

An Environmental Tractor Cab System Integrity Test

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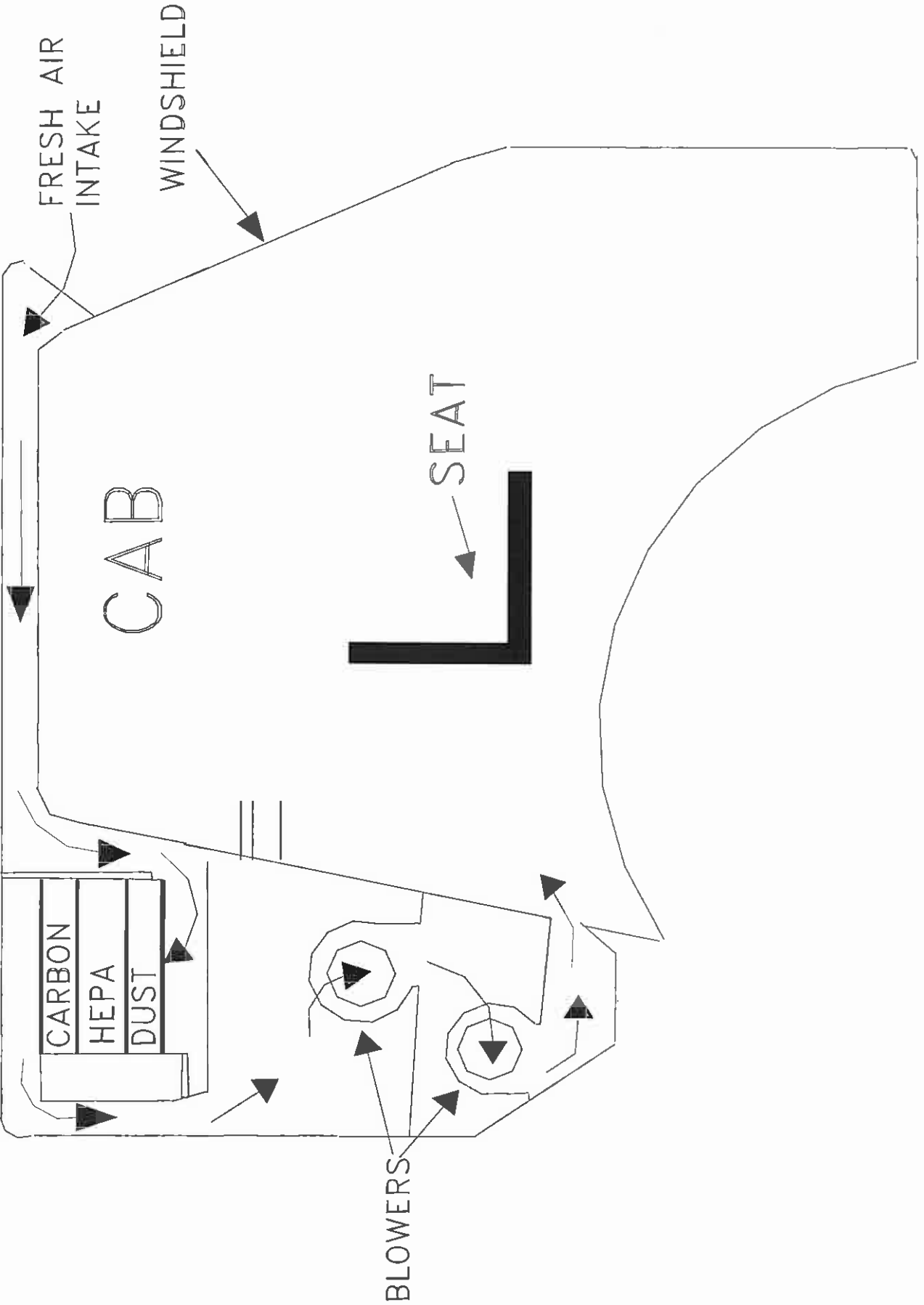
NIOSH Collaborators

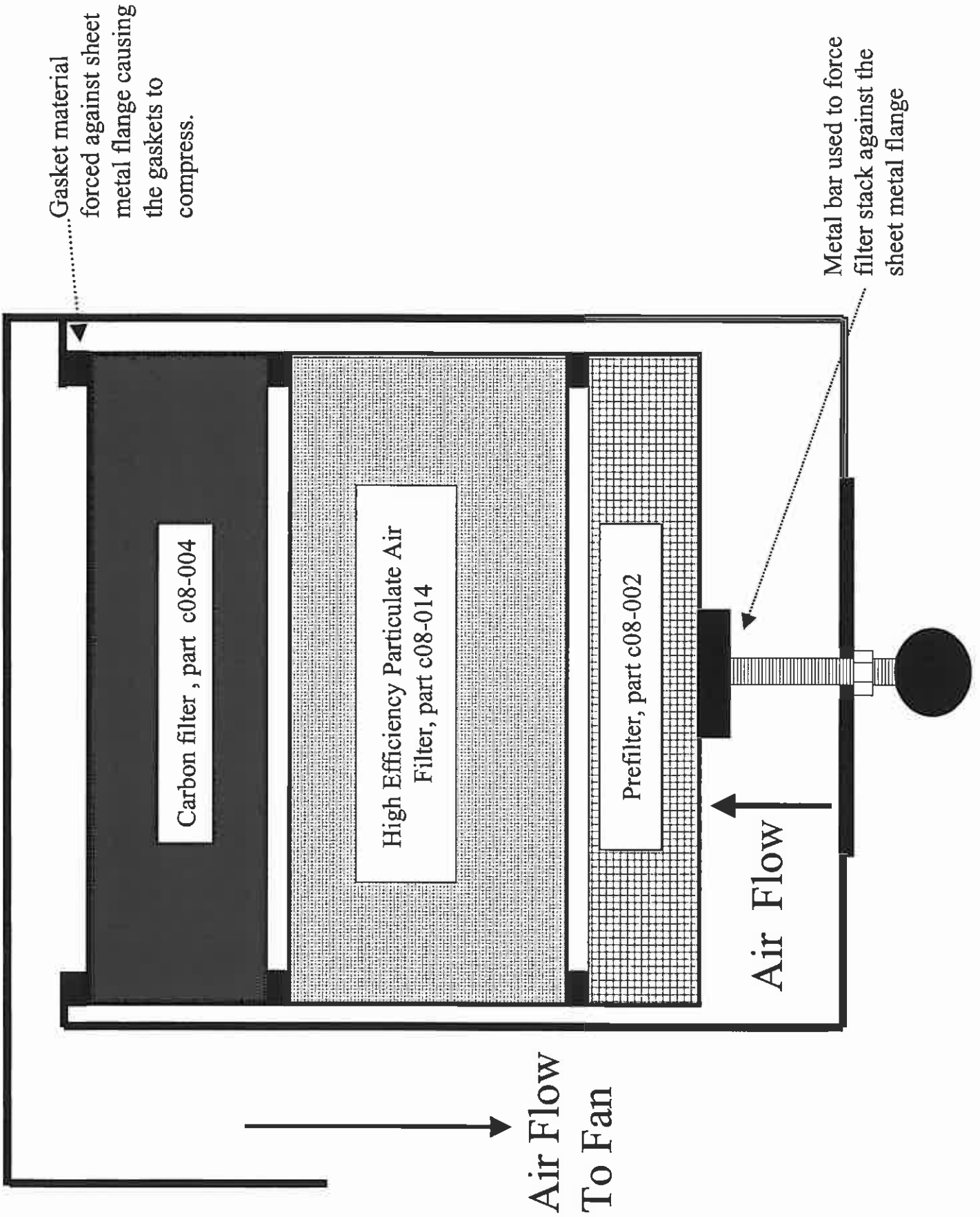
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Collaborators

- John Deere
- Nelson Manufacturing
- San Joaquin Helicopter







Gasket material forced against sheet metal flange causing the gaskets to compress.

Metal bar used to force filter stack against the sheet metal flange

Air Flow To Fan

Air Flow

Carbon filter , part c08-004

High Efficiency Particulate Air Filter, part c08-014

Prefilter, part c08-002

CARBON FILTER
C08-004

MUST BE REPLACED EVERY
FOUR MONTHS OR 1 YEAR,
WHICHEVER COMES FIRST
(SEE OPERATOR'S MANUAL)

NEILON MFG. CO., INC.

HEPA FILTER
C08-014

MUST BE REPLACED EVERY
FOUR MONTHS OR 1 YEAR,
WHICHEVER COMES FIRST
(SEE OPERATOR'S MANUAL)

NEILON MFG. CO., INC.

CAUTION!

FOR ALL PROTECTIVE RESPIRATORS
ALLOWING THIS FILTER TO BE
REMOVED FROM THE RESPIRATOR
WILL BE DANGEROUS TO YOUR LIFE



CAUTION

ALL PROTECTIVE RESPIRATORS
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7/3/11
1500
2273 hrs

7/3/11
1500
2273 hrs

7/3/11
1500
2273 hrs

American Society of Agricultural Engineers

ASAE Standard S525

Performance Specifications for Tractor Cabs

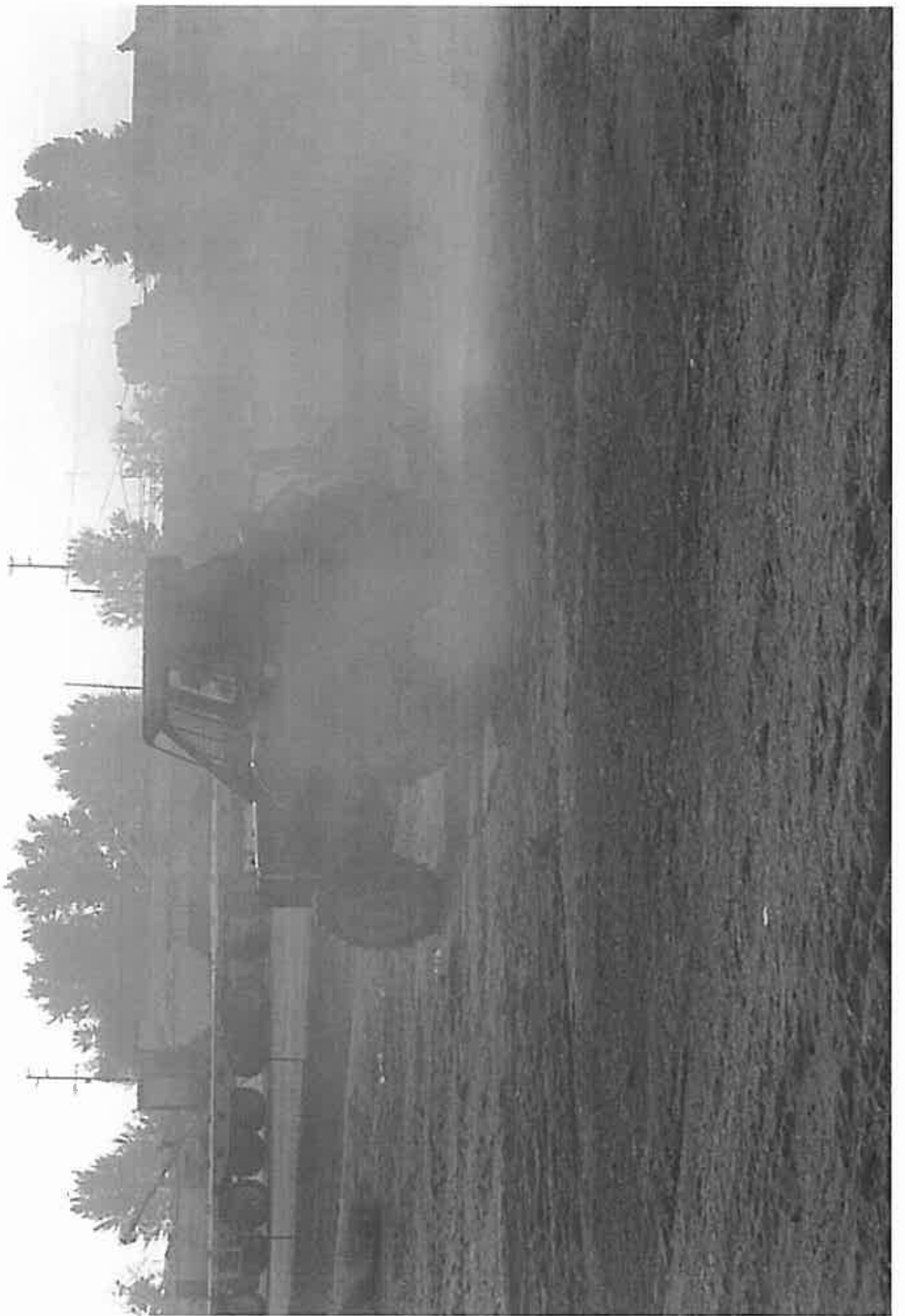
- 50-to-1 reduction of ambient aerosol
- 2-4 μm
- Using optical particle counters
- Intake filters greater than 99.0% efficient against 3.0 μm particles

American Society of Agricultural Engineers

ASAE Standard S525

Performance Specifications for Tractor Cabs

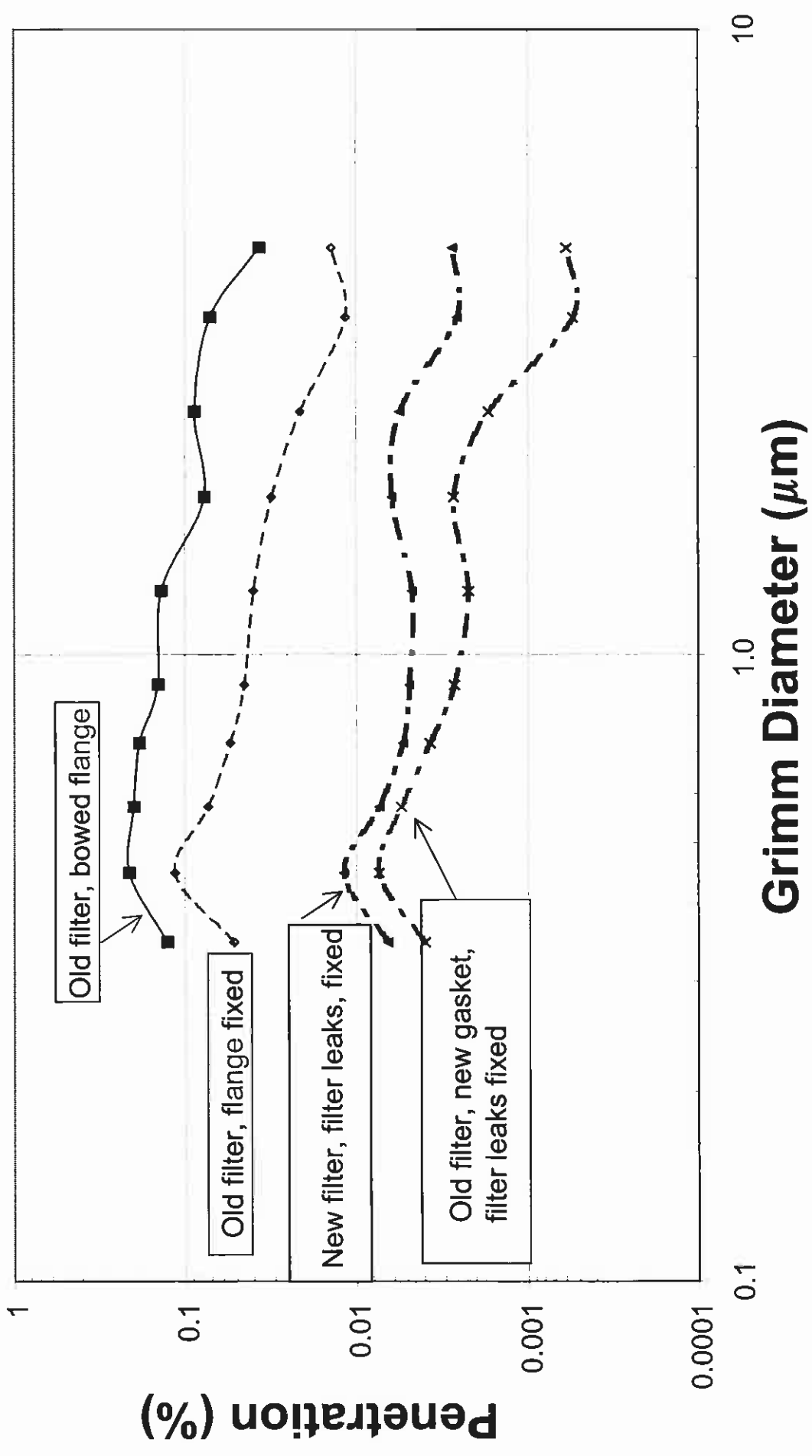
- If recirculating device used, filters greater than 95% efficient against 3.0 μm particles
- Minimum of 43 m^3/hr (25.3 CFM) of filtered air per enclosure occupant
- Maintain minimum pressurization of 58 Pascals (6 mm H_2O) for pesticide application



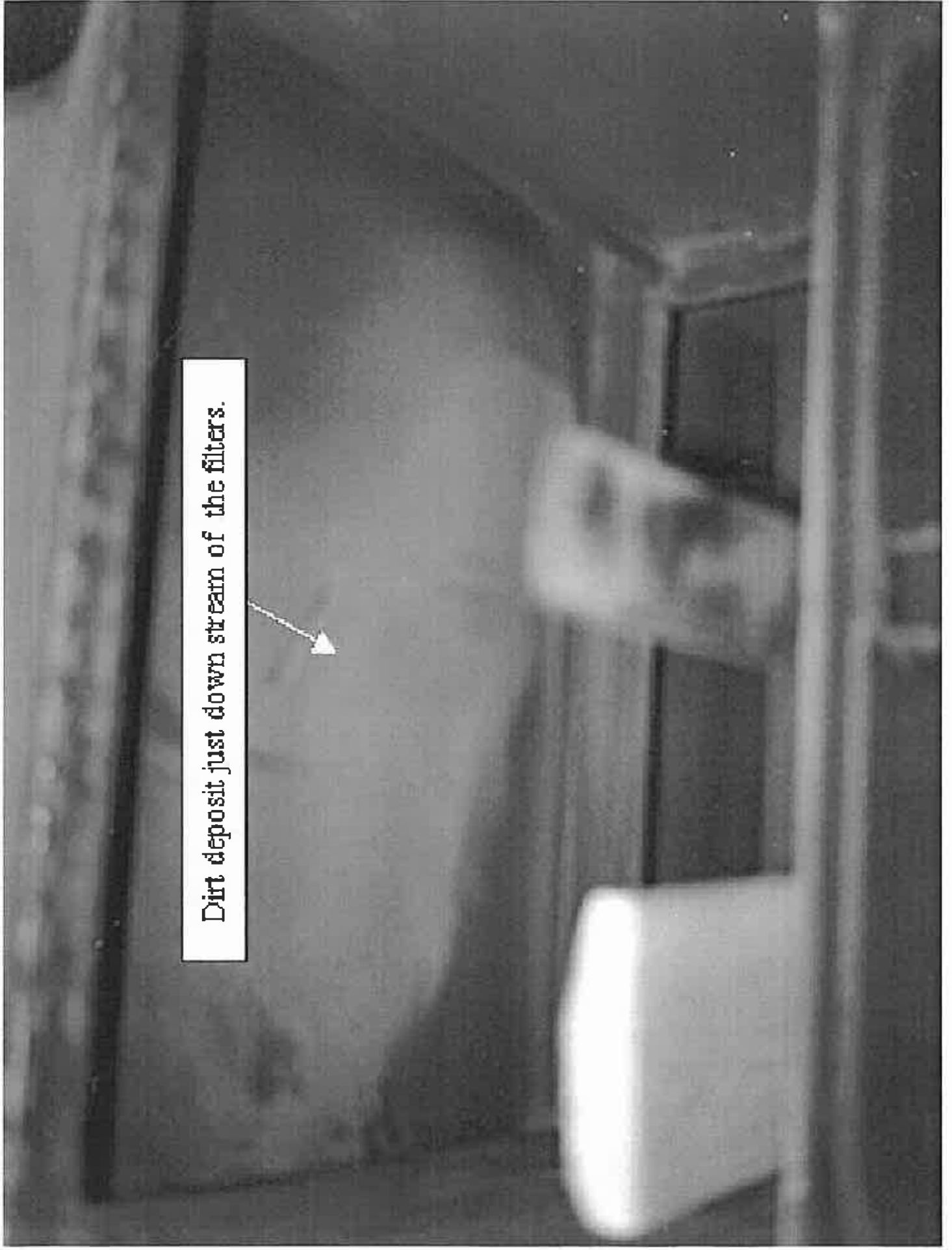
Summary of Ventilation Measurements

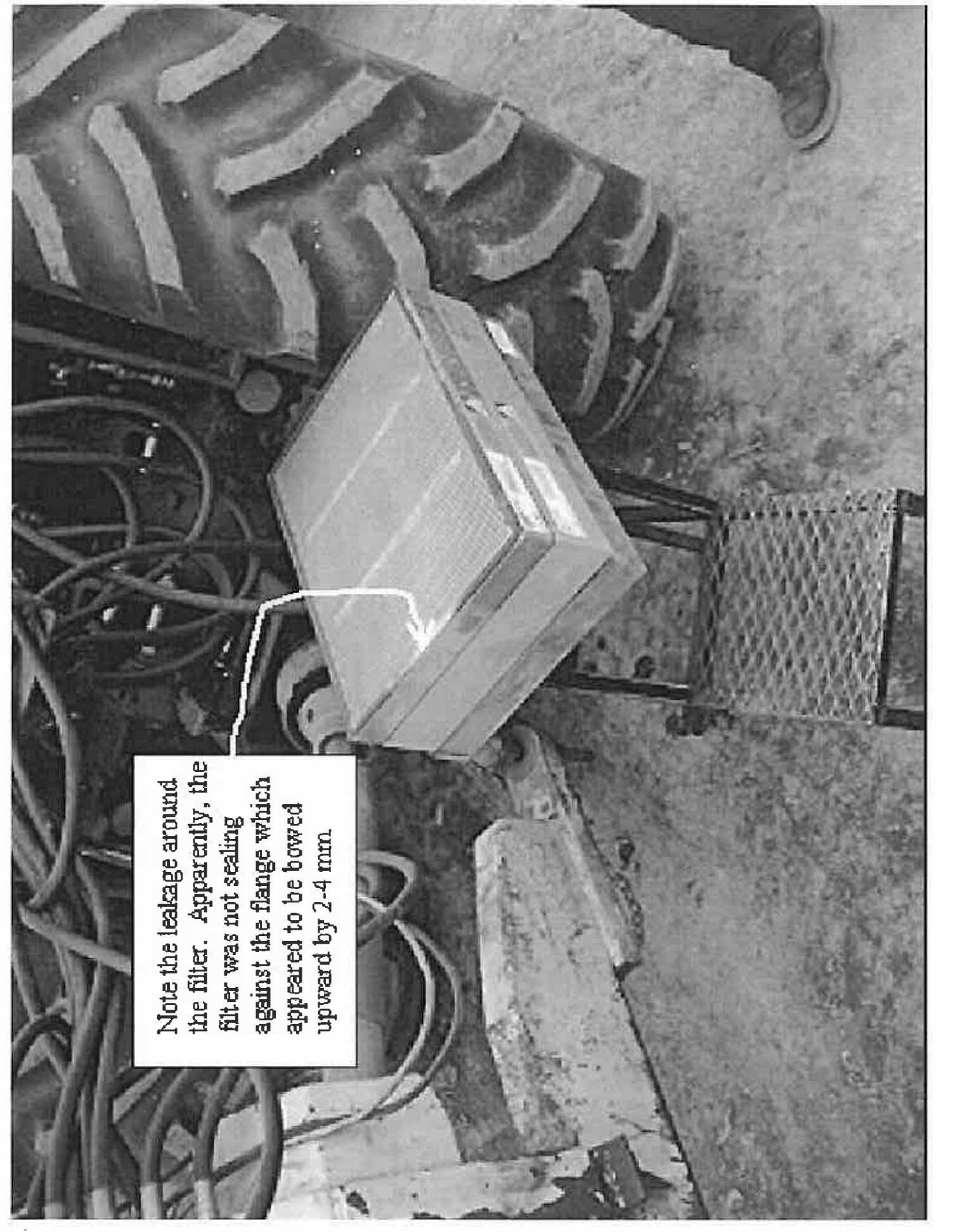
Date	Tractor Number	Air Flow (cfm)	Static Pressure (Inches Water)
9/21/99	TR65	162	0.07-0.08
10/26/99	TR74	167	0.09-0.10
10/27/99	TR74	179	0.15

Nelson Cab Performance Improvement from Addressing Seal Leakage



Dirt deposit just down stream of the filters.





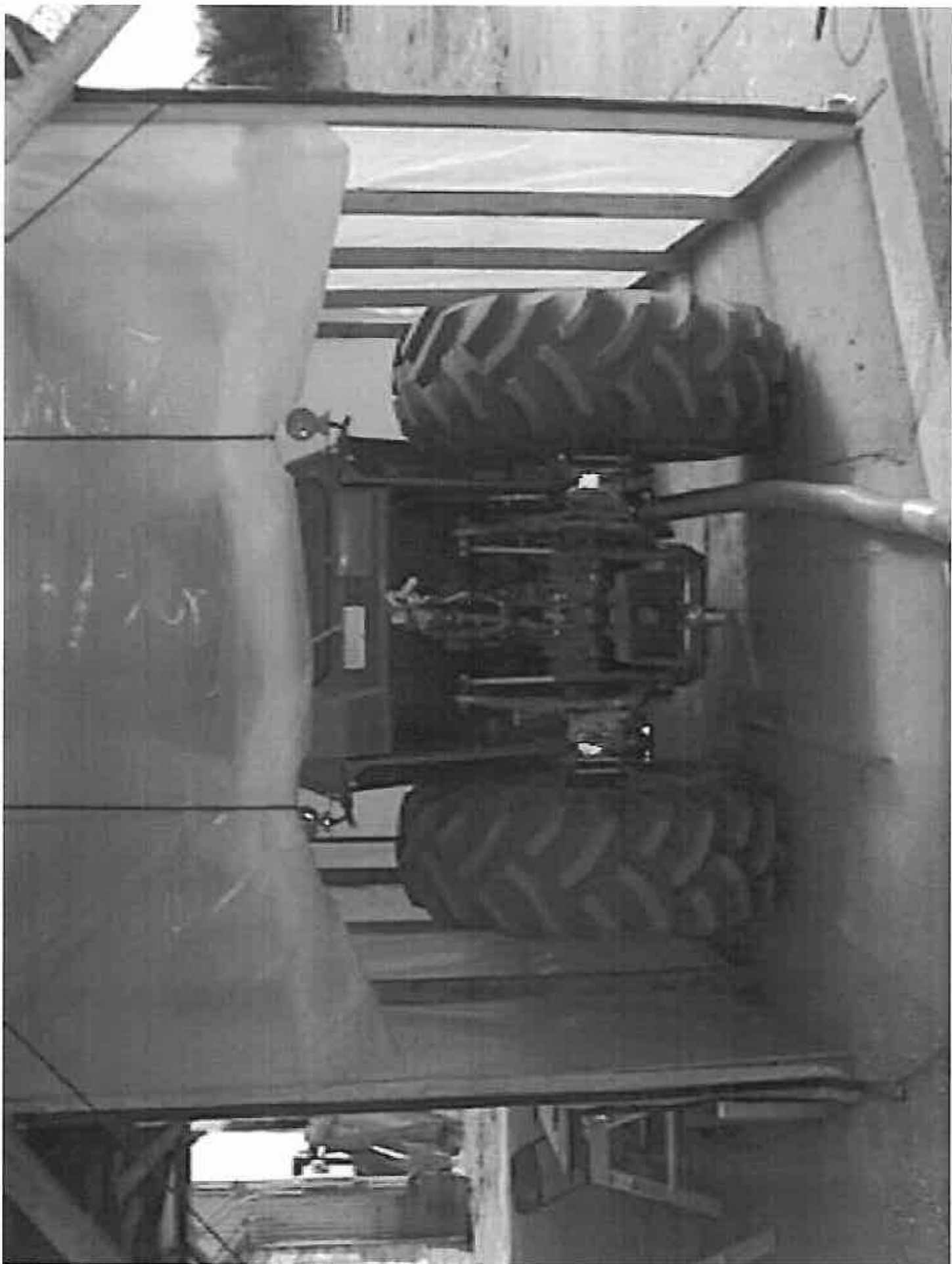
Note the leakage around the filter. Apparently, the filter was not sealing against the flange which appeared to be bowed upward by 2-4 mm.





Table of MetOne Results

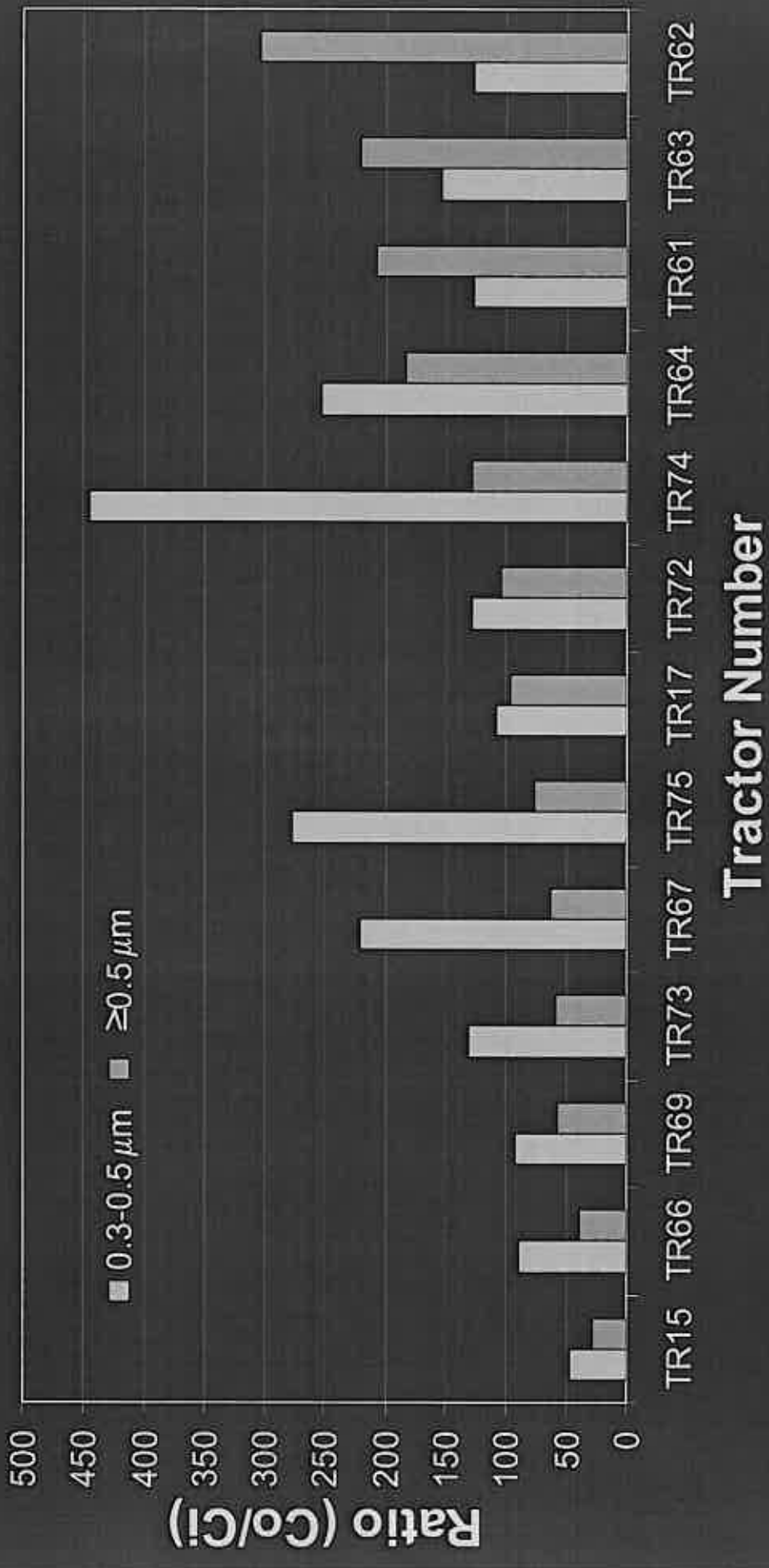
<u>Condition</u>	<u>0.3 μm</u>	<u>3.0 μm</u>
Used Filters	48	86
New Gaskets	47	21
Caulked Cab Housing	123	18
Caulked Filter Housing	159	40





Incense Stick

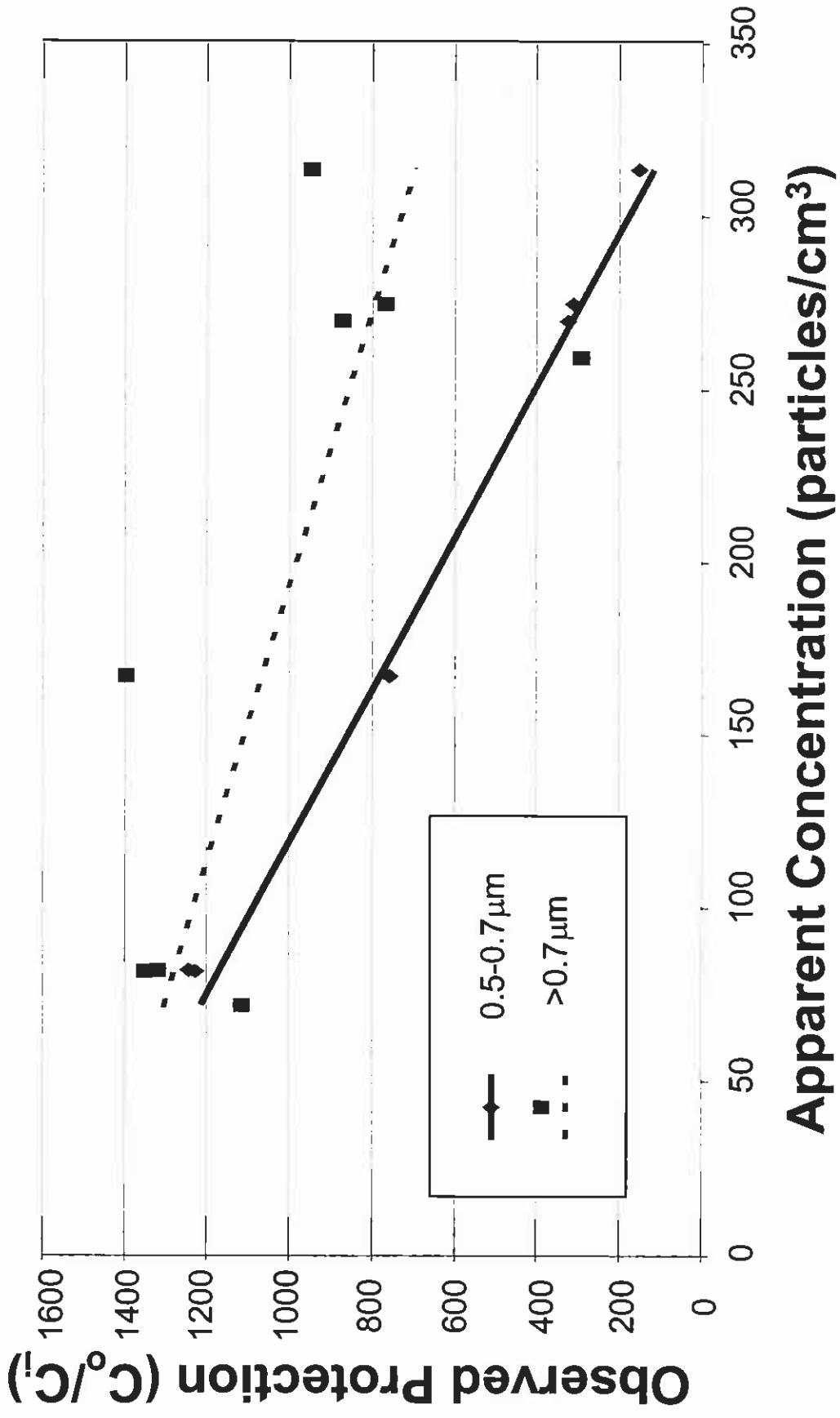
MetOne Stationary Cab Integrity Test



MetOne Stationary Cab Integrity Test Tractor TR15



Apparent Penetration



Summary

- Filtration Efficiency
- Maintenance
- Optical Particle Counter