CANADA

DEPARTMENT OF TRADE AND COMMERCE

STANDARDS BRANCH

G-17

OTTAWA November 18 1965.

NOTICE OF APPROVAL

FOR

BRISTOL DIFFERENTIAL PRESSURE RECORDER WITH BARTON

MODEL 199, D/P ELEMENT

Apparatus

Differential Pressure Unit:	
Pressure Ranges	0-20, 0-25, 0-50, 0-100, 0-150, 0-200, 0-300, 0-400 inches w.c.
Maximum Working Pressures:	
Cast Aluminum 356T6	1000 p.s.i.
Forged Steel A.1.S.1. C1018	1000 and 2500 p.s.i.
Forged Stainless Steel 316	1000 and 3000 p.s.i.
Forged Alloy Steel 4140	4500 and 6000 p.s.i.
Forged Stainless Steel 329	6000 p.s.i.
Static Pressure ranges:	up to 0-1000 p.s.i.

Description

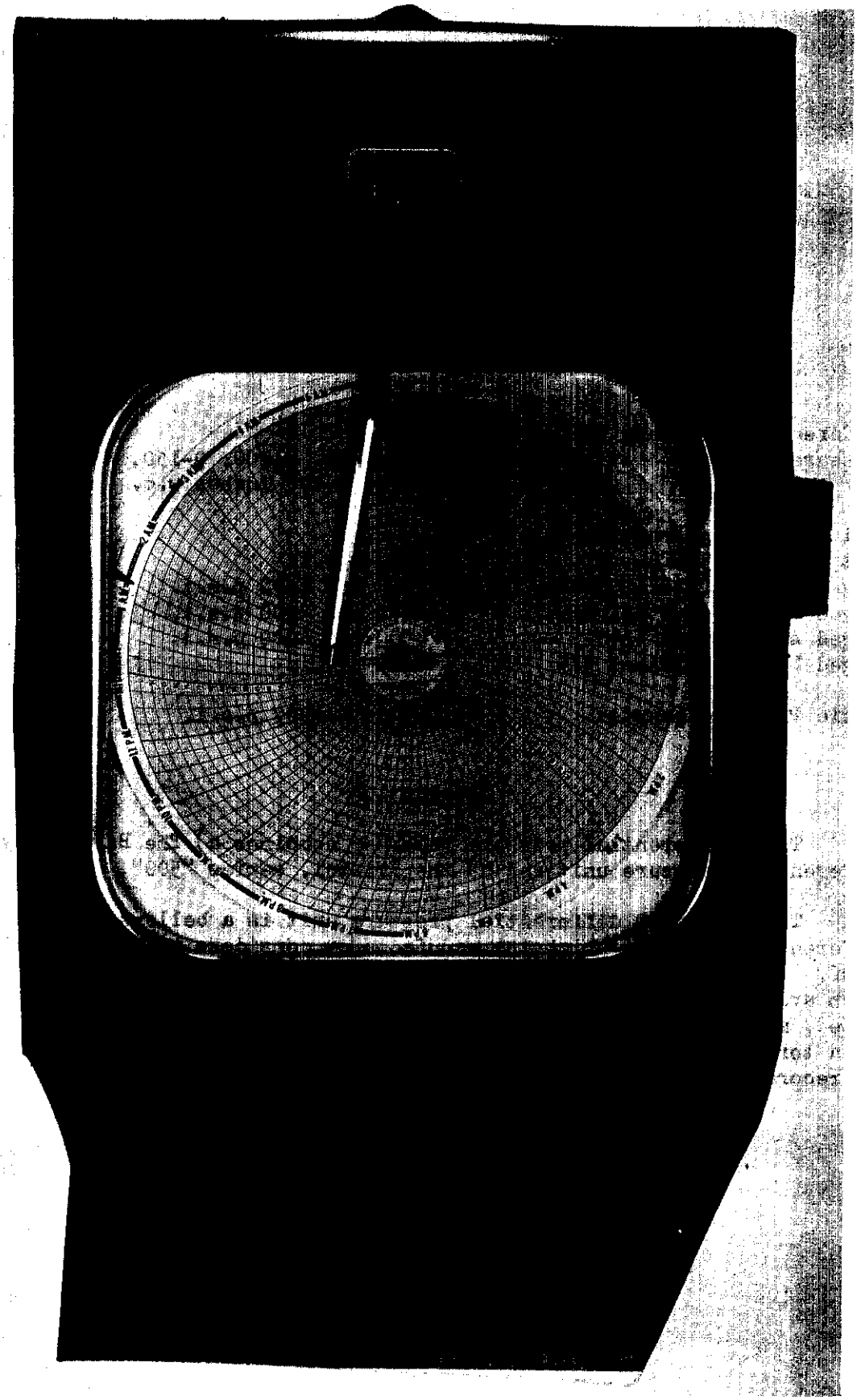
This differential pressure recorder combines a) The Barton 199 differential pressure unit and b) the Bristol, series "500", case.

The model 199 differential pressure unit is a bellows type differential element, which the manufacturer considers to be rupture proof. The unit consists essentially of a central support plate to which are attached a pair of opposed, mechanically linked, liquid filled, metallic bellows, pressure housings surrounding the bellows, and a torque tube drive for transmitting movement of the bellows to the recording mechanism.

...../2

BRISTOL DIFFERENTIAL PRESSURE RECORDER WITH BARTON

MODEL 199, D/P ELEMENT



Description (Cont'd)

The outer or closed ends of the bellows are joined by a dual valve stem which passes through a hole in the central support plate. The bellows thus form twin chambers joined by an annular passage around the valve stem. These chambers are filled and permanently sealed with a non-corrosive, low freezing point liquid. Therefore, when a differential pressure is applied to the unit, the bellows assembly moves as a unit in the direction of the lower pressure.

In doing so, the bellows on the higher pressure side decreases its volume while the bellows on the opposite side expands and the liquid within the bellows assembly must pass from one bellows chamber to the other through the annular passage between the valve stem and the central plate. Movement of the bellows is transmitted to the recording mechanism by means of the torque tube assembly.

Dampening action is effected by the flow of the liquid from one side of the central support plate to the other. The dampening action is externally adjustable.

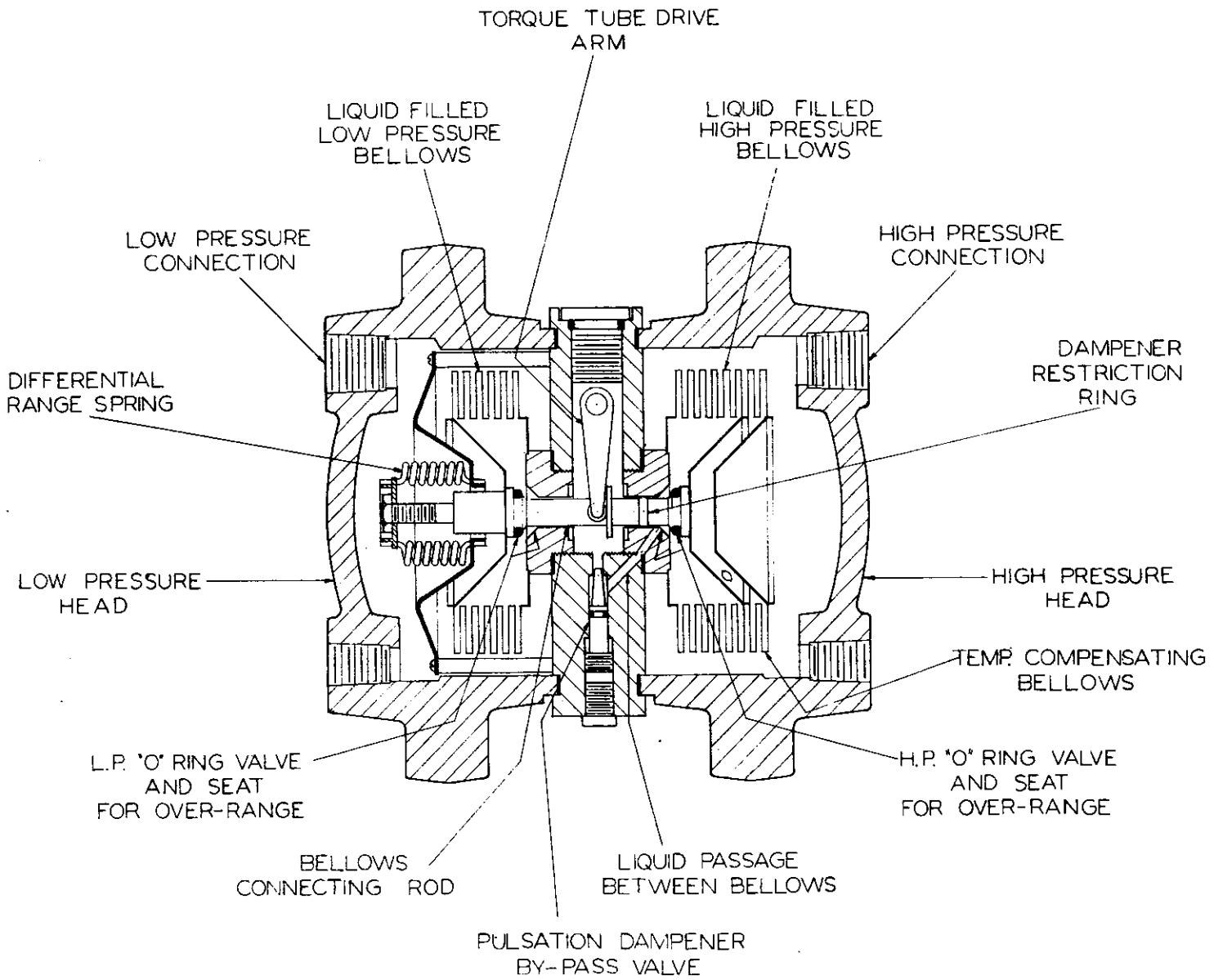
When an excessive differential pressure is applied, liquid transfer will continue until one of the valves, mounted on the stem connecting the two bellows, closes against its valve seat located on the central plate. With this arrangement, full line pressure may be imposed across the bellows unit in either direction without damage, regardless of the differential range of the instrument. The range of the unit may be simply changed by changing the range spring assembly on the end of the bellows valve stem.

The unit is temperature-compensated by means of an auxiliary, free-floating bellows attached to one end of the main bellows and by choosing a fill liquid with a low coefficient of thermal expansion. For extreme temperature changes, bellows with special fill liquids may be obtained.

The Bristol "500" series recorder case is of heavy die-cast aluminum, rectangular in shape. A large square window is provided for viewing the 12" circular chart. The case may be flush mounted on a panel.

The recording pen linkage system includes a suitable stop preventing the pen movement beyond the chart's full range. A spring loaded linkage in this system protects components against the damage in case of an overload.

...../3



MATL.				FINISH	
SCALE NONE	DATE 19 MAR '51	DRAWN COOPER	CHECKED	ENGR. APPR.	PROD. APPR.
REDRAWN 3-9-56		SECTIONAL VIEW: MODEL 199 DIFFERENTIAL PRESSURE UNIT WITH PULSATION DAMPENER			
BARTON INSTRUMENT CO.		LOS ANGELES, CALIF.		DWG. NO. DA 199 - 16	

G-17

Any suitable and approved type mechanical or electircal chart drive may be used with this recorder.

The illustration shows a single pen recorder. However, 2-pen recorders are also approved when equipped with an approved static pressure element.

Approval Granted to: The Bristol Company of Canada Ltd.,
Rexdale,
Ontario.

W.J.S. Fraser,
Chief, Standards Laboratory,
Standards Branch.

K. Cryer,
Chief, Electricity & Gas Division,
Standards Branch.

Ref: SL-100-88A