



MISSOURI DEPARTMENT OF AGRICULTURE

*WEIGHTS, MEASURES, &
Consumer Protection*

Weights, Measures, and Consumer Protection Update



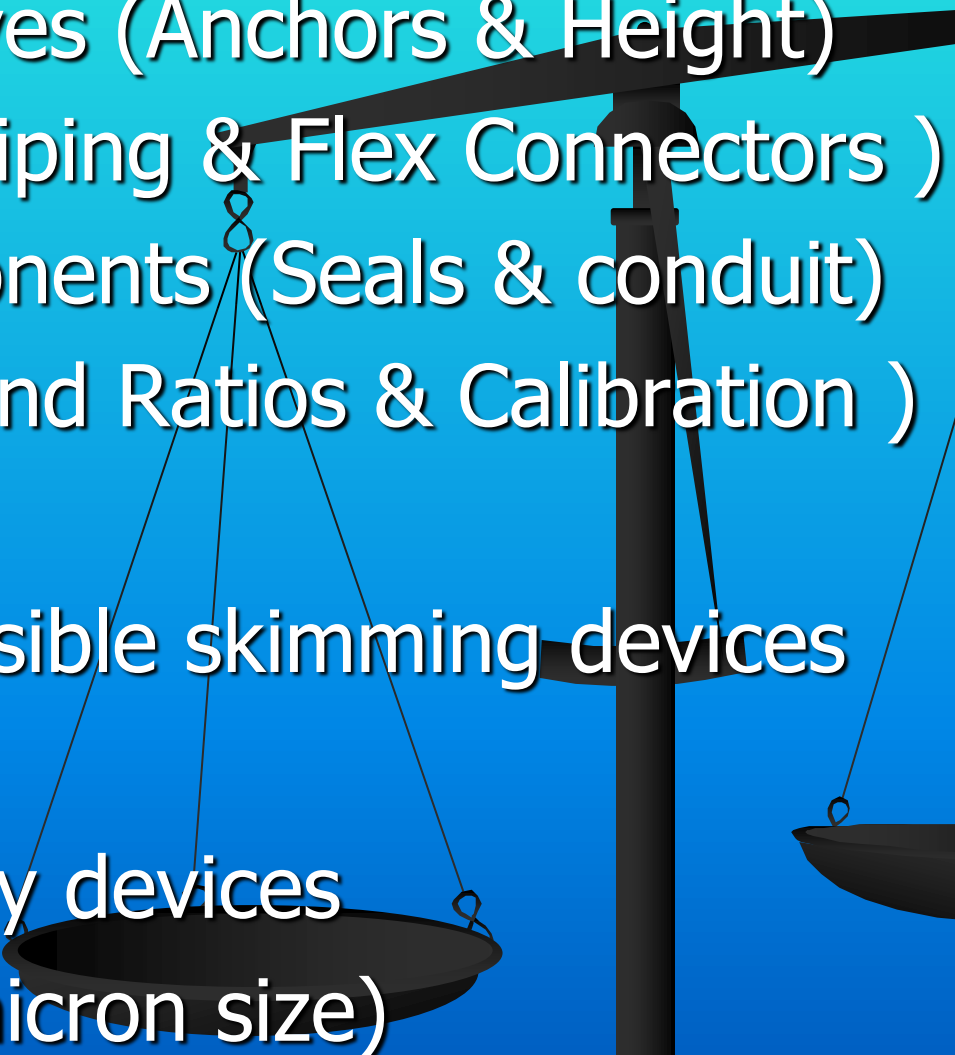
THE IMPORTANCE OF WEIGHTS AND MEASURES





We are not just about tanks

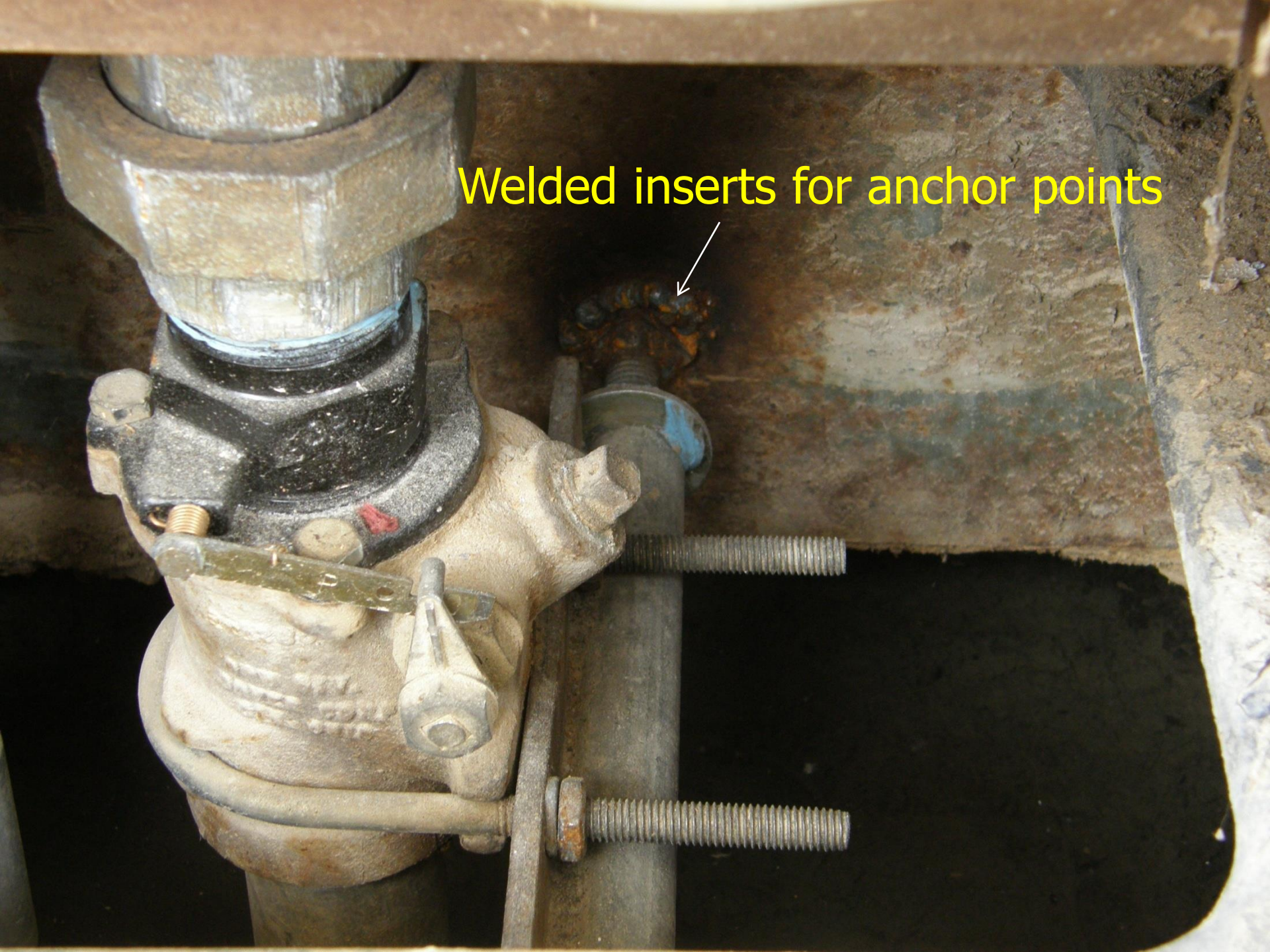
Dispenser Inspection

- Fire/Impact valves (Anchors & Height)
 - Swing Joints (Piping & Flex Connectors)
 - Electrical components (Seals & conduit)
 - Audit trails (Blend Ratios & Calibration)
 - Leaks
 - Presence of possible skimming devices
 - Pre-pay nozzles
 - Hose break away devices
 - Proper filters (micron size)
- 

A close-up photograph of a mechanical valve assembly. The valve body is a light-colored, possibly brass or cast iron, component with several threaded ports and a handle. Below the valve body, a metal bracket is installed, which is secured to a horizontal steel beam. The bracket's anchor points are in contact with the smooth surface of the steel beam. The surrounding area is dark and appears to be an industrial or utility setting.

Bracket installed below the valve body
With anchor points contacting smooth steel

Welded inserts for anchor points



Test port extends above shear point



Shear point

Universal anchors with extended all-thread



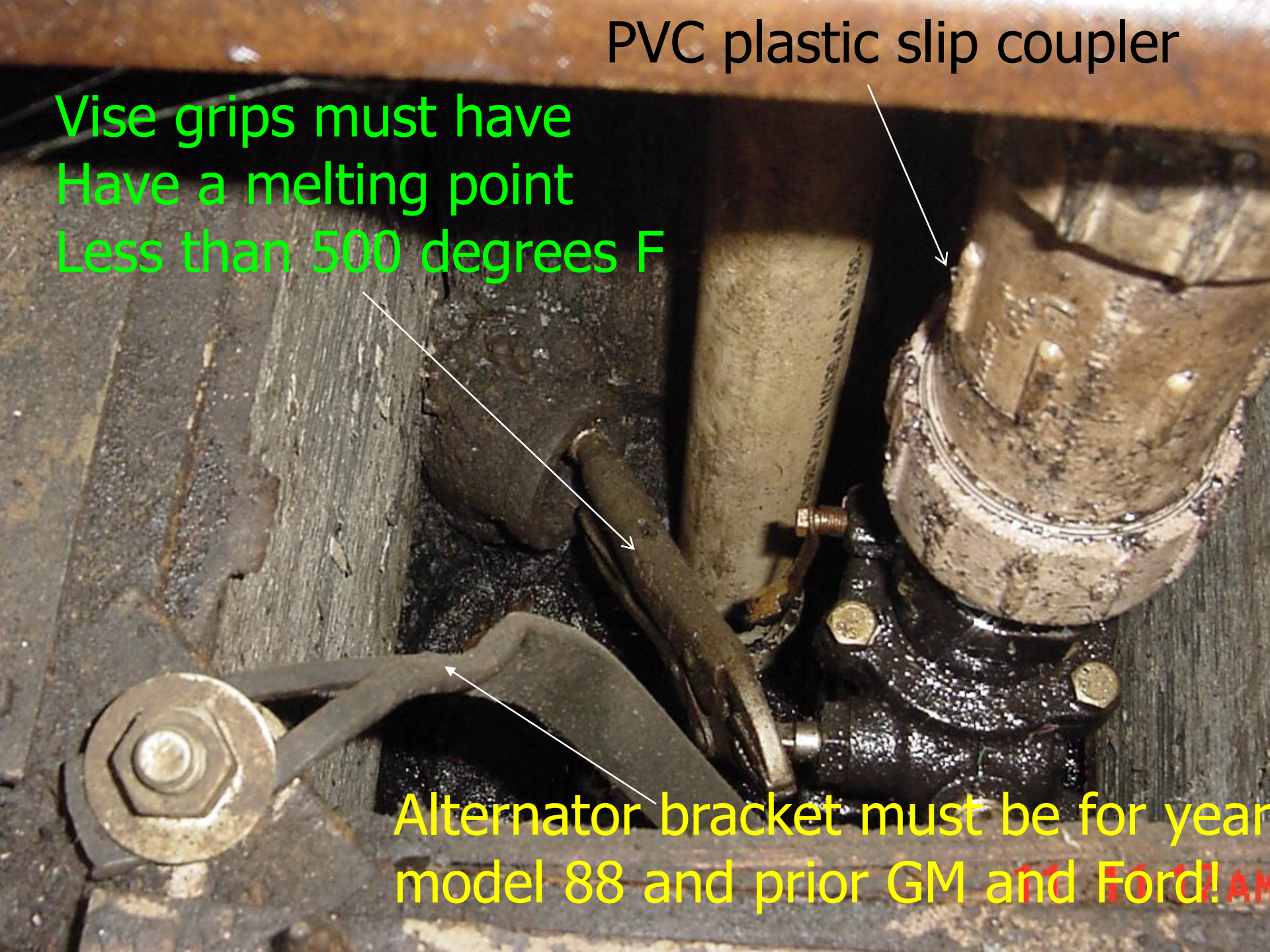
A single piece of 3/8 all-thread spanning the entire sump



PVC plastic slip coupler

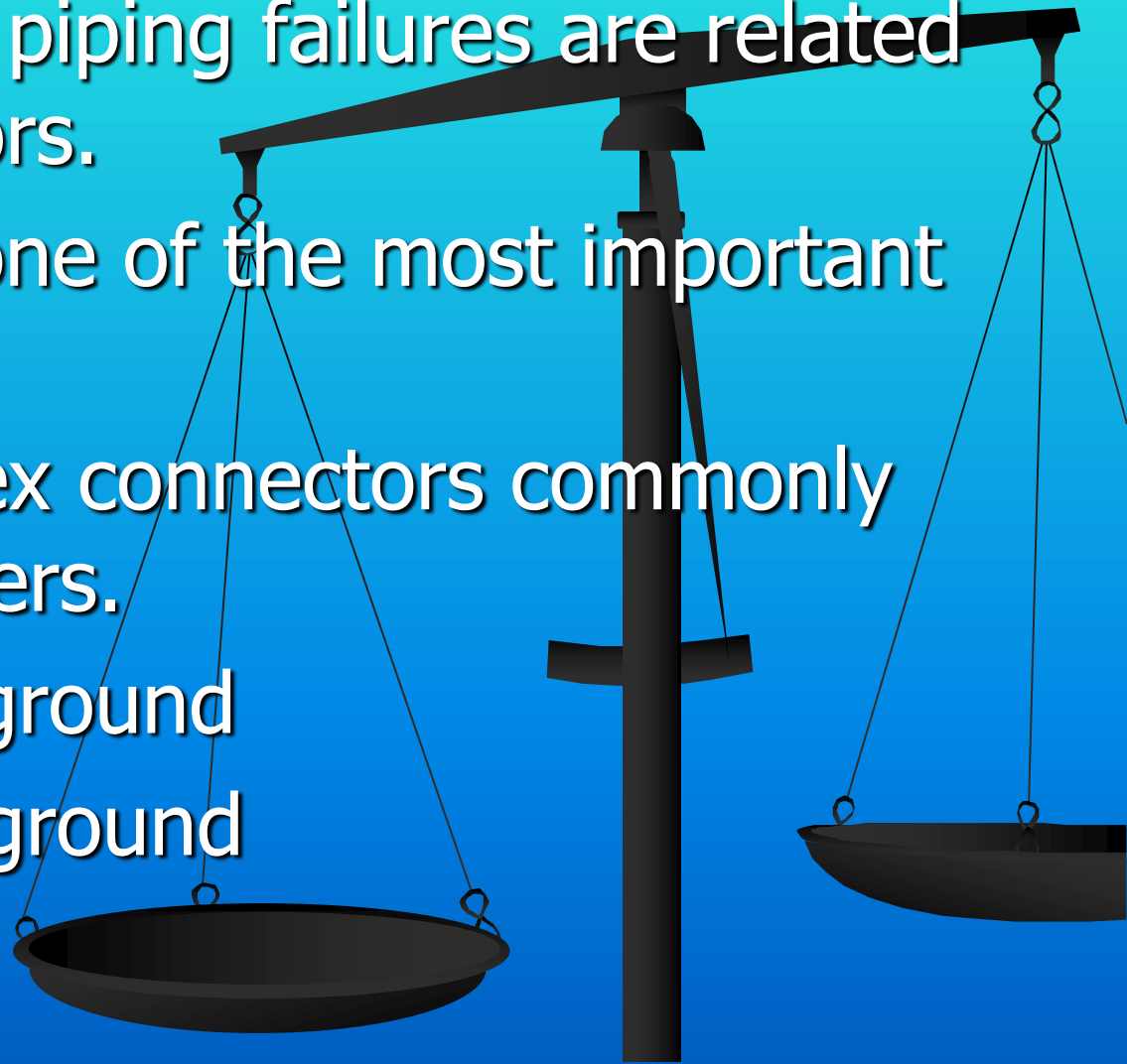
Vise grips must have
Have a melting point
Less than 500 degrees F

Alternator bracket must be for year
model 88 and prior GM and Ford!



Flex Connectors

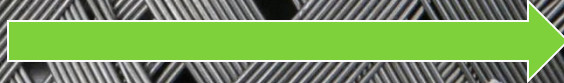
- The majority of piping failures are related to flex connectors.
- Bend radius is one of the most important factors.
- Two types of flex connectors commonly used in dispensers.
- UL listed underground
- UL listed aboveground





LISTED
18R8
UNDERGROUND FLEXIBLE CONNECTORS
FOR PETROLEUM PRODUCTS, ALCOHOL
AND ALCOHOL-GASOLINE MIXTURES
50 PSI MAX

Rubber liner



Flex piping

DO NOT PUT WRENCHES ON HOSE:

Wrenches must only be used on the *hex* of the fitting.

DO NOT OVERBEND THE CONNECTOR:

The installed radius of the connector must be larger than the minimum bend radius defined in *the table below*.

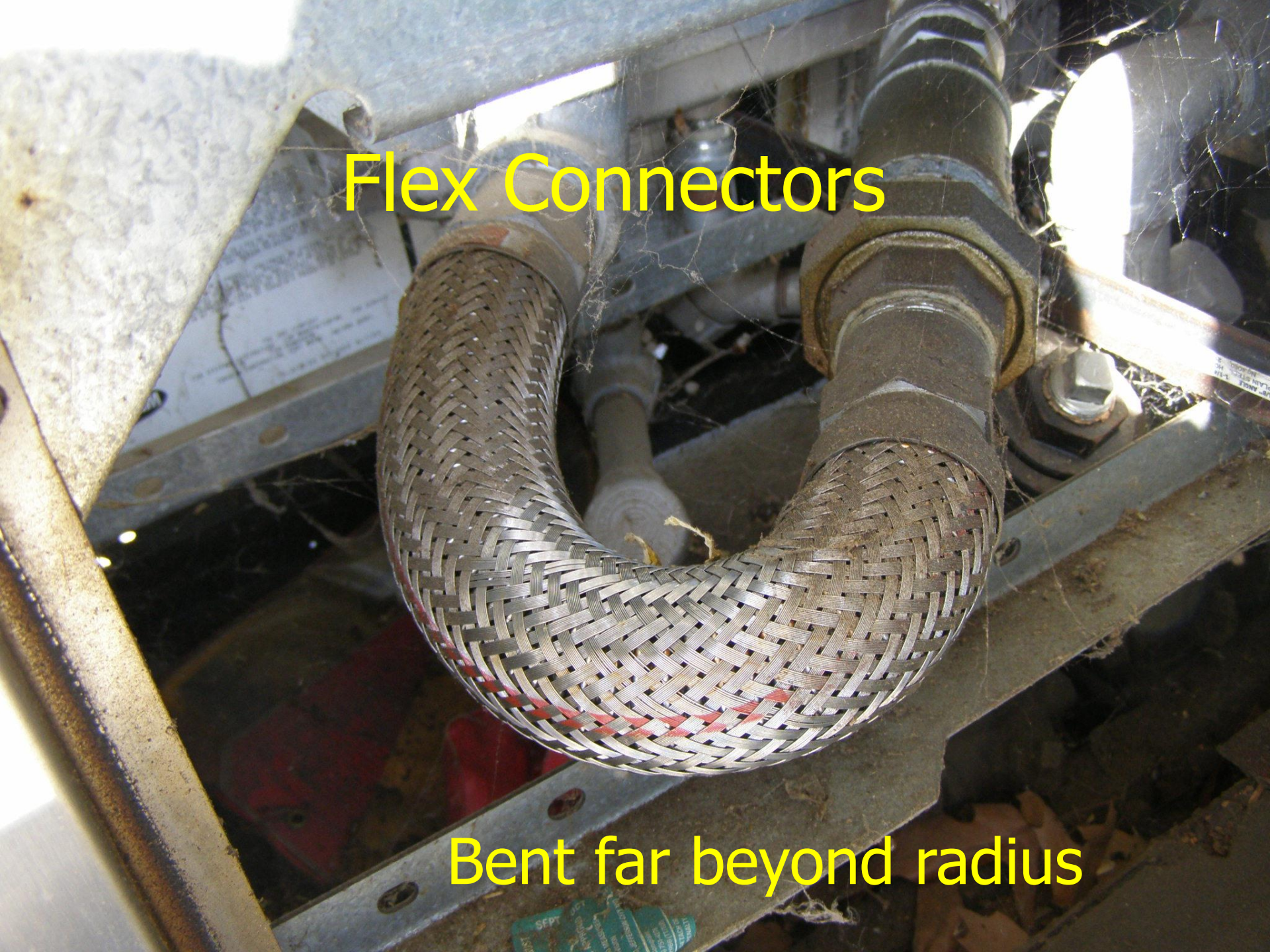
DO NOT ABUSE CONNECTOR:

...acing the connector in contact with other
... service

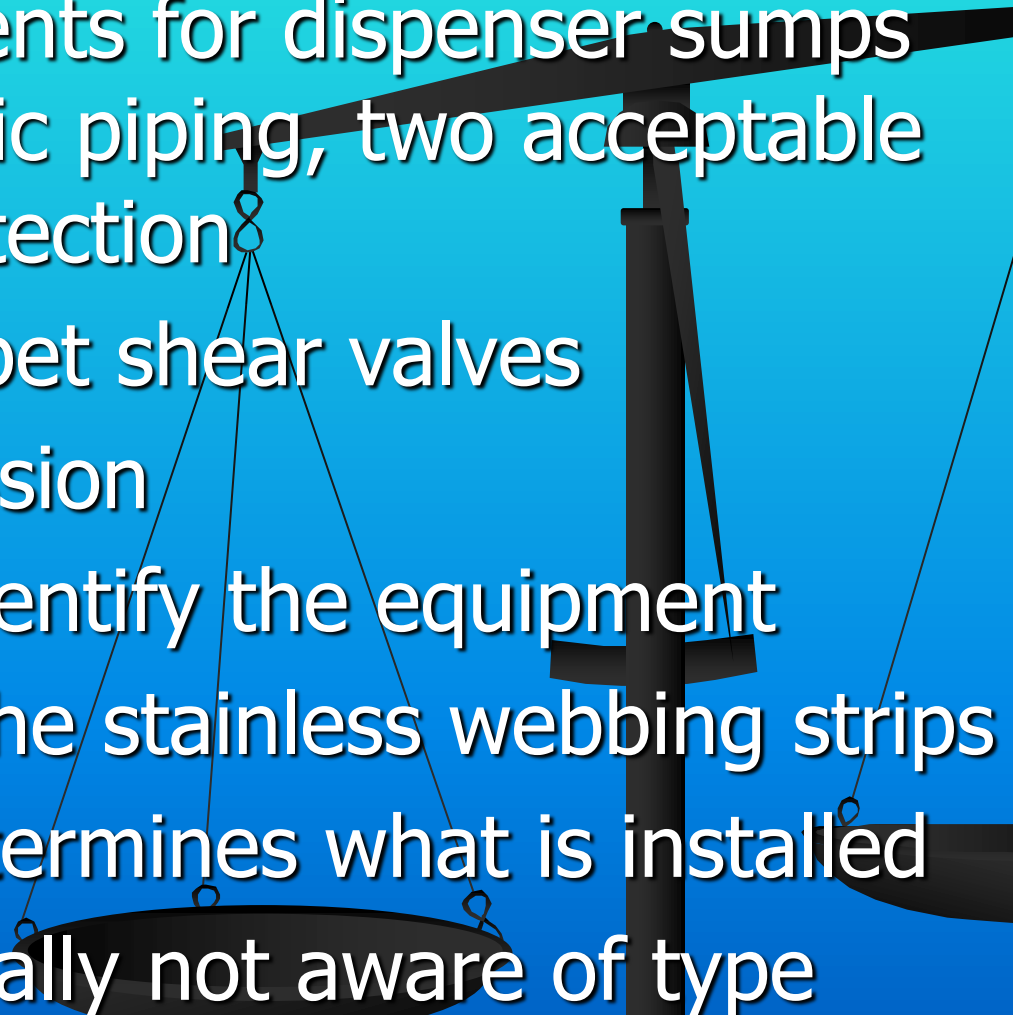
Flex piping

Flex Connectors

Bent far beyond radius

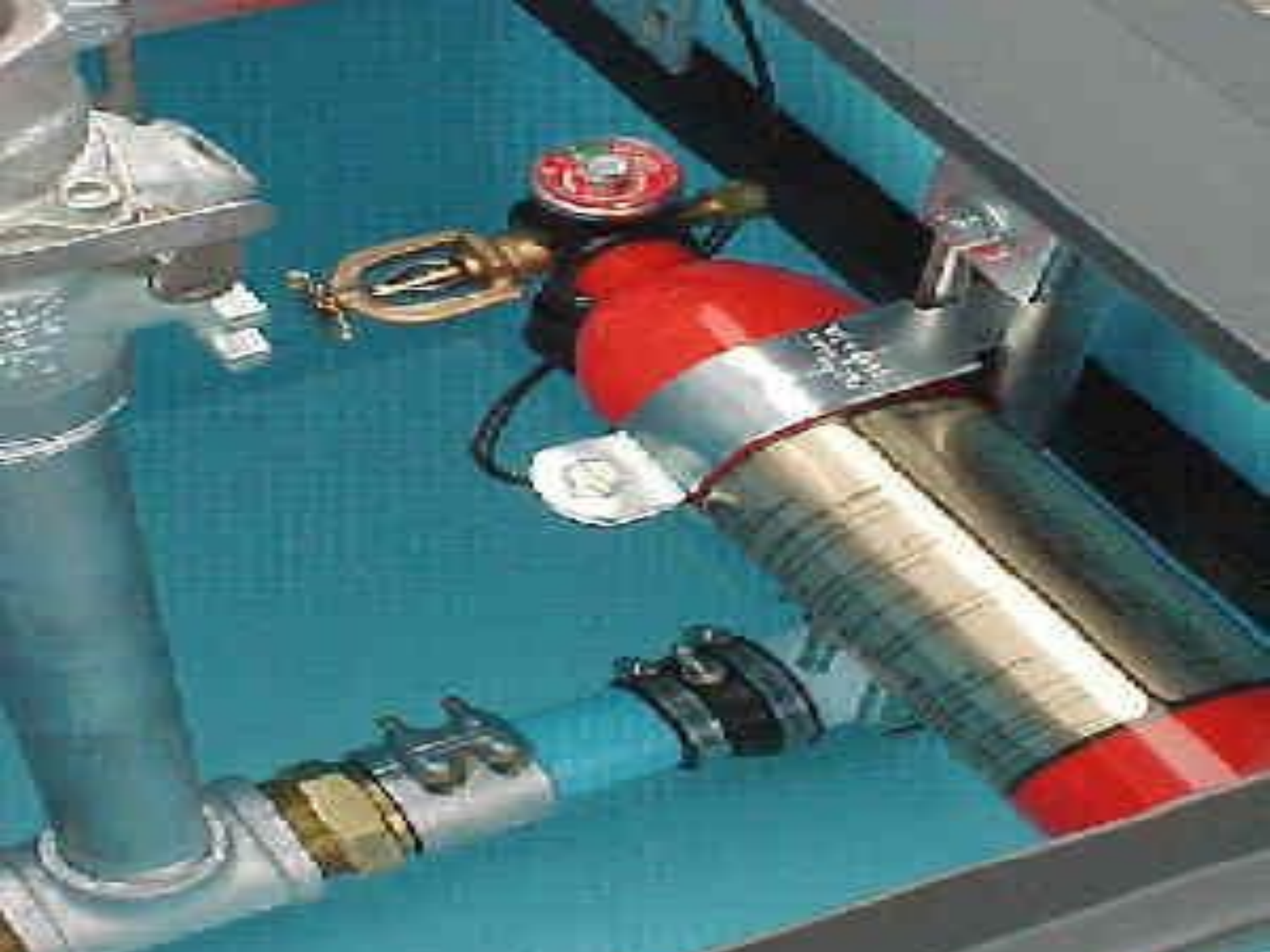


Flex Connectors

- NFPA requirements for dispenser sumps with non-metallic piping, two acceptable methods of protection
 - #1 Double poppet shear valves
 - #2 Fire suppression
 - Being able to identify the equipment
 - Look between the stainless webbing strips
 - Cost usually determines what is installed
 - Owners are usually not aware of type
- 

NON-METALLIC IN SUMPS







(Cyprinus carpio)

Piping breakaway to supply dispenser
on marina dock.

Leaks

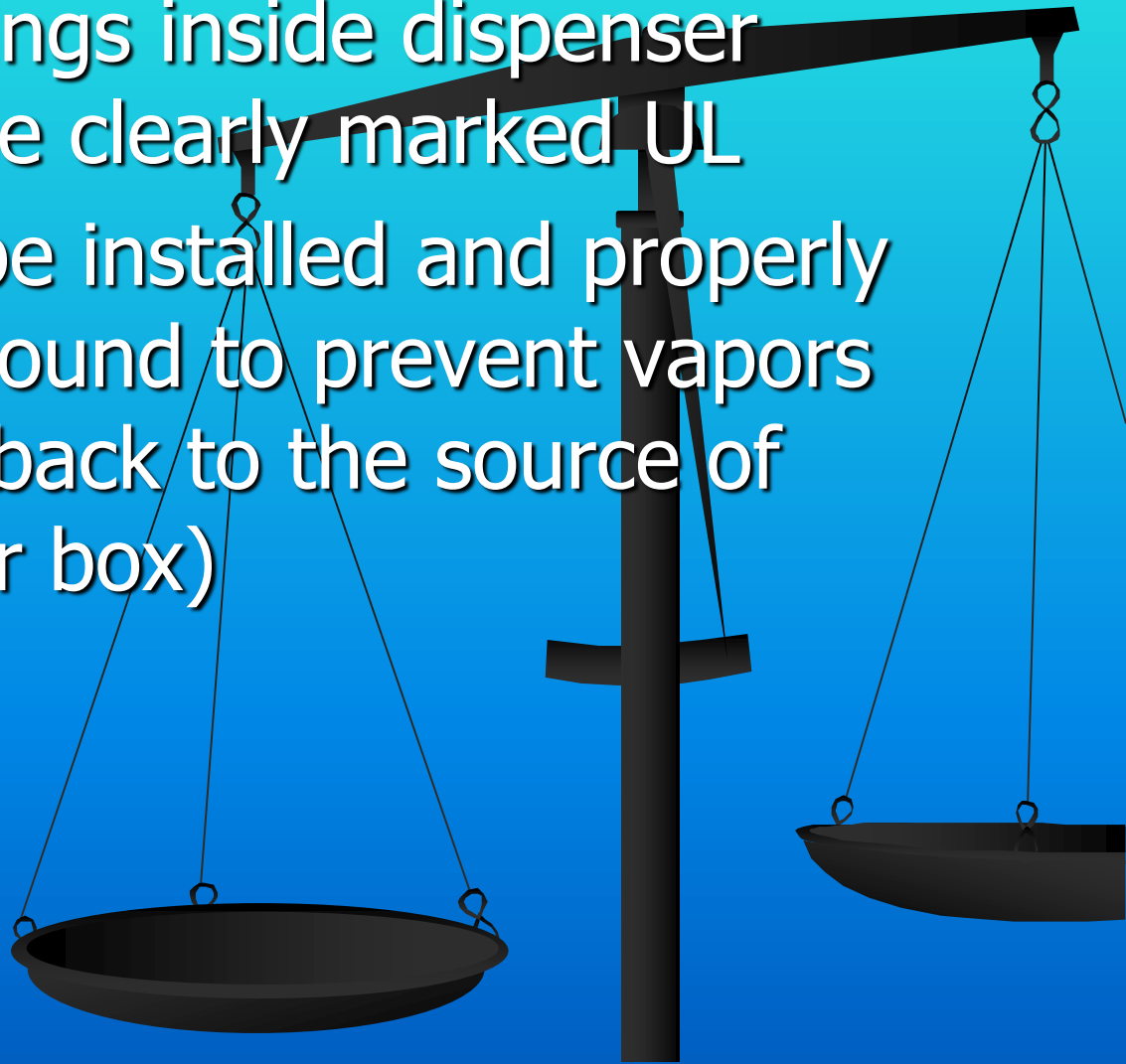


1,700 gallon releas



Electrical

- All electrical fittings inside dispenser cabinets must be clearly marked UL
- Seal offs must be installed and properly filled with compound to prevent vapors from migrating back to the source of ignition (breaker box)



A photograph showing a row of electrical conduits. The conduits are white and have various fittings and seals. A green arrow on the left points to the top of the first conduit. Another green arrow on the left points to a hole in the second conduit. The text 'Electrical Problems' is overlaid in yellow at the top, and 'Paint blocks flame paths' is overlaid in yellow at the bottom.

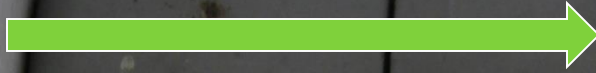
Electrical Problems

Paint blocks flame paths

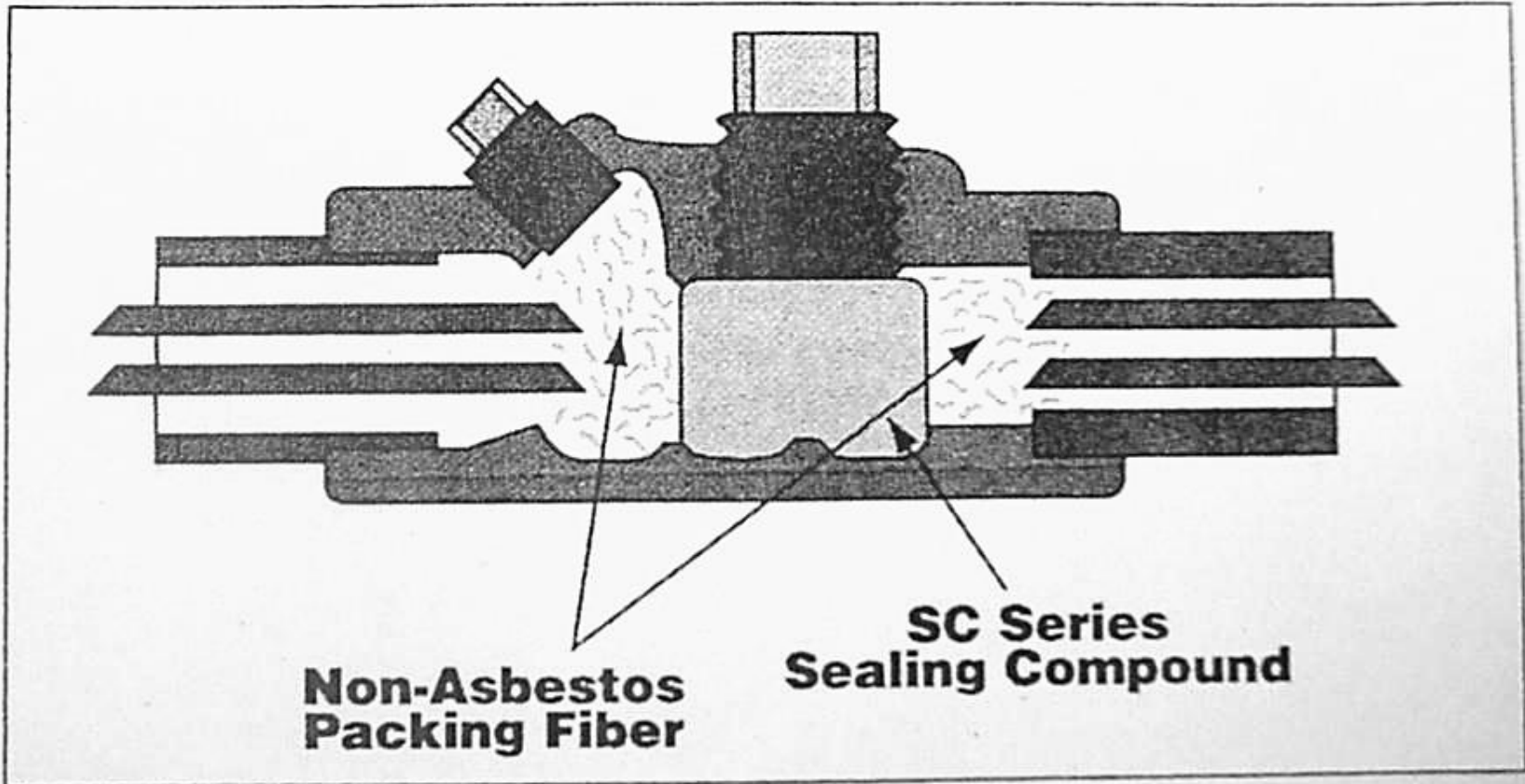
Cracked
seal off



Cracked junction box cover

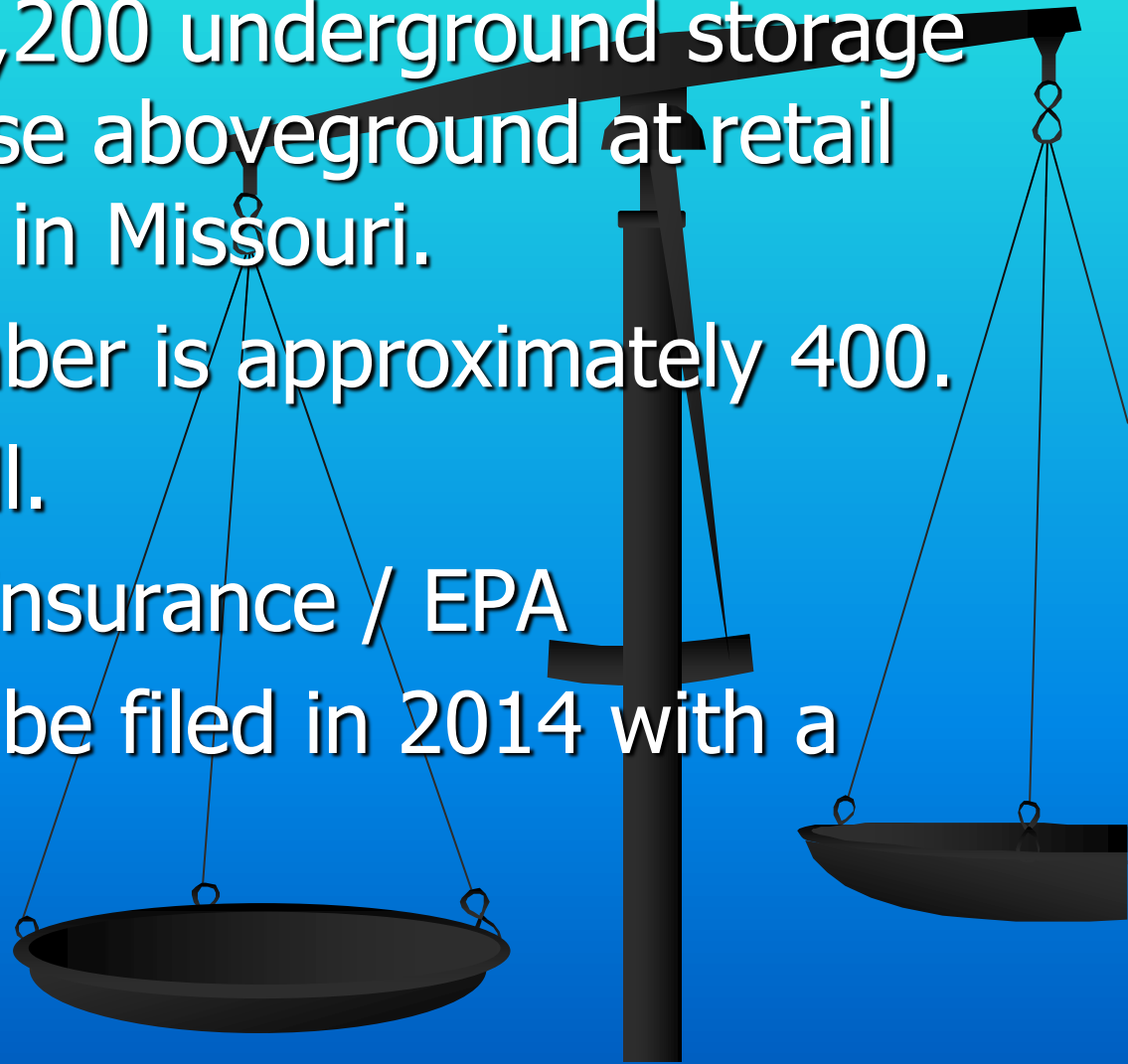


#1 violation



UST'S as AST'S

- In 1989, over 1,200 underground storage tanks were in use aboveground at retail fueling facilities in Missouri.
- Today that number is approximately 400.
- Grandfather is ill.
- Enforcement / Insurance / EPA
- Possible rule to be filed in 2014 with a sunset date.



800 TANKS HAVE BEEN
REMOVED FROM SERVICE
FOR THE FOLLOWING
REASONS

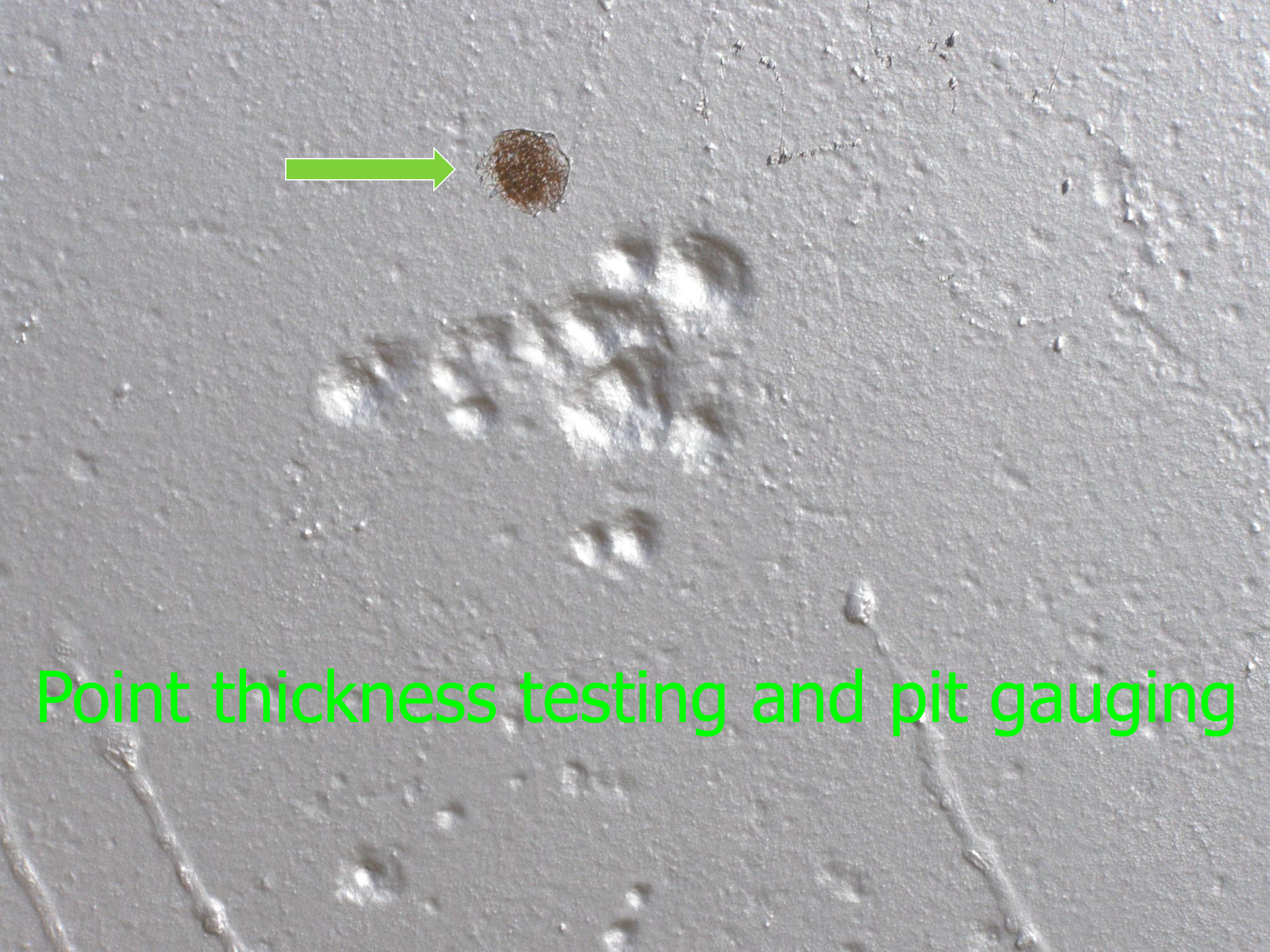




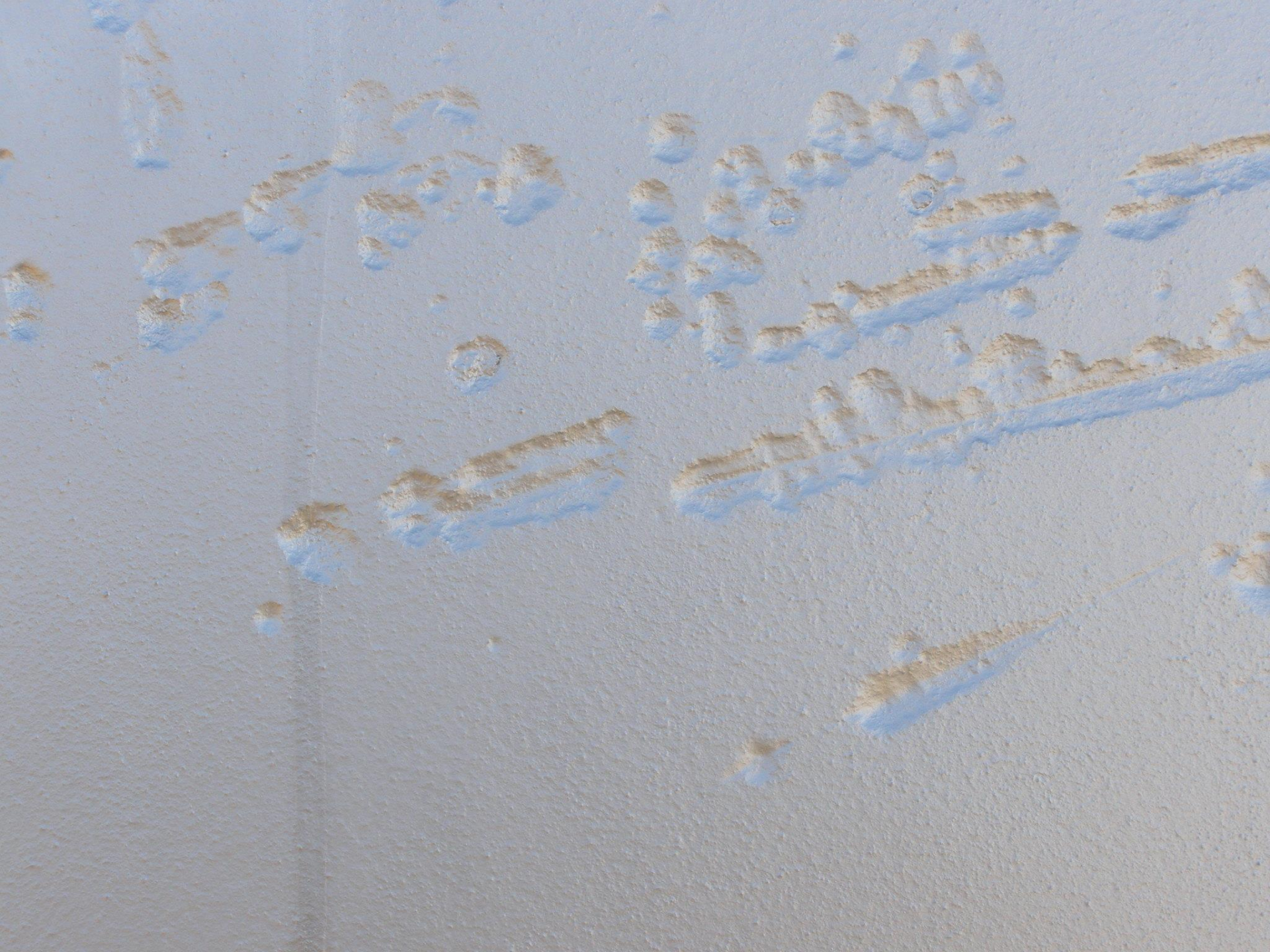
Saddle mount man way

Deep pitting





Point thickness testing and pit gauging



UNLEADED

NASA PHOTOS

Lunar landing site







1002
1200

1002
1200

UNLEADED
5,300 GAL.

1300 GAL.

GAL.





(2014)The entire tank must be painted a light reflective color.



Motor oil inspection





- POWER
- HEALTH
- HEAT 1
- HEAT 2

AUTOMATED
KINEMATIC
VISCOMETER



VACUUM
ADJUST



PRESSURE
ADJUST




Kinematic Viscometer





Cold crank simulator



e 10W40

e 10W40

2014 ?

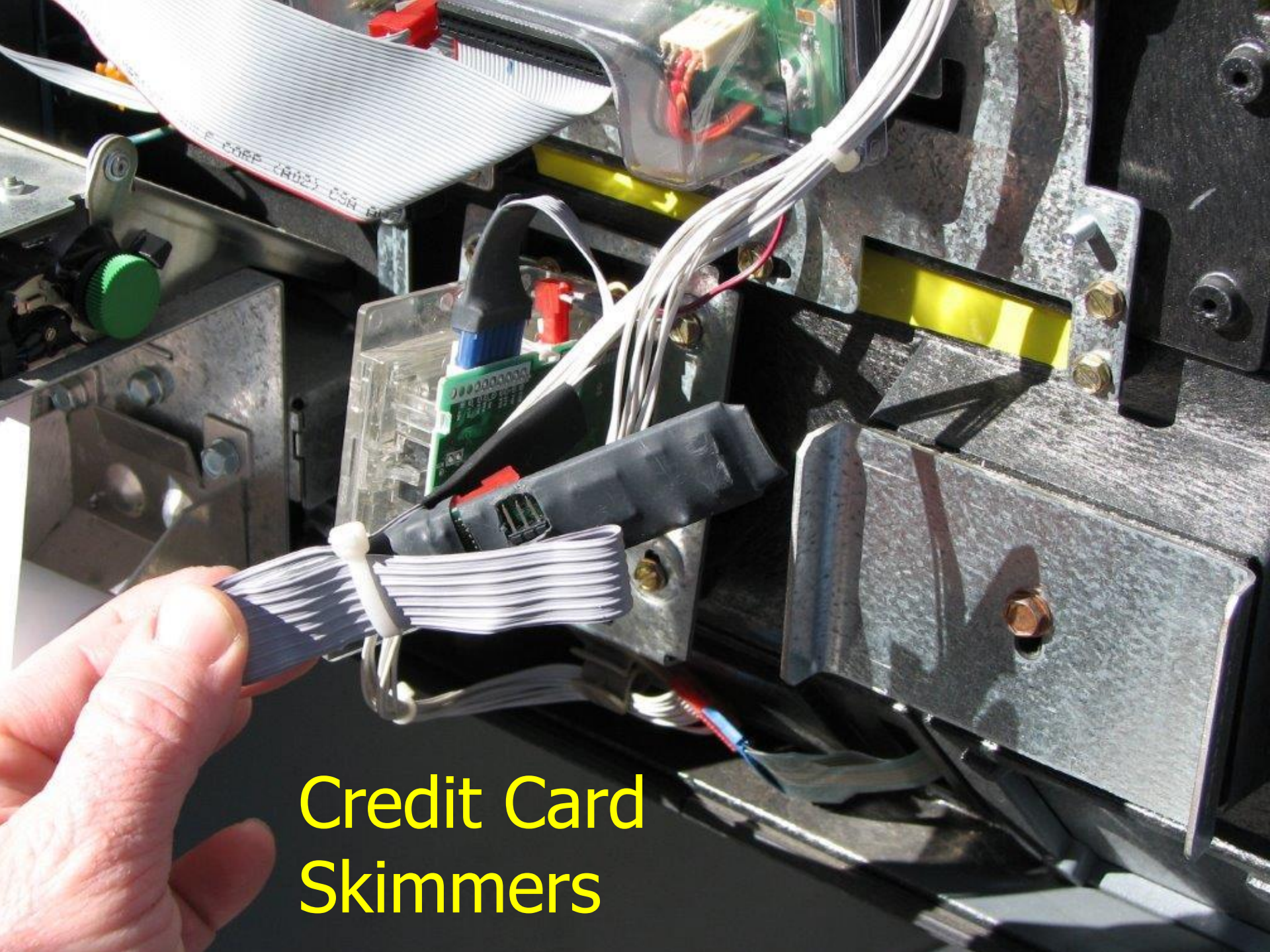
Motor oil storage tanks



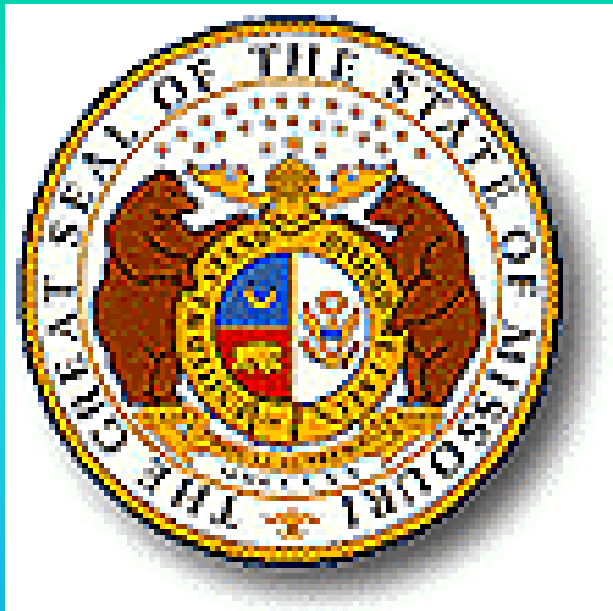
Financial Responsibility For AST'S



19 3:39 PM



Credit Card
Skimmers



Thank you

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