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RESULTS OF CHARACTERISTICS TESTS
FOR
1B600 AIR SPRING
OF
TRENSURB
EMPRESA DE TRENS URBANOS
DE PORTO ALEGRE S. A.

RESULTS OF CHARACTERISTICS TEST
FOR 1B600 AIR SPRING OF TRENSURB

INDEX

	REQUIREMENT	RESOULT	REFERENCE
Load	7300Kgf	7300	} Fig.1
Internal Pressure	2.52Kgf/cm ²	2.50	
Effective Area	2900cm ²	2920	} Fig.2
Change Rate of Effective Aria	- cm ² /cm	17.5	
Interual Volume	25.6l	25.6	Fig.3
Vertical Spring Constant	42.4Kgf/mm±10%	42.3	Fig.4
Vertical Spring Characteristics	-	-	Fig.5
Lateral Spring Constant	- Kgf/mm	st 28.0	} Fig.6
	- Kgf/mm	dy 34.0	
Lateral Spring Characteristics	-	-	Fig.7
Load-Vertical Deflection of Stopper Rubber	10±1.5mm	9.8	Fig.8

Fig.1

1B600 AIR SPRING (M-27052C)

LOAD-INTERNAL PRESSURE DIAGRAM

Spring Height:150mm

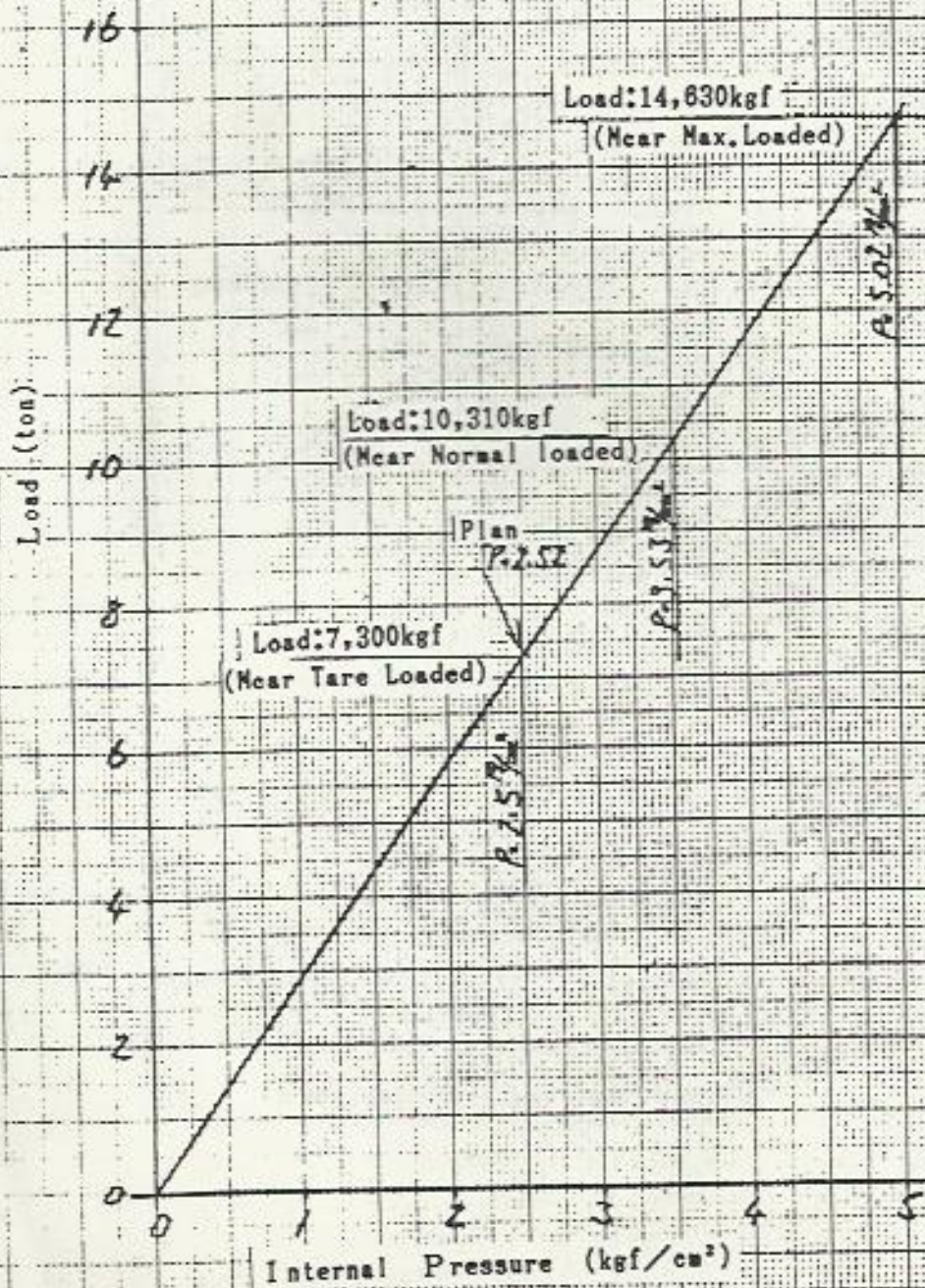


Fig. 21

1B600 AIR SPRING (M-27052C)

EFFECTIVE AREA - VERTICAL DEFLECTION

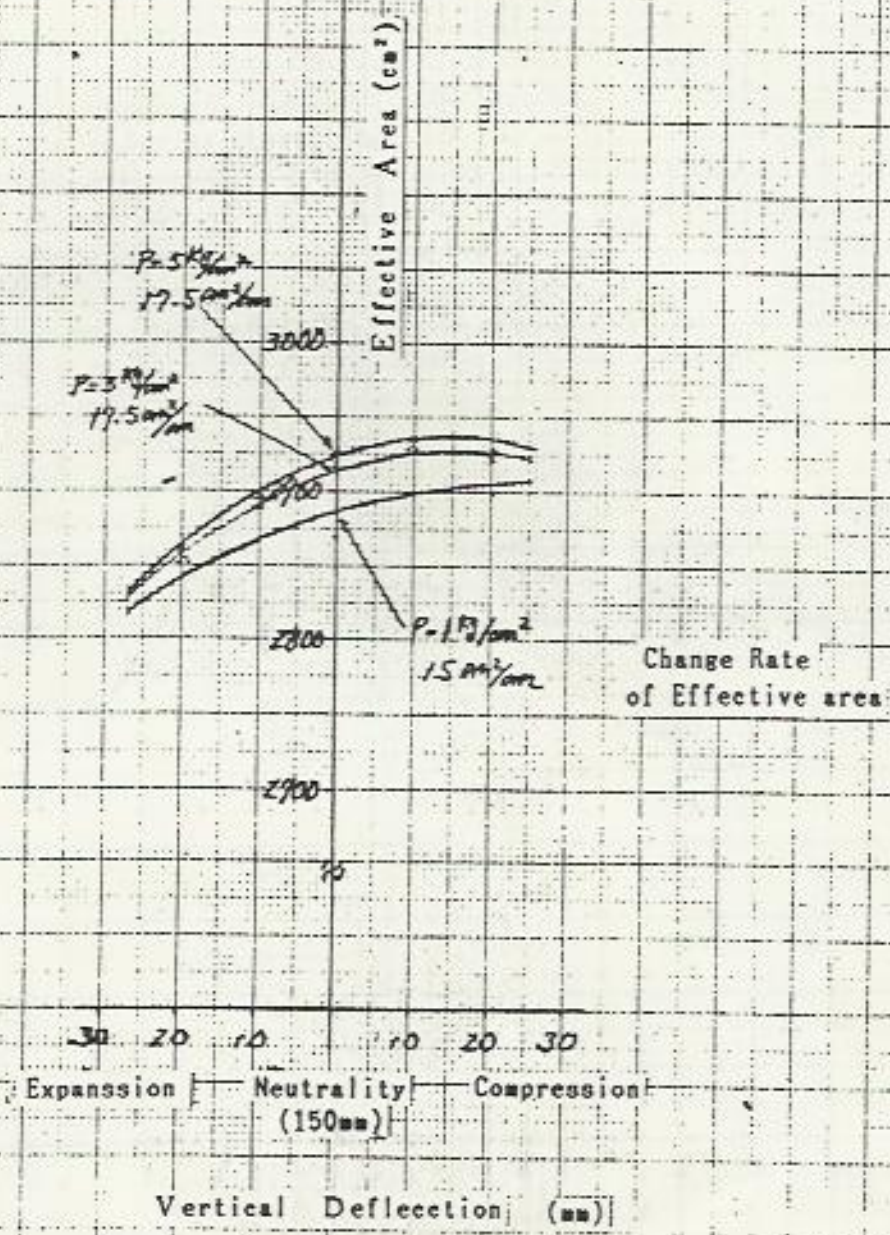


Fig.3

1B600 AIR SPRING (M-27052C)

INTERNAL VOLUME-INTERNAL PRESSURE DIAGRAM

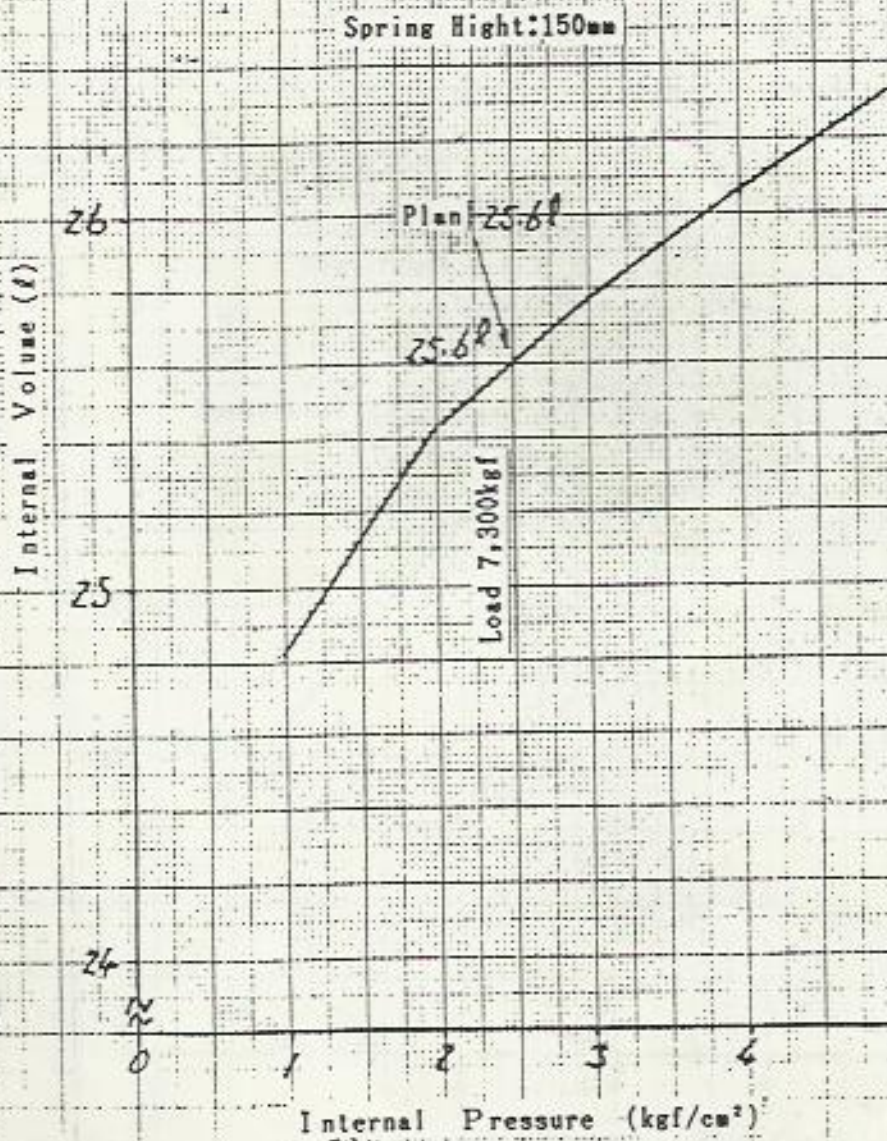


Fig.4

1B600 AIR SPRING (M-27052C)

VERTICAL SPRING CONSTANT—INTERNAL PRESSURE DIAGRAM (Static Condition)

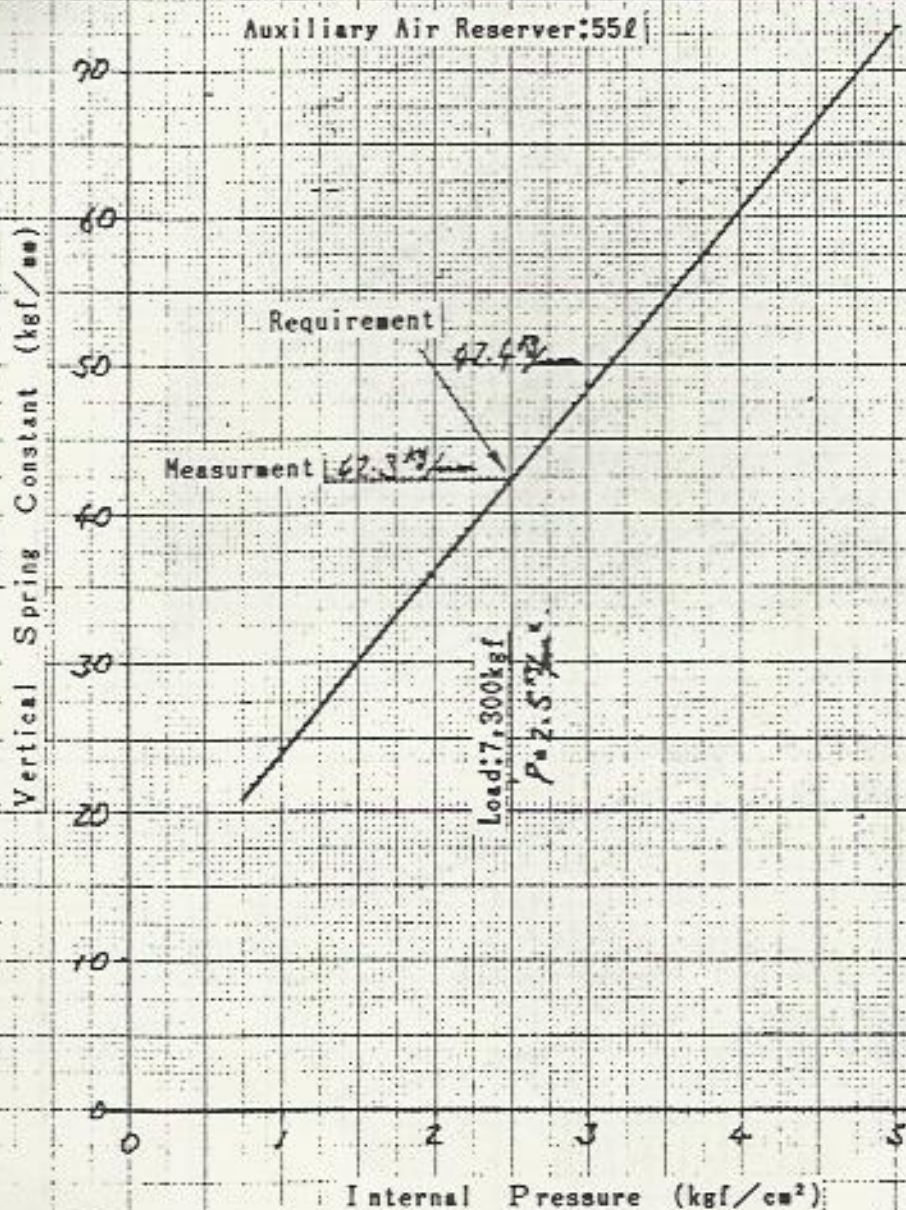


Fig.5

1B600 AIR SPRING (M-27052C)

VERTICAL SPRING CHARACTERISTICS (Static Condition)

Auxiliary Air Reserver:55ℓ

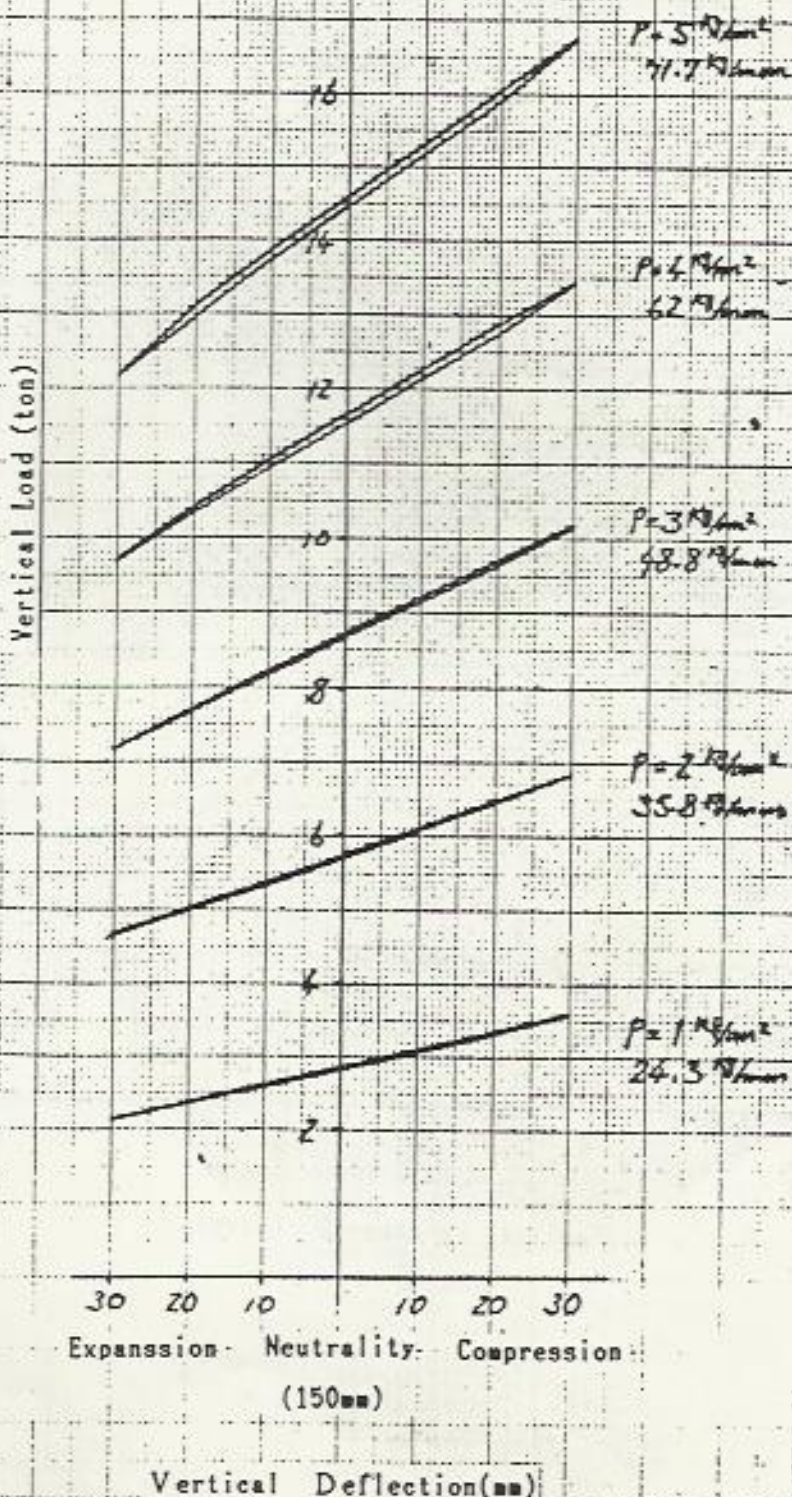


Fig. 6

1B600 AIR SPRING (M-27052C)

LATERAL SPRING CONSTANT - INTERNAL PRESSURE

Spring Height: 150mm

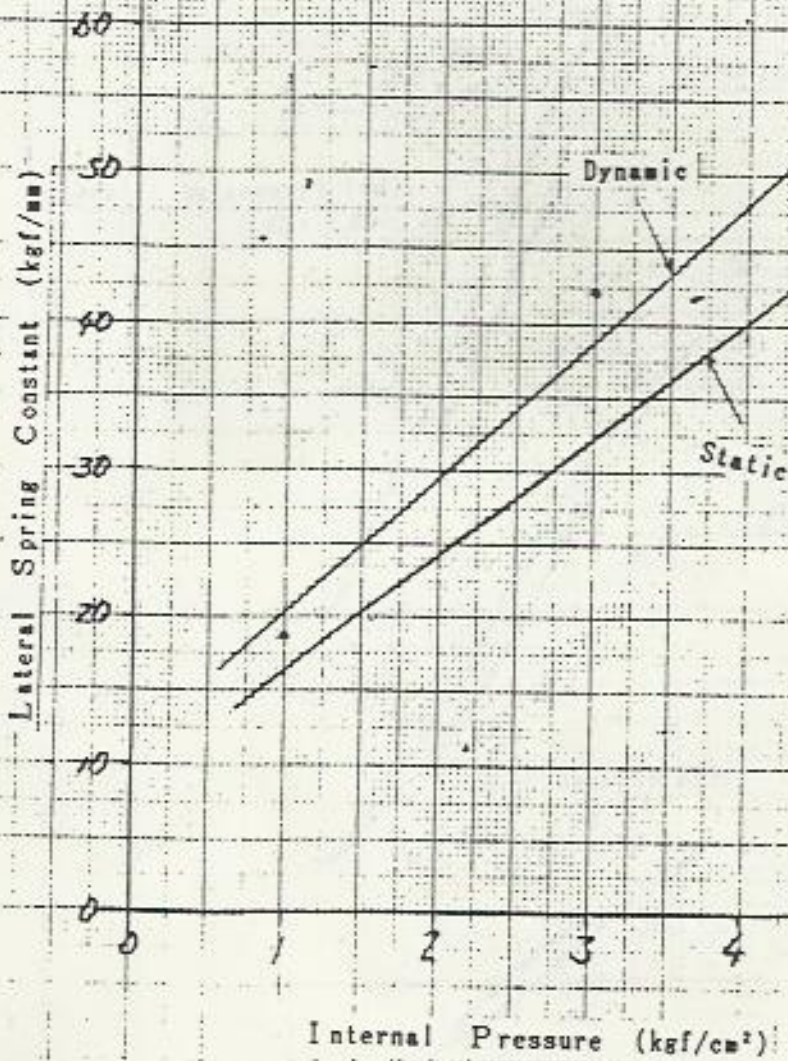


Fig. 7

1B600 AIR SPRING (M-27052C)

LATERAL SPRING CHARACTERISTICS

Spring Height: 150mm

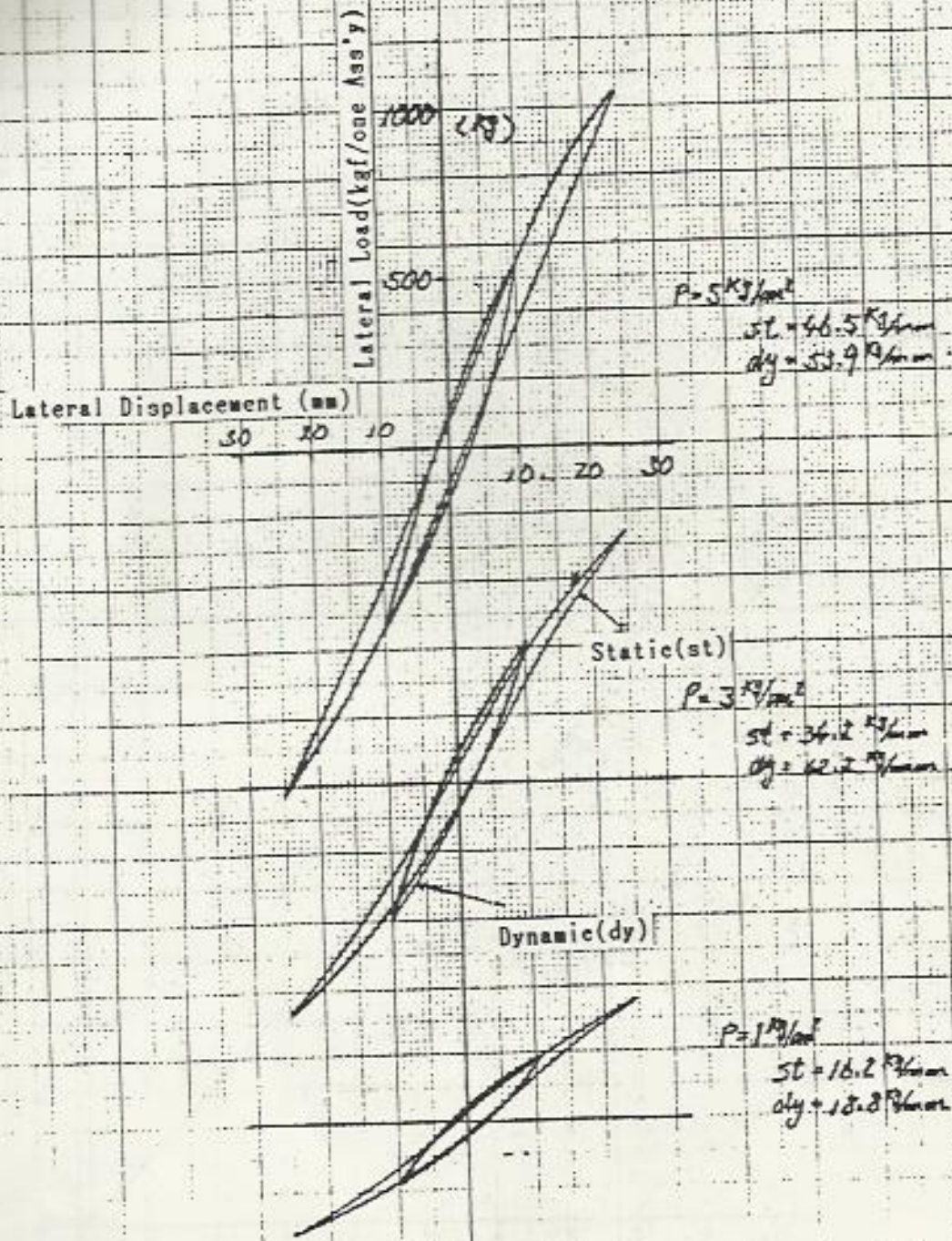
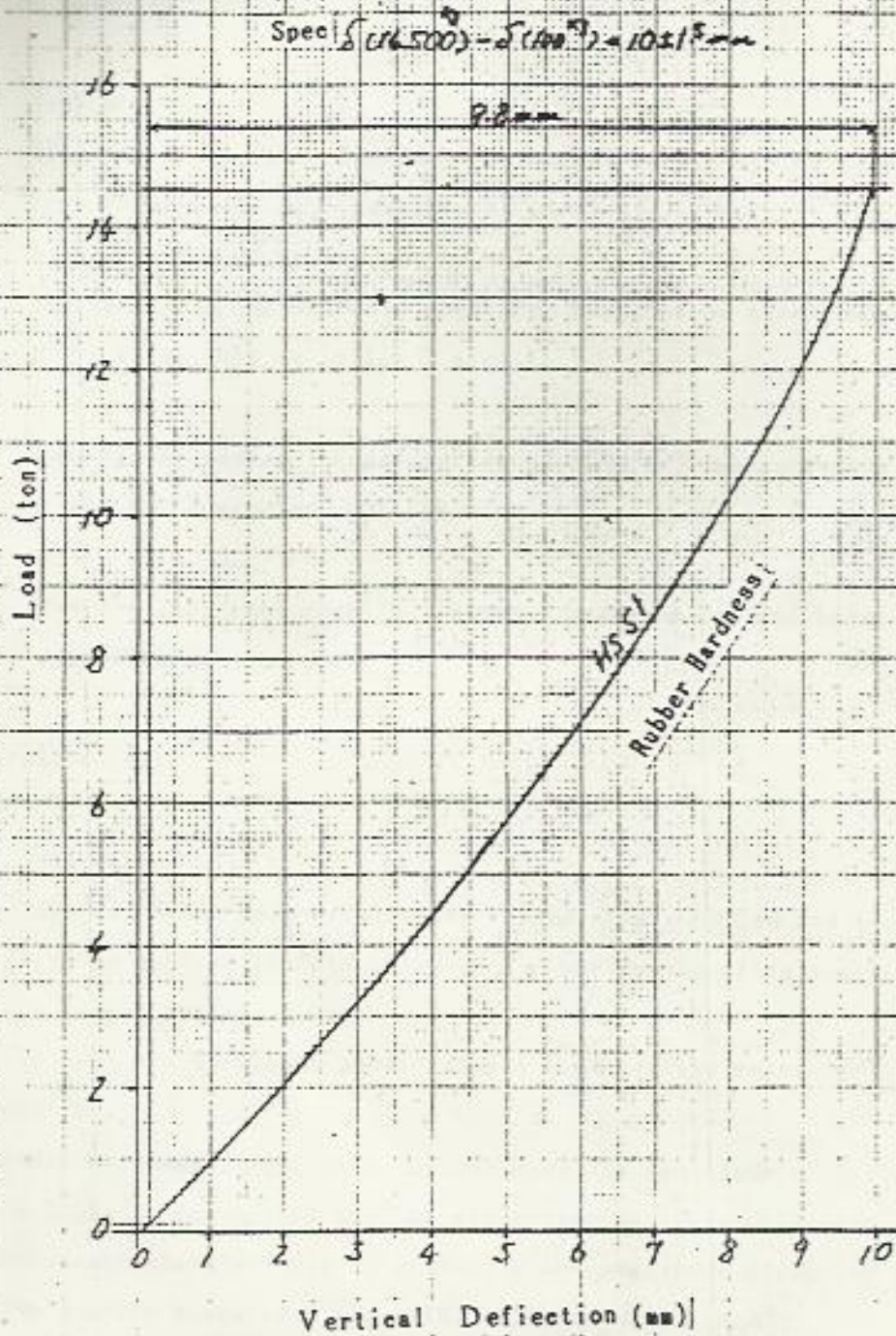


Fig. 8

1B600 AIR SPRING (M-27052C)

LOAD-VERTICAL DEFLECTION of STOPPER RUBBER



RESULTS OF BURST AND VIBRATION TESTS
FOR 1B600 AIR SPRING OF TRENSURB

1. Burst (Special Pressure) Test

- 1 Test method

20Kg/cm² hydrostatic pressure is applied to air spring assembled in a test frame fully withstandable to vertical load of the air spring and held in standard height.

The spring is inspected to check for presence or nonpresence of burst after being left as is for 3 minutes.

- 2 Test result

Upon having tested the air spring at 20Kg/cm² test pressure in 150mm height for 3 minutes, nothing abnormal was found in diaphragm and other parts.

From the past test results, internal pressure causing burst is estimated to be 25Kg/cm² and over.

2. Vibration Test

- 1 Test method

7-ton and 8-ton dead weights are loaded on air spring and then internal pressure applied thereto using an air spring vibration tester so that its height reaches 150mm.

The test air spring is provided with a 48 liters reservoir tank through orifice.

Under such condition, give ± 2.5 mm exciting amplitude of frequency 0.7 to 2.3Hz to the bottom part of air spring and then determine its resonance characteristic by measuring the amplitude of spring top.

The orifice sizes used are $\phi 15$, $\phi 19$ and $\phi 22$.