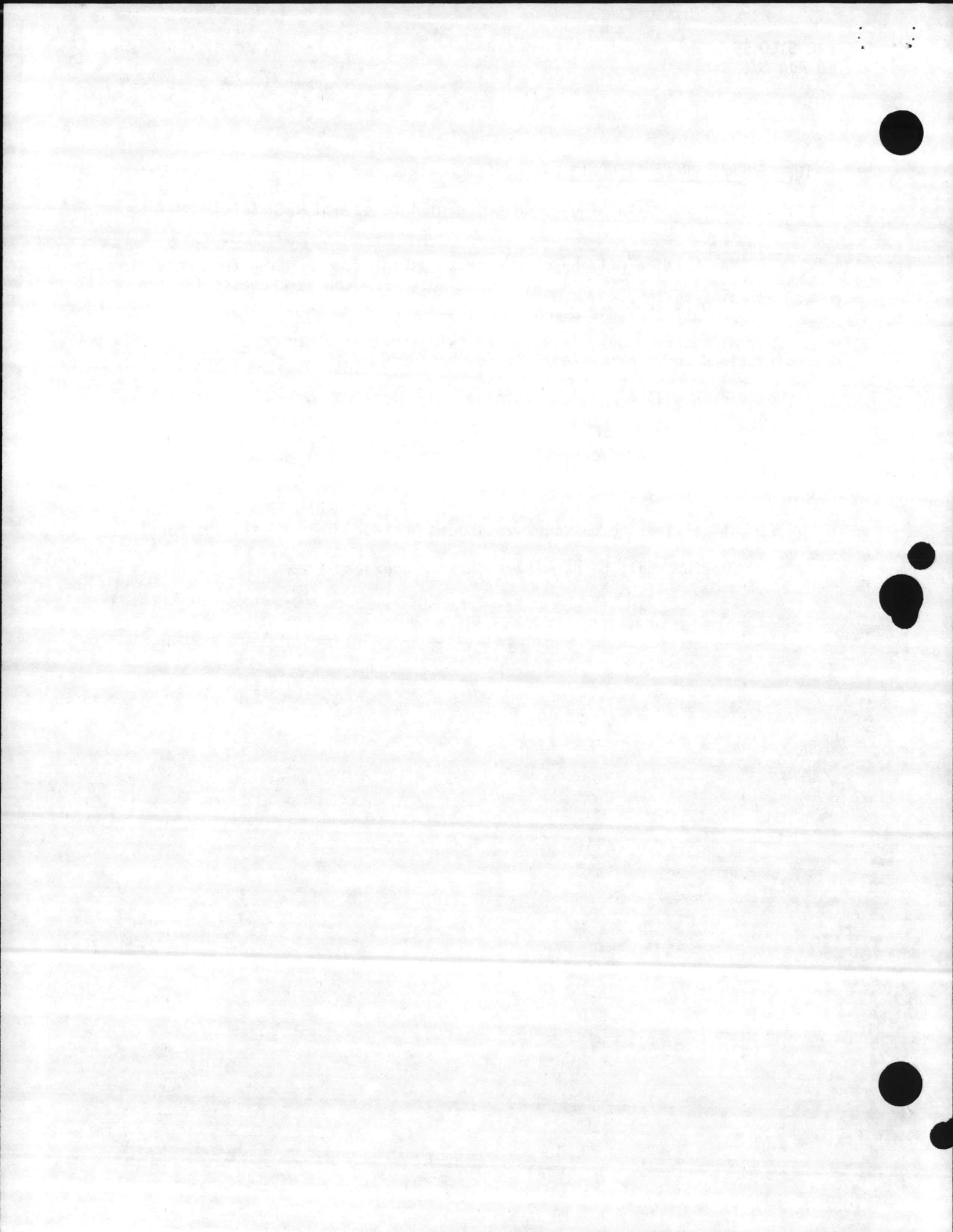
c. All doors should have a free swinging area clear of all obstructions for a complete 90 degree angle from either direction.

d. Trash will be put in containers provided and not in any other type of box, etc.

e. In procuring stock from bins or shelving too high to reach by standing on floor, safety ladders should be used. Do not climb on bins or shelving at any time.

f. All aisles and passageways should be kept clear of all obstructions.

g. Smoking shall be permitted only in approved areas.



SAFETY REGULATIONS
CLEANING AND PRESSING SHOPS

1. Protection to Personnel

- a. Cleaning solutions are not to be used for personal cleanliness.
- b. Food must not be taken into rooms where cleaning machines or tumblers are located.
- c. Sprinkling in the dry cleaning shop is prohibited.
- d. Sprinkling of clothes by mouth is prohibited.
- e. A first aid kit shall be supplied to the Dry Cleaning Shop. At least one person in the shop should know how to administer first aid.

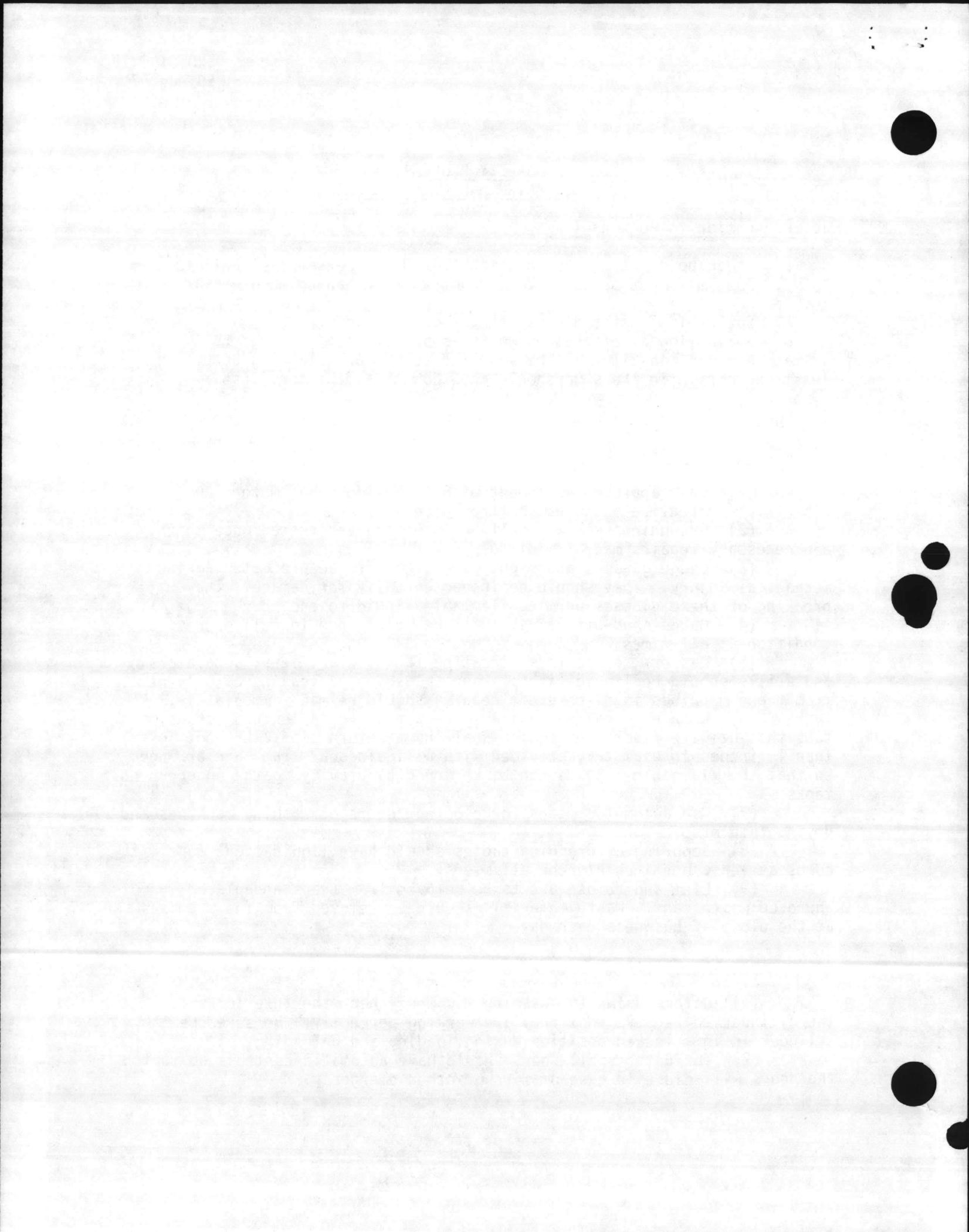
2. Equipment

a. General Care

- (1) Only approved equipment with explosion-proof motors and other fire-protective features shall be used.
- (2) Grounding systems shall be inspected and tested once monthly and necessary repairs made immediately.
- (3) Gauge glasses and sight glasses are to be protected against mechanical injury. They should be inspected daily for damage. The breaking of these glasses permits flammable liquid to escape.
- (4) Gauge shut-off valves shall be maintained in full operative condition at all times.
- (5) Washers, extractors, treating tanks, clarifiers, separators, and stills should be liquid-tight. When splashing or leaking of solvent from these machines is discovered, repairs should be made immediately.
- (6) Washing machines, extractors, scrubbing tables and scrubbing tubs that utilize flammable liquids shall have return pipe lines not less than 1½ inches in diameter, provided with a liquid seal trap, and arranged so that the flammable liquids can be returned by gravity to the underground tanks.
- (7) Use automatic means for closing covers of washing machines and drying tumblers.
- (8) Scouring or brushing tables should have liquid-tight tops with curbs at least one inch high on all sides.
- (9) Lint and refuse are to be removed from traps and placed in approved waste cans. Waste materials should be removed from the premises at the close of business each day.

b. Washing Machine

- (1) Before using the washing machine, check the interlocks to the cylinder to be sure that they are working perfectly. Be sure the cylinder is in a locked position during loading and unloading.
- (2) The outer shell doors should have automatic controls so that the doors will close in case of fire or other emergency.



- (3) The outer shell doors should be splash-tight.
- (4) Dry cleaning machines should be kept closed except when they are being loaded or unloaded.

c. Extractor. Before using the extractor, inspect the interlocking device. These must be in proper working order to prevent the cover from being opened while the basket is in motion and to prevent the basket from turning while the top is open.

d. Tumbler

(1) Interlocks should be inspected before the tumblers are used to ensure that the cylinders will remain locked when the machines are being loaded or unloaded.

(2) Goods are to be removed from the drying tumbler after the drying process is finished to prevent spontaneous ignition or combustion.

(3) A drying tumbler should be vented to the outer air to prevent the accumulation of explosive vapors.

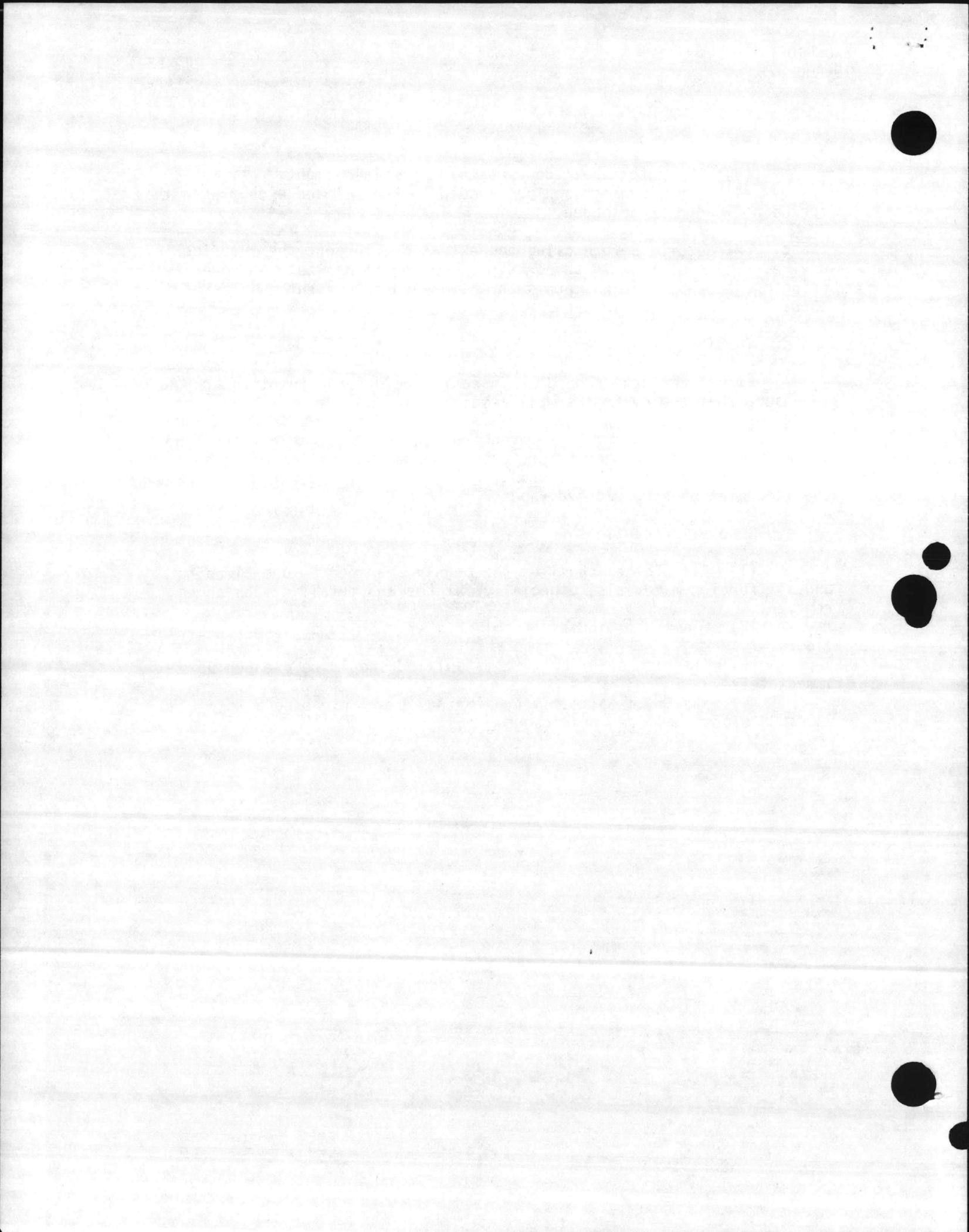
e. General Precautions

(1) All clothes shall be thoroughly searched before cleaning and all foreign materials, especially matches and metallic substances, removed.

(2) Flammable liquids or solvents are not to be used for cleaning floors.

(3) Cleaning solution that is spilled should be cleaned up immediately.

(4) Smoking is strictly prohibited in dry cleaning areas; "NO SMOKING" signs shall be conspicuously posted.



SAFETY REGULATIONS
BARBER SHOPS

1. General Rules

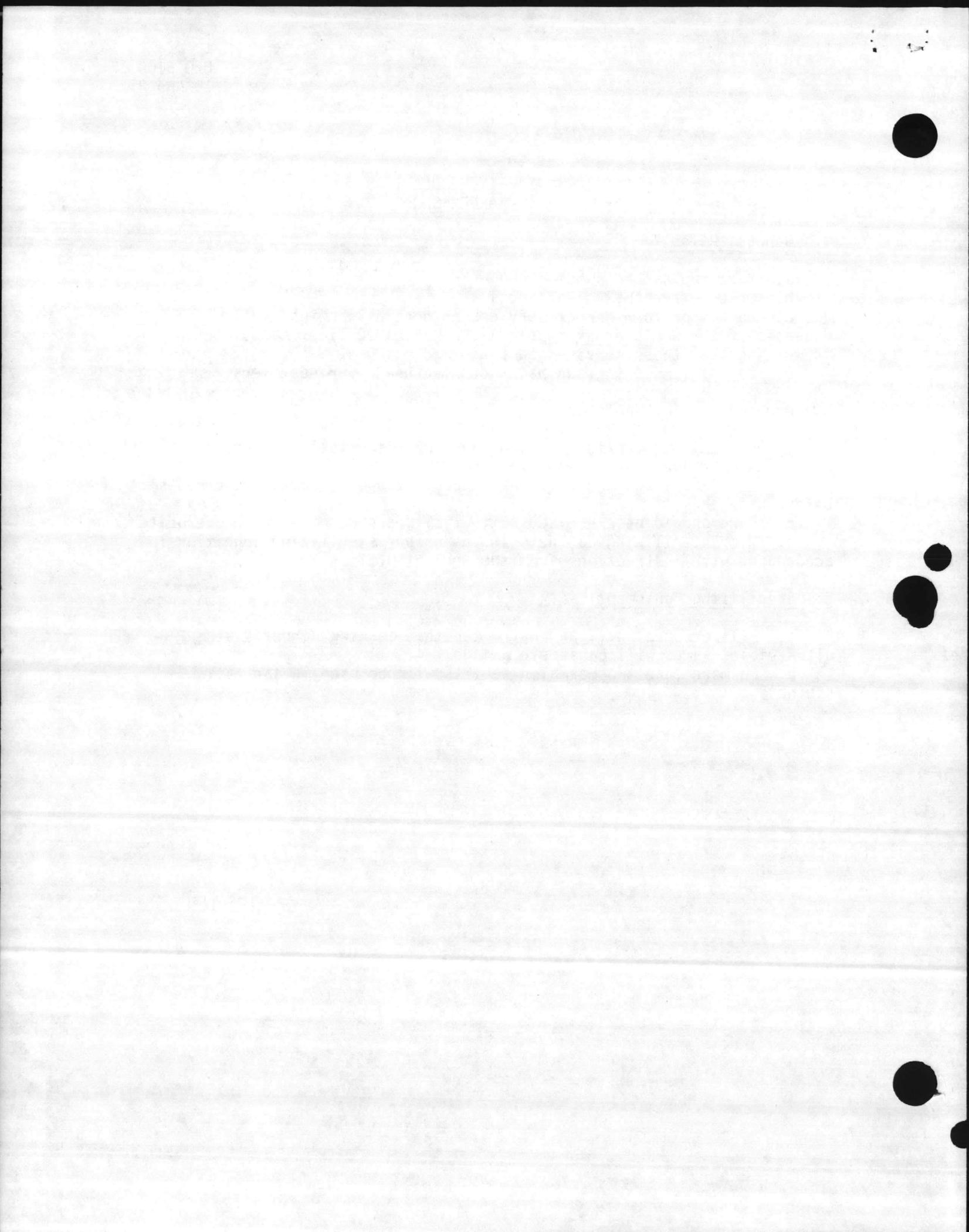
- a. Keep the barber shops clean.
- b. Observe personal cleanliness.
- c. Do not perform barber services on persons showing symptoms of diseases of the scalp or skin unless the Medical Officer has directed in writing that these services be performed.
- d. Do not remove ingrown hairs or blackheads for customers.

2. Use and Care of Equipment

- a. Use extreme caution in handling such potentially dangerous equipment as razors and scissors. Avoid jostling.
- b. Sterilize such equipment as razors, clippers, combs and brushes before using.
- c. Care should be exercised so that clippers do not become overheated.
- d. Keep sterilizing cabinets in the proper sterilizing condition in accordance with instructions from the Medical Officer.

3. Sterilizing Equipment

- a. All personnel will be instructed that looking directly at ultra-violet lamps will cause eye damage.
- b. No more than two Formalin tablets will be used in sanitation cabinets.



SAFETY REGULATIONS
BEAUTY SHOPS

1. General Care

- a. Keep the beauty shop clean.
- b. Observe personal cleanliness. Beauty shop operators shall be examined by the Medical Officer at regular intervals.
- c. Do not perform beauty shop services on persons showing symptoms of diseases of the scalp or skin unless the Medical Officer has directed in writing that these services be performed.
- d. Do not remove ingrown hairs or blackheads for customers.
- e. Run a patch test prior to utilizing peroxide on a patron.

2. Equipment

a. Hand-Operated Tools

(1) Use extreme caution in handling such potentially dangerous equipment as razors and scissors. Do not carry scissors, razors, and other equipment in your pockets. Avoid jostling.

(2) Sterilize equipment such as razors, scissors, clippers, combs, and brushes before using.

(3) Keep sterilizing cabinets in the proper sterilizing condition in accordance with instructions from the Medical Officer.

(4) Always follow strictly the manufacturer's instructions for use of equipment when giving a machineless wave.

(5) When giving machineless waves, use new aluminum foil pads and absorbents for each customer.



SAFETY REGULATIONS
PROPERTY AND MAINTENANCE

1. INSTRUCTION OF PERSONNEL

a. Experienced Operators. No person without experience shall be permitted to operate any woodworking machinery until he has been instructed as to the hazards and the proper operation of such equipment and the use of protective devices.

b. Sharpening Saws. No workman shall attempt to file or sharpen a saw unless he is qualified and has been properly authorized to perform such work.

c. Guards. Guards shall be installed wherever possible and their use explained and enforced. If special operations and the making of repairs or adjustments require the removal of the guard, it shall be immediately replaced upon completion of the work which required its removal. No person shall be permitted to remove a guard or to operate the machine without the guard except with the consent of his supervisor.

2. WORKING AREAS

a. Floors. All floors and working areas shall be kept in state of good police and shall be free from protruding nails, splinters, holes, unevenness, and loose boards.

b. Aisles. Aisles shall be maintained of sufficient width to permit the uncrowded and safe passing of personnel, trucks, or material.

c. Illumination. During all working periods each working area, operation, or process shall be adequately lighted and harmful glare avoided.

3. DEFECTIVE EQUIPMENT

a. Hazardous Defects. Tools, machines, devices, or other equipment that are hazardous because of defects or other conditions shall not be used until suitably repaired. All cracked saws shall be removed from service.

b. Wedges. The practice of inserting wedges between the saw disk and the collar to form what is commonly known as "wobble saw" shall not be permitted.

c. Saw Defects. Dull, badly set, improperly filed, or improperly tensioned saws, shall be immediately removed from service as soon as they begin to cause the material to stick, jam, or kick back when it is fed to the saw at normal speed. A saw to which gum has adhered on the sides shall be immediately cleaned.

SAFETY INSTRUCTIONS

1. INSTRUCTION OF PERSONNEL

a. Experienced Operators. In person with a supervisor shall be permitted to operate any woodworking machinery until he has been instructed as to the hazards and the proper operation of such equipment and the use of protective devices.

b. Skilled Personnel. No person shall be permitted to operate any saw unless he is qualified and has been properly instructed to perform such work.

c. Guard. Guards shall be maintained in place and in working order. Guards shall be removed only for the purpose of adjusting, repairing, or cleaning the saw. Guards shall be replaced immediately upon completion of such work. Guards shall be maintained in place and in working order at all times except with the consent of the supervisor.

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4. CARE OF EQUIPMENT

- a. Knives. All knives and cutting heads shall be kept sharp, properly adjusted, and firmly secured. Where two or more knives are used in one head, they shall be properly balanced.
- b. Arbors. Arbors of all circular saws shall be free from play.
- c. Bearings. Bearings shall be kept free from lost motion and shall be kept well lubricated.

5. SAFETY EQUIPMENT

- a. Push Stick. A push stick made of a narrow strip of wood or similar material with a notch cut on one end and shaped on the other end to provide a good hand grip shall be used to push material through saws where there is possibility of the operator's fingers coming in contact with blades at point of operation.
- b. Push Block. A push block of wood or similar material having a handle like a hand plane and a notch or shoulder at the rear end shall be used to push short stock over the jointer knives.
- c. Jig. A jig or fixture shall be used when cutting or forming irregular pieces of oblique angles.
- d. Fillister. When narrow strips are cut, a fillister piece about 2 inches wide shall be used between the fence or guage and the material being cut. It shall be firmly secured to the table or the fence by cleats, clamps or other effective means.
- e. Guards for Moving Parts. Adequate safeguards shall be provided for all moving parts of equipment used in the mechanical transmission of power, including prime movers and intermediate equipment. Driven machines, such as engines, motors, connecting rods, cranks, fly wheels, shafting, spindles, pulleys, belts, link belts, chain, rope, rope drives, gears, sprockets, friction drums, cams, couplings, clutches, counter-weights, revolving or reciprocating parts shall also be guarded, up to the point of operation.
- f. Guards for Projections. All projecting keys, setscrews, and other projections in revolving parts shall be made flush or guarded by a substantial metal cover. This does not apply to keys or setscrews withing a gear pulley or sprocket casting or other enclosure; nor to keys, setscrews or oil cups in hubs of pulleys less than 20 inches in diameter where they are within the plane of the rim of a pulley.
- g. Exhaust Hoods. All power saws shall be guarded under and behind the table to prevent possible personal contact. Exhaust hoods will be considered as adequate under or rear guards.



h. Power Cut-Off. A mechanical or electrical power control shall be provided on each machine which will make it possible for the operator to cut off the power from the machine being operated without leaving his position at the point of operation.

i. Belt Shifter. In machines driven by belts and shafting, a locking-type belt shifter or an equivalent position device shall be used.



SAFETY REGULATIONS
COBBLER SHOP

1. General Care

- a. Keep floors and passageways free of supplies and scraps at all times.
- b. Store tools in their proper places when they are not in use.
- c. Use caution when handling rubber cement. It is highly flammable. Only the minimum amount required should be kept in the shop. Containers are to be kept covered.
- d. Suitable seats shall be provided for employees who are engaged in work that can be performed while seated.

2. Machinery

a. Rules applicable to all Machinery

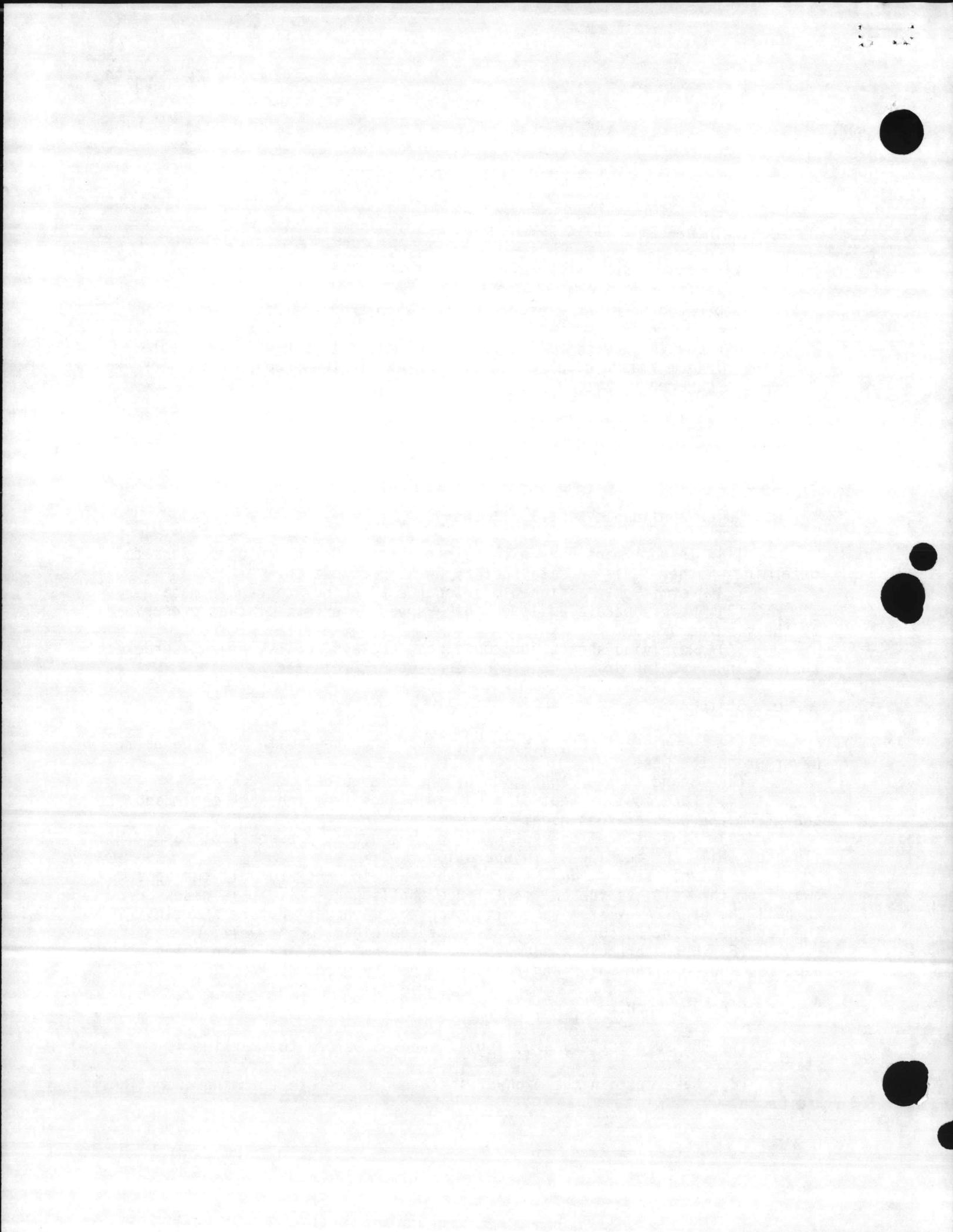
- (1) Inspect machinery each morning before beginning operations to determine whether it is in satisfactory working condition.
- (2) Permit only assigned maintenance personnel to repair machinery.
- (3) Never operate equipment at a speed in excess of that prescribed by the manufacturer.
- (4) Revolving shafts and couplings, pulleys, belts, gears, sprockets, chains, and friction drives should be encased or protected.

b. Stitcher

- (1) When starting the stitcher, push the wheel with the open palm. Never grasp the wheel.
- (2) Stand to the right side of the shoe guide.
- (3) Face must be kept at a safe distance from the work table and away from the presser-foot handle.
- (4) Fingers must be kept clear of the gears, presser-foot, and flywheel while the machine is in operation.
- (5) When sewing, do not grasp the vamp in order to pull the upper away from the welt, as the awl may pierce the fingers. If it is necessary to pull the upper away from the welt, stop the machine. Before starting the machine again, be sure fingers are not too close to the welt.
- (6) When threading the machine, or when making adjustments and repairs, shut off the motor and turn the wheel by hand.

c. Finishing Machine

- (1) Be sure cutters are tightly secured before the machine is started.
- (2) Make certain the exhaust is turned on before trimming operations are begun.



(3) Do not hold fingers too close to the part which is being trimmed or sanded.

(4) Wear protective goggles for trimming and sanding operations.

(5) Hold the shoe firmly during trimming and sanding operations.

(6) Shut off the motor before changing wheels, sandpaper, and emery cloths. Before the power is turned on again, be sure the wheels are locked in place.

(7) Clean dust collectors daily. The suction of collectors should be strong enough to eliminate flying dust particles which might get into the eyes.

(8) Sleeves should be rolled up to the elbow so that they will not be caught in the machinery.

d. Rough Rounder

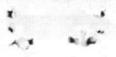
(1) Check safety guards on cutting knives before using the machine to see that they are secured in the proper position.

(2) Never make adjustments or repairs when the switch is in the "on" position.

e. Sanders

(1) Keep hoods down on sanders and heel resting canes at all times.

(2) Be sure that sanding wheels are securely locked after replacing sandpaper.



SAFETY REGULATIONS, VEHICLE SAFETY SEATBELTS

1. General

a. Traffic accidents continue to be the greatest cause of death and disability and a large number of the deaths and disabling injuries are attributed to persons not utilizing vehicle safety seatbelts.

b. The Commanding General has directed that all persons operating or riding as a passenger in an automobile or commercial vehicle will utilize available restraint devices.

c. All exchange vehicles meet the automobile or commercial type vehicle criteria, therefore, all persons operating or riding as a passenger in an Exchange vehicle will "buckle up" prior to an Exchange vehicle being put in motion.

d. The Exchange Inspectors and Safety Manager will conduct continuous inspections of Exchange vehicles to insure compliance with the seatbelt instructions and report violators to the Exchange Officer.

