

# **Public Works**

# INNOVATIVE SOLUTIONS TO PUBLIC WORKS PROBLEMS

1986 INTERNATIONAL PUBLIC WORKS  
CONGRESS AND EQUIPMENT SHOW  
NEW ORLEANS, LOUISIANA  
SEPTEMBER 20 - 25, 1986

Before I begin, I would like everyone to be sure and get a manual. Turn to the last page, on the inside of the back cover is a good place to list any questions, which you might like to ask during our question & answer period, at the end of the slide presentation.

# **R.G. "RON" AGUIRRE**

Vice President, Training and Technical Services

ULTRASEAL INTERNATIONAL, Inc.  
Los Angeles, California

My name is RON AGUIRRE  
and I am the Vice President of Training and Technical services  
for ULTRASEAL INTERNATIONAL in Los Angeles, Calif.

I have 18 years of experience, working with a Tire Sealing Compound  
and I have seen the best and the worst.

Last year I was invited to participate in a Tire Survivability Program  
for The Department of Defense. This program is still running and  
preliminary results indicate that a Tire Sealing Compound is the  
answer to extending the tires life, during peace time and in combat  
situations.

In 1978, I was instrumental in establishing a Tire Maintenance  
program throughout the Naval Sea-Bee system. Eliminating 85% of  
their tire repair and maintenance problems. Today new mechanics  
entering the Sea-Bees are trained on the installation and procedures  
of a Tire Sealing Compound.

I have worked with many city, county and state fleet managers,  
assisting in establishing a Tire Preventative Maintenance Program to  
eliminate premature tire failure.

# SOLUTION TO PREMATURE TIRE FAILURE SLASHING TIRE COSTS

Establishing a positive "Tire Preventative Maintenance Program"  
utilizing advanced technology Tire Sealing Compounds.

## TOPICS

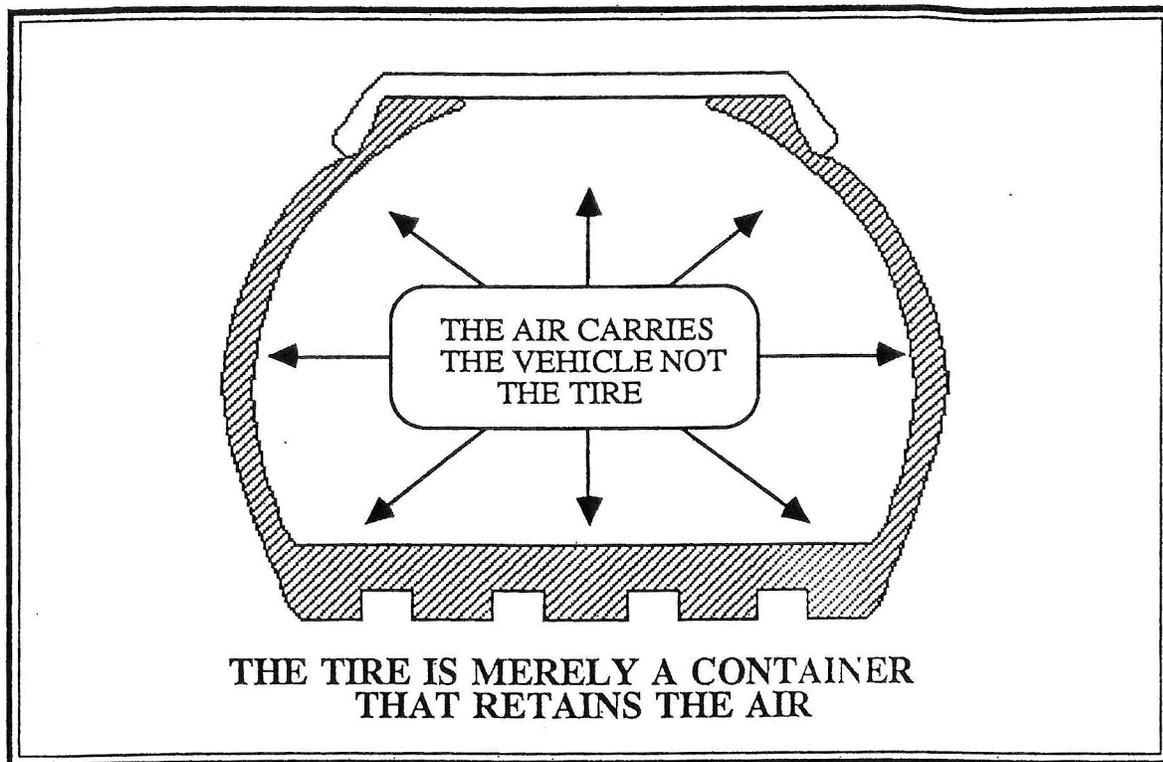
Reasons for Premature Tire Failure  
Tire Sealants vs Tire Sealing Compounds  
Establishing generic Tire Sealant specifications that will assure  
Preventative Maintenance for your fleet.

PREMATURE TIRE FAILURE is primarily caused by underinflation  
which creates HEAT.

HEAT plays a major role in the manufacture of a tire and then  
reverses its roll and becomes a tires worst enemy.

This presentation shall establish what causes premature tire failure  
and includes facts from many tire experts.

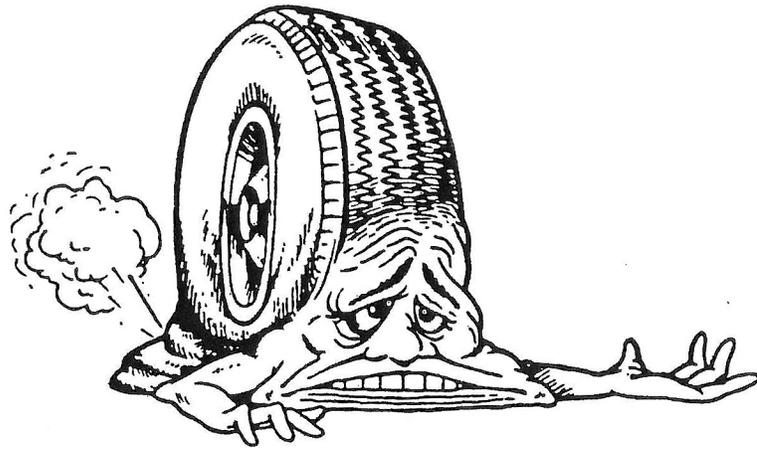
A Tire Preventative Maintenance Program shall be outlined utilizing  
a Tire Sealing Compound, the only proven cost effective answer to  
eliminating premature tire failure.



A vehicles load is carried and supported by the air within the tire.

Without the air or sufficient amount of the required air pressure, the vehicle is either totally immobile or severely handicapped.

The tire is merely a container which is supposed to hold the air pressure. -



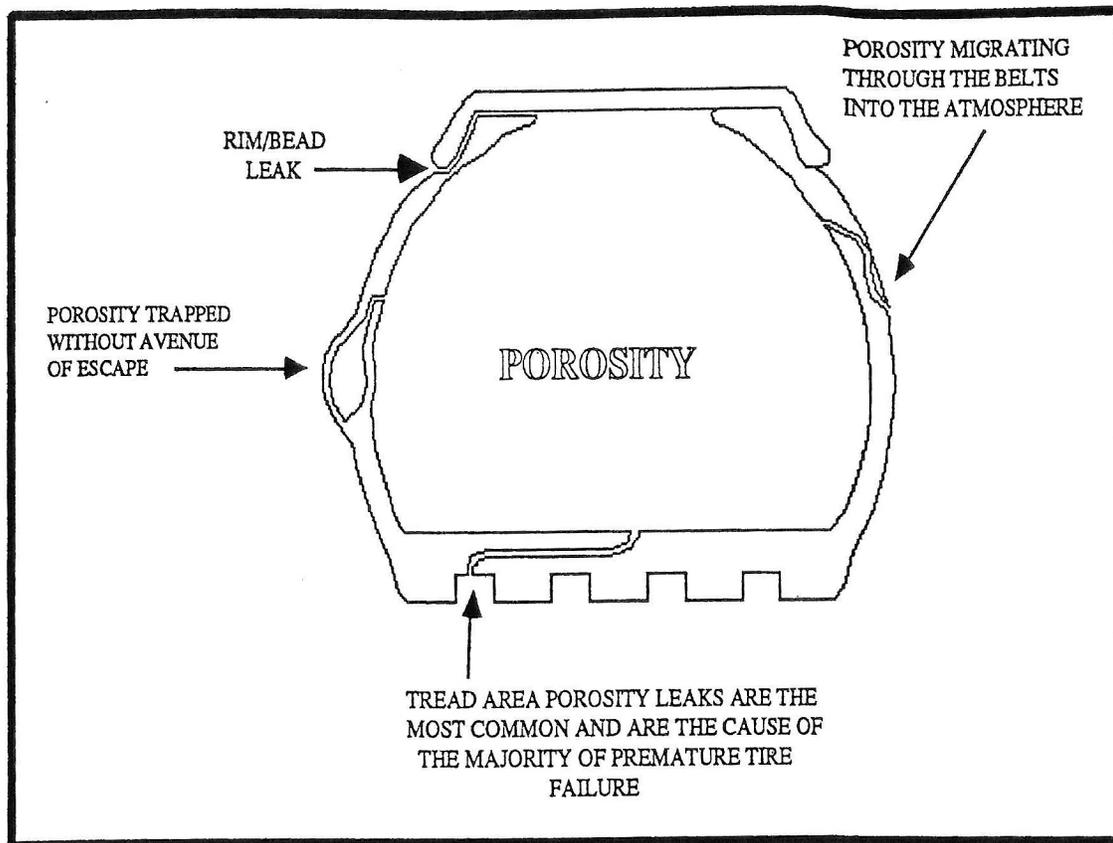
**UNDERINFLATION  
A MAJOR PROBLEM**

Underinflation a major problem

**Since the development of pneumatic tires, there hasn't been a tire produced that will continually maintain 100% of the tire's required air pressure.**

Since the development of pneumatic tires, there hasn't been a tire produced that will continually maintain 100% of the tires required air pressure.

A good Tire Sealing Compound will transform any pneumatic tire into a Self-sealing tire.



Where does the air go ? Porosity and Heat are the real killers!

while bead leaks, wheel leaks, valve stem leaks or a puncture will cause a tire to lose air pressure. Porosity continues to be the major problem facing all tires, including recaps.

Porosity, are imperfections within the tire's construction that cannot stop minute bubbles of air from working their way through the walls of the tire.

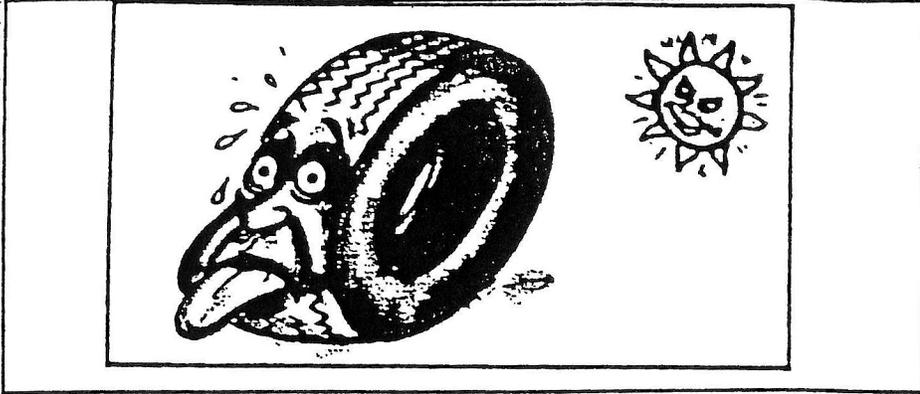
Through this loss the tire's air pressure becomes inadequate, causing the tire to overheat and weaken structurally, resulting in premature tire failure.

when the air bubbles are trapped within in the walls of the tire, without an avenue of escape. As seen on the left side of this slide.

The bubbles will expand from the heat generated within the tire.

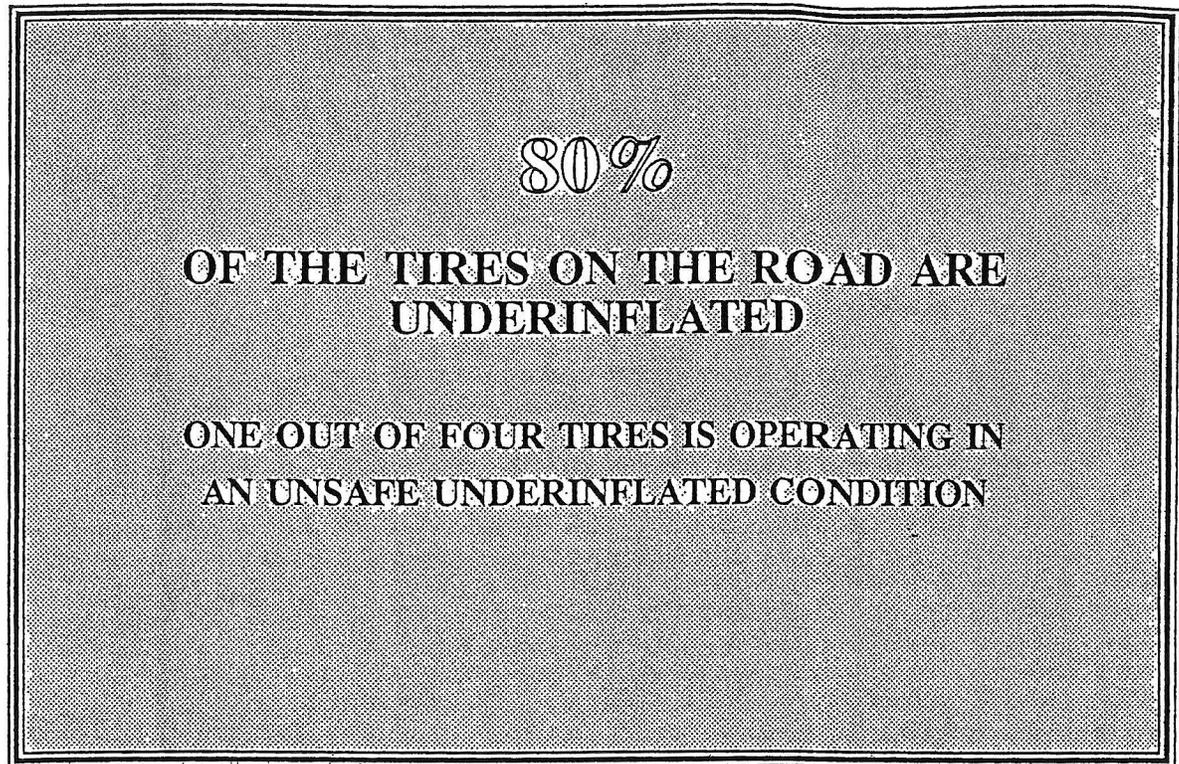
The constant repeated heat cycles cause the tire's casing and belts to begin separating, resulting in premature tire failure.

EXCESSIVE HEAT



THE REAL KILLER

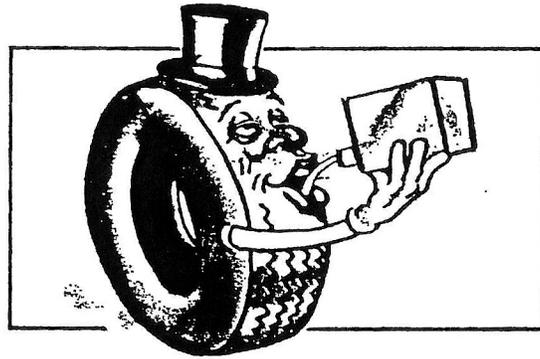
Excessive heat is the real Killer



The Tire Manufacturers, Department of Transportation and many tire experts, have made extensive studies on the effects of air pressure on tires.

These groups concur that 80% of the tires on the road are Underinflated, and that one out four tires is operating in an unsafe underinflated condition.

They concluded that a mere four pounds of underinflation in a passenger car tire is considered to be a severe hazard.



## UNDERINFLATION INCREASES FUEL CONSUMPTION

An underinflated tire increases the rolling resistance of the tire on the road surface.

This additional rolling resistance will cause the engine to work harder, at an increased r.p.m, thereby using more fuel.

## WHAT DOES IT COST TO MAINTAIN AIR IN YOUR TIRES ?

The chart below establishes annual costs to provide a weekly air pressure maintenance program for your tires. The annual figures have been calculated on an arbitrary labor figure of \$10.00 per hour. Tire Manufacturers and DOT state that tires should be routinely checked every week.

### TRUCKS

It requires an average of 5 minutes per tire to service an average truck tire.

	Per week	Per year	Annual costs
4 Wheeled truck.....	20 min.....	17.33 hrs. ....	\$ 173.30
6 Wheeled truck.....	30 min.....	26.00 hrs. ....	\$ 260.00
10 Wheeled truck.....	50 min.....	43.33 hrs. ....	\$ 433.30
18 Wheeled truck.....	90 min.....	78.00 hrs. ....	\$ 780.00

### PASSENGER CARS AND PICK UPS

It requires an average of 3 minutes per tire to service an average passenger car tire.

	Per week	Per year	Annual costs
passenger car or pick up...	12 min.....	10.24 hrs. ....	\$ 102.40

It has been calculated, that to operate a fleet of vehicles, the annual tire cost is second only to the cost of fuel.

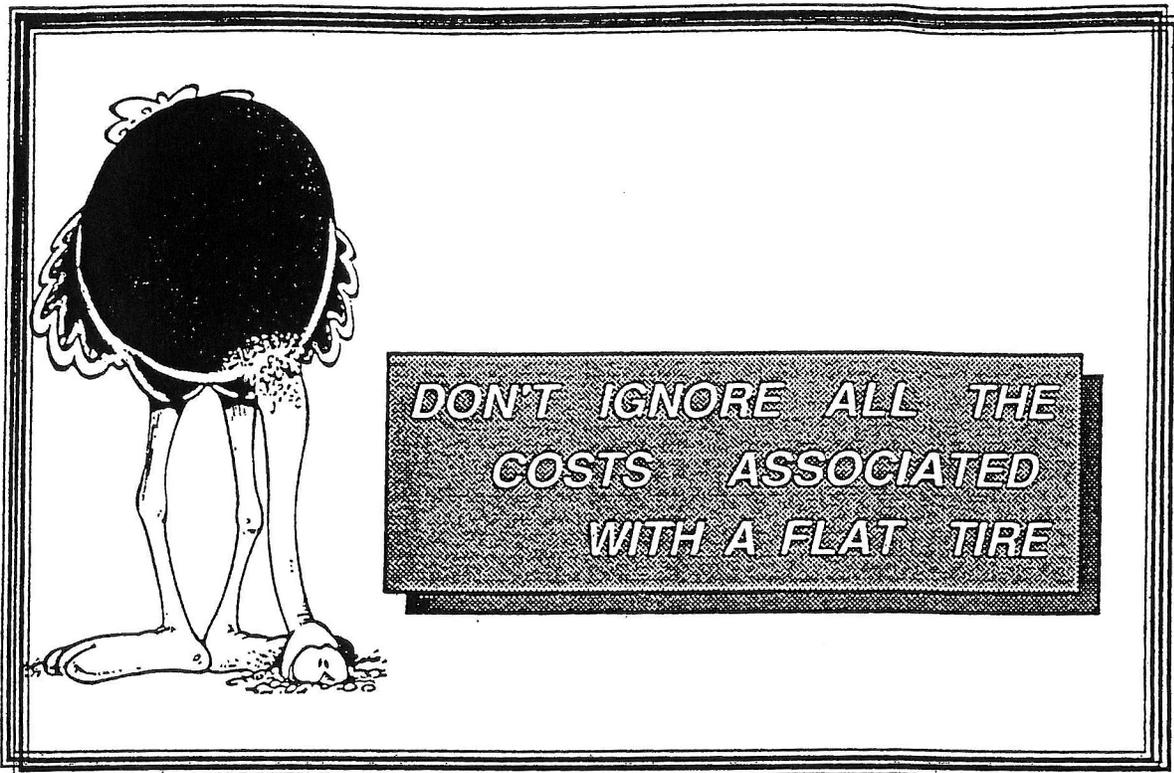
Preventative Maintenance has become a way of life for every fleet operator. Yet a Tire Preventative Maintenance Program is virtually nonexistent, rarely implemented or is improperly maintained.

In the past the only tire maintenance, was to schedule an air pressure check. This is very costly and difficult to administer.

This slide shows annual costs to maintain a weekly air pressure adjustment.

Today with the advancement of modern technology, there are highly sophisticated Tire Sealing Compounds that have been proven to provide a Tire Preventative Maintenance Program that is extremely cost effective and provides a margin of safety from potential blowouts.

A proven Tire Sealing Compound can eliminate 75% to 95% of your annual tire maintenance and related costs.



### FLATS, DOWNTIME AND SERVICE CALLS.

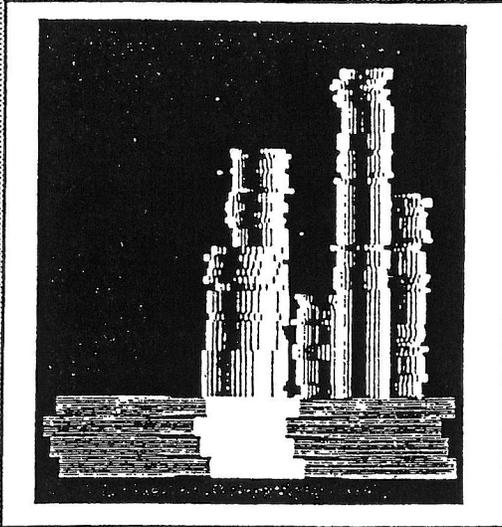
I would like to give you a brief rundown on what a flat tire may cost.. I have worked with many Fleet Managers and have been told countless times that a flat repair only costs \$6.00 to \$10.00 on a passenger car and \$12.00 to \$25.00 on a truck.

Well that's true if you bury your head in the sand.....

In reality, downtime, service calls, lost labor and equipment time plus those tires that were ruined from being driven flat.

Are definitely considered as TOTAL TIRE COSTS.

NO AMOUNT OF MONEY  
CAN REPLACE



LOST TIME

No amount of money can replace lost time

Total tire costs, per flat tire, normally run upwards  
into hundreds of dollars.



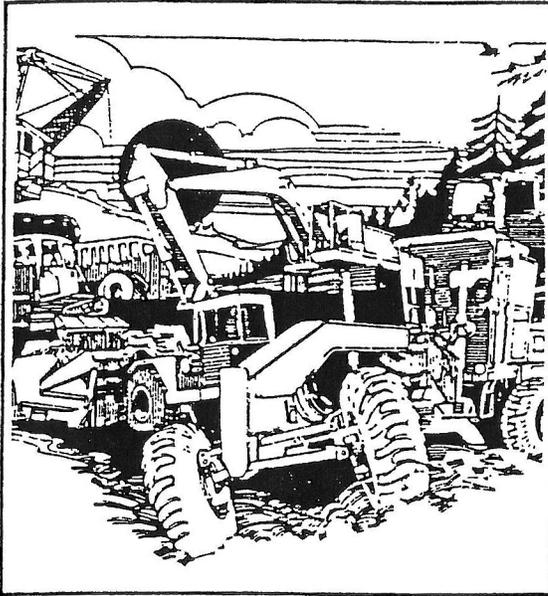
**A FLAT TIRE IN THE  
AGRICULTURE INDUSTRY  
AVERAGES  
\$50.00 TO \$150.00**

**DOWNTIME COSTS CAN  
ADD UP TO A  
TREMENDOUS LOSS**

**As an example,**

A farmer harvesting tomatoes or other perishable produce, could lose his whole crop if harvesting isn't completed on time.

A Tire Sealing Compound would be protecting the equipment at all times from flat tires.



**BUSES - TRUCKS  
DELIVERY VEHICLES  
CONSTRUCTION EQUIP.**

**FOR EVERY FLEET  
TIME IS A MAJOR  
ECONOMIC FACTOR**

If you operate a fleet of buses, trucks, or delivery vehicles that must get from point A to point B by a specific time,

Or you are in charge of a Fleet that is responsible for construction equipment, street sweepers, rubbish trucks or police equipment,

all of which must complete a schedule or duty shift each day, then time..... does become a major economic factor.



**EMERGENCY VEHICLES**

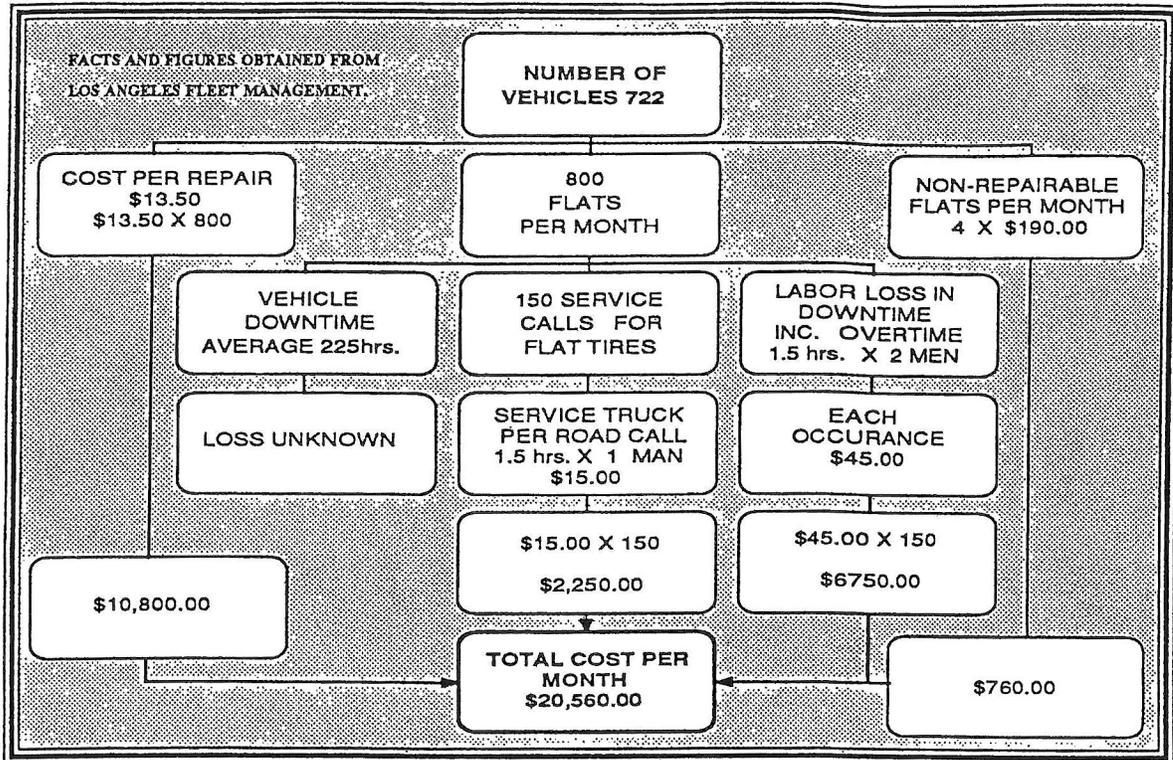
**POLICE**

**FIRE**

**AMBULANCES**

**MUST GET TO THEIR  
DESTINATION ON TIME**

It is evident that tires play a major role in every fleet. Downtime, service calls, and lost labor and equipment time caused by a flat tire can cost a great deal more than the purported simple tire repair or replacement.



### The monthly average tire costs to operate 722 rubbish trucks

The city of Los Angeles furnished data which was used to calculate annual savings that would be gained by utilizing a proven Tire Sealing Compound

#### Total Tire Costs !

were taken into consideration in establishing this report. This slide shows a complete breakdown on how the total cost per month had been determined.

Note! That 722 vehicles, average 800 flats per month and no figures were given on equipment downtime or tube replacement caused by a flat tire.

Total costs for maintaining 722 rubbish trucks average \$20,560.00 dollars per month.

**FLAT AND REPAIR REDUCTION**

**MONTHLY COSTS \$20,560.00 X 12 MONTHS = \$246,720.00**  
ALLOWING ONLY 70% EFFECTIVENESS  
FOR A TIRE SEALING COMPOUND

**\$246,720.00 LESS 30% = \$172,704.00**

**ANNUAL FLAT AND REPAIR SAVINGS**  
**\$172,704.00**

EQUIPMENT LOSSES FROM DOWNTIME..... UNKNOWN  
TUBE LOSSES FROM FLATS..... UNKNOWN

Annual flat and repair costs are calculated

Allowing a 30% margin factor

Annual flat and repair cost,

would average \$172,704.00

## FUEL SAVINGS

(PER VEHICLE)

350 TRUCKS IN USE PER DAY (*approx. 50% of fleet*)

EACH VEHICLE DRIVES..... 100 MILES PER DAY (*average*)

EACH VEHICLE AVERAGES..... 5 MPG

By maintaining air pressure a Tire Sealing Compound will provide an overall increase in fuel of approx.....5%

(*saving one gallon of fuel per day, per truck*)

SAVING one gallon X 350 Vehicles = 350 gallons of fuel per day

350 gallons per day X 20 working days per month = 7,000 gallons

7,000 gallons per month X 12 months = 84,000 gallons annually

84,000 gallons saved X \$1.10 per gallon = \$92,000.00

**ANNUAL FUEL SAVINGS.....\$92,000.00**

## FUEL SAVINGS

This slide indicates that the fleet average is 5% underinflated, which would be only 4 lbs.

Eventhough experts state that 80% of the tires on the road are underinflated.

This evaluation takes into consideration only 50% of the Los Angeles rubbish fleet.

The city will conservatively save \$92,000.00 dollars in fuel alone.

## ANNUAL SUMMARY

FLAT AND REPAIR REDUCTION.....	\$ 172,704.00
FUEL SAVINGS.....(5% savings).....	\$ 92,400.00
TIRE SAVINGS..... (10% add. life).....	\$ 70,000.00

**TOTAL ANNUAL SAVINGS**  
**\$335,104.00**

When the City of Los Angeles received the report, fleet management estimated that the report was very conservative.

Only 70% effectiveness was calculated, in utilizing a Tire Sealing Compound that has a proven track record of eliminating 75% to 95% of the tire problems

Then in calculating fuel savings and additional tire life only 50% of the fleet was included.

A Proven Tire Sealing Compound will provide a minimum of \$335,104.00 in annual savings, for the life of the tire.

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# "TIRE LIFE EXTENTION"

THESE ARE THE FACTS

TIRE SEALING PRODUCTS

These sealants are the most effective and most economical  
because they do not seal the tire but the puncture and the  
sealing compound.

They seal the tire in the most gentle and effective of a product.

They separate the two sides of the puncture and seal the  
puncture.

Whatever you will do, they will seal the puncture and the  
puncture the sealant specifications.

Only when you are assured of purchasing a reliable product that is  
safe to use.

The manual, therefore, has been given, will address on the puncture  
and sealant.

That now it would like to discuss what to expect from a  
"tire sealing compound" that meets specifications,  
and has been given a "real situation" for the sealant.

## WHAT TO EXPECT FROM A TIRE SEALING COMPOUND

- The ability to maintain proper air pressure
- The ability to meet all Safety Requirements.
- The prevention of rust and corrosion (*wheels & steel belts*)
- The preservation of the tires inner casings (*oxidents & ozidents*)
- The ability to permanently seal punctures.
- The ability to withstand shear & stress forces created in a tire.
- To withstand the ever changing hot and cold environment.
- Not to create an imbalance or steering problem.
- The ability to provide protection for the life of the tire.

*(continued)*

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*(continued)*

- Must be compatible with all recapping methods.
- Major repairs must be able to be accomplished after application,
- Watersoluble, can be washed out of the tire leaving no residue.
- The ability to become impervious to rain, snow or mud after curing.
- The cured repair must be as flexible as the tire itself.
- Reliable Tire Sealing Compound's will not mask potentially dangerous situations. A good Tire Sealing Compound is formulated to permit air to bleed if the wound is too large, the inner casing badly damaged or an excessive amount of belts are cut or weakened. The Compound will bleed and allow air to escape from the potentially dangerous wound in a controlled manner, thereby providing a tremendous element of safety from potential blowouts.

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**DO NOT EXPECT ANY  
TIRE SEALING COMPOUND  
TO PERFORM MIRACLES**

- There isn't a product known that will balance and seal tires properly in trucks or cars.
- A Tire Sealing Compound cannot correct an existing imbalance, out of round or suspension problem.
- A Tire Sealing Compound reduces adverse effects from heat and cold, but will not prevent damage from extreme exposure.
- A Tire Sealing Compound cannot produce an effective seal on a tire that is old and has lost its elasticity.

*(continued)*

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- Due to many variable situations in tires and puncturing objects, do not expect 100% effectiveness of any compound. Most tire failures when investigated, will not be the result of a compound that failed.
- Expect approximately 75% effectiveness in tube type tires due to tube imperfections and especially the squirming action between the tire and the tube, generated at high speeds. Slow moving tube type tires will obtain a higher protection rate (*approx.85%*).

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# HOW TO ESTABLISH TIRE SEALANT SPECIFICATIONS

SAFETY  
COMPATIBILITY  
RELIABILITY

## How to establish Tire Sealant Specifications

The three main ingredients in obtaining a Tire Sealing Compound are SAFETY, COMPATIBILITY and RELIABILITY, which will provide the results that you expect from a product called a tire sealant.

Many fleet operators have been burned by unethical tire sealant merchants. These con artists promise that their magical potion will prevent every known problem that could occur to a tire.

Yet, they can't offer any documentation that will prove their claims.

Beware of any manufacturer or salesman that will not provide proof of compliance to the Tire Sealant Specifications.

A complete set of Tire Sealant Specifications has been enclosed in your manual.

I would like to thank everyone for attending.

This concludes the slide presentation, I will now open the floor for questions.