



Department of consumer and corporate affairs / Ministère de la consommation et des corporations



STANDARDS BRANCH - DIRECTION DES NORMES

NOTICE OF APPROVAL  
AVIS D'APPROBATION

G-107

OTTAWA June 5, 1975

CANADIAN METER COMPANY RELIANCE PRESSURE REGULATORS,  
MODELS 2002 and 2302

Apparatus

<u>Model designation</u>	<u>2002</u>	<u>2302</u>
Maximum inlet pressure psig	125	125
Outlet pressure range, psig	2 to 20	2 to 20
Approved maximum flow 0.64 Sp. Gr. gas, SCFH*	10,000	10,000
Regulator connections, inches:		
(a) screwed NPT, female	1½, 2	1½, 2
(b) flanged, ANSI 125	2	2
Main orifice diameters, inches	¼, 3/8, 5/8, 7/8, 1, 1½	3/8, 5/8, 1, 1½

\* For some operating conditions this maximum flow cannot be reached and is not approved. (Ref. Tables II Series).

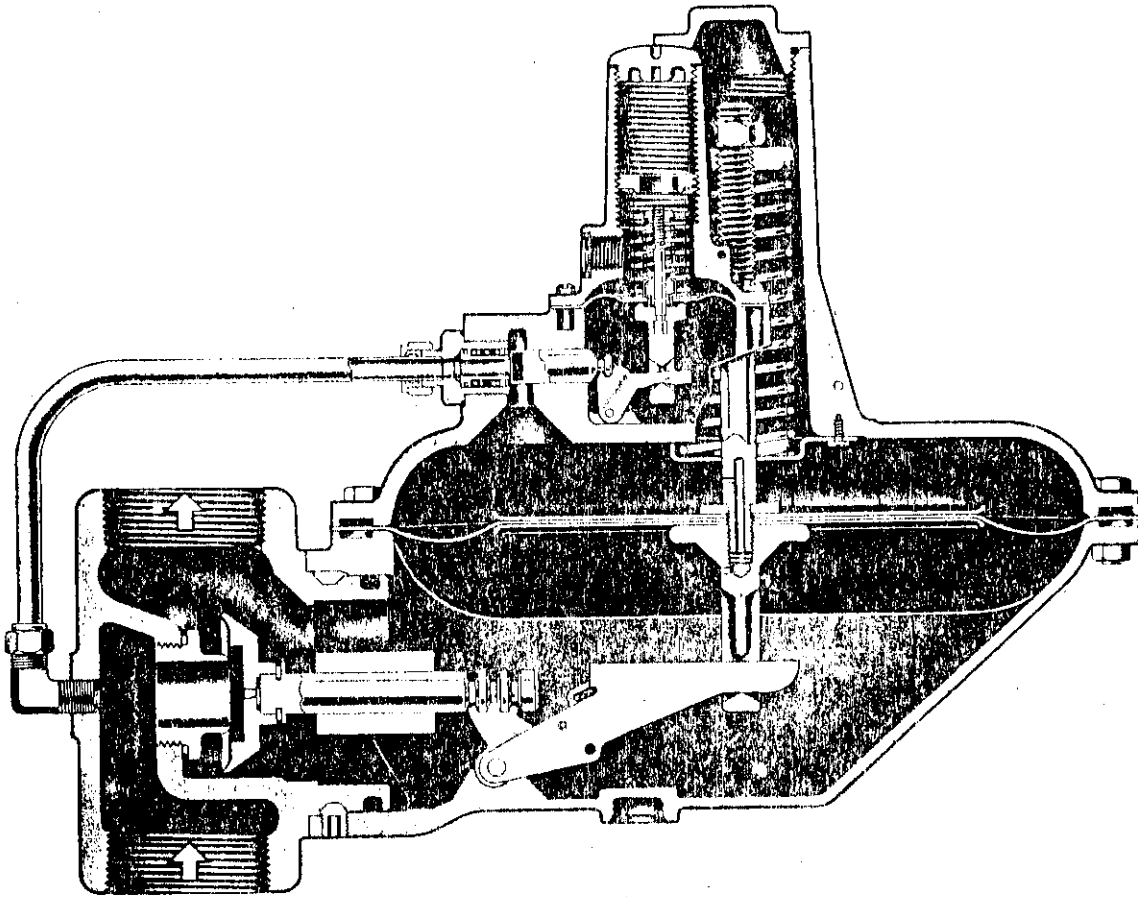
Description

Both of these models are of a pilot-loaded, downstream bleed design with the pilot regulator being an integral part of the main regulator casting. In each model the pilot regulator incorporates a pressure elevation compensation, (E.C.) orifice, intended to speed up the response to sudden load changes and improve the outlet pressure stability. The regulators employ diaphragms made of fabric in Buna N rubber. An O-ring sealed union connection between the regulator body and the valve head with regulator connections permits relative rotation of these sub-assemblies through 360 degrees. Set screws in the regulator body provide for locking the relative position.

Two illustrations showing the cross-section of these regulators are part of this circular.

In operation the pilot outlet pressure provides an opening force which pushes the main diaphragm downward. The spring of the main regulator provides the closing force. A fixed restriction located in the main diaphragm stem allows the downstream bleed.

RELIANCE MODEL 2002



CROSS SECTION MODEL 2002

Both regulators are available with or without pilot relief valves.

Table I shows the manufacturer's recommended inlet set pressures for the anticipated maximum inlet pressures that can be reached in the flow line. The regulators are to be set with a flow rate of 200 CFH.

The flow capacities of the regulators for various outlet pressures, orifice sizes, connection sizes and inlet pressure levels are given in Tables IIA, IIB, IIC and IID. These capacities are for 0.64 Sp. Gr. gas and outlet pressure limits of  $\pm 1\%$  absolute pressure. Although the manufacturer's tables list capacities in excess of 10,000 SCPH, the approved maximum flow rate of 10,000 SCPH remains in force at this time.

For satisfactory control and stability of outlet pressure the manufacturer recommends specified interrelation between the outlet pressure, pilot orifice diameter, main regulator orifice diameter, pilot pressure spring and the maximum inlet pressure. These data are shown in Tables IIIA and IIIB for the regulators, Models 2002 and 2302 respectively.

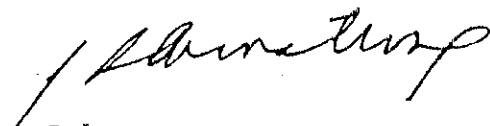
Detailed description and more complete data are contained in manufacturer's bulletins Nos. 142, 143, AIM-142/143 and PDB-142. Each district office has been supplied with one set of these bulletins and reference should be made to them.

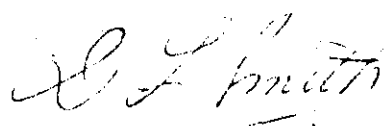
Rules for Pressure Factor Measurement delineate various criteria which must be met when pressure regulators are used for such mode of measurement. These Rules are an essential supplement to this Approval Notice.

For field test procedure refer to Technical Gas Circular G-75-3.

Approval granted to:

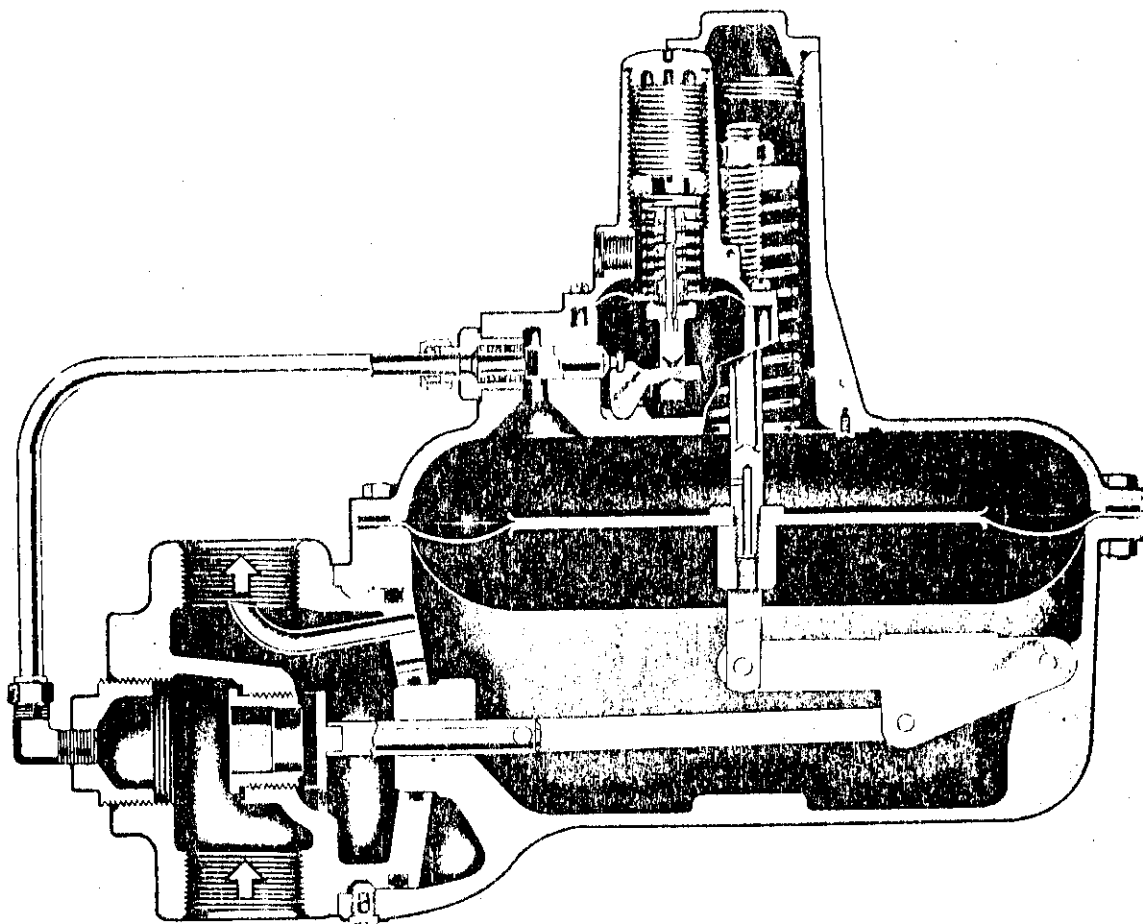
Canadian Meter Company Limited,  
Milton, Ontario and  
Edmonton, Alberta.

  
J.L. Armstrong,  
Chief, Standards Laboratory,  
Metrology and Laboratory Services.

  
D.L. Smith,  
Chief, Electricity & Gas Division

Ref: GL 1147-57/C6-176

RELIANCE MODEL 2302



CROSS SECTION MODEL 2302

TABLE I

Recommended Inlet Set Pressure with 200 cfh Flow through Regulator

Max. Inlet Pressure PSI	Inlet Set Pressure PSI	Max. Inlet Pressure PSI	Inlet Set Pressure PSI	Max. Inlet Pressure PSI	Inlet Set Pressure PSI
10	10	50	40	90	60
15	15	55	40	95	60
20	15	60	40	100	60
25	20	65	50	105	70
30	25	70	50	110	70
35	30	75	55	115	75
40	30	80	60	120	75
45	35	85	60	125	80

TABLE IIA

Model 2302 - Connections 1½ Inches  
Flow Capacities in MSCFH

3/8" Orifice	OUTLET PRESSURE PSI	INLET PRESSURE, PSIG									
		5	10	15	20	30	40	60*	80	100	125
	2	2.5	3.0	3.5	4.2	5.8	7.0	9.0	11.0	13.0	15.0
	3	2.0	3.0	3.5	4.2	5.8	7.0	9.0	11.0	13.0	15.0
	5		3.0	3.5	4.2	5.8	7.0	9.0	11.0	13.0	16.0
	10			3.0	4.2	5.8	7.0	9.0	11.0	14.0	16.0
	15				3.5	5.0	7.0	9.0	12.0	14.0	17.0
	20					4.5	6.5	9.0	12.0	14.0	17.0

5/8" Orifice	OUTLET PRESSURE PSI	INLET PRESSURE, PSIG									
		5	10	15	20	30	40	60*	80	100	125
	2	3.5	5.5	8.0	9.0	11.0	13.0	15.0	17.0	18.0	
	3	3.0	5.5	8.0	9.0	11.0	13.0	15.0	17.0	18.0	
	5		5.5	7.5	10.0	12.0	14.0	18.0	20.0	21.0	
	10			6.0	8.0	13.0	17.0	18.0	20.0	21.0	
	15				7.0	13.0	17.0	23.0	24.0	25.0	
	20					12.0	17.0	24.0	25.0	26.0	

15/16" Orifice	OUTLET PRESSURE PSI	INLET PRESSURE, PSIG									
		5	10	15	20	30	40	60*	80	100	125
	2	5.0	6.5	9.0	10.0	12.5	14.0	16.0	17.0		
	3	5.0	6.5	9.0	11.0	13.0	14.0	16.0	18.0		
	5		6.5	9.0	11.0	14.0	15.0	17.0	20.0		
	10			10.0	12.0	15.0	17.0	19.0	21.0		
	15				10.0	15.0	18.0	21.0	22.0		
	20					14.0	18.0	23.0	24.0		

\* Set pressure for maximum inlet pressure shown

TABLE IIB

Model 2002 - Connections 1½ Inches

Flow Capacities in MSCFH

	OUTLET PRESSURE PSI	INLET PRESSURE, PSIG									
		5	10	15	20	30	40	60	80*	100	125
¼" Orifice	2	1.0	1.4	1.7	2.1	2.6	3.3	4.5	5.6	7.0	8.3
	3	.8	1.4	1.7	2.1	2.6	3.6	4.5	5.6	7.0	8.3
	5		1.3	1.5	2.0	2.7	3.4	4.5	5.6	7.0	8.3
	10			1.3	1.9	2.7	3.4	4.5	5.6	7.0	8.3
	15				1.5	2.5	3.2	4.5	5.6	7.0	8.3
	20					2.0	3.2	4.5	5.6	7.0	8.3
3/8" Orifice	2	1.5	2.6	3.5	4.4	5.6	7.0	9.0	10.4	13.0	14.5
	3	1.3	2.6	3.5	4.4	5.6	7.0	9.0	10.4	13.0	14.5
	5		2.6	3.5	4.4	5.6	7.0	9.0	11.7	13.0	14.5
	10			2.9	4.0	5.6	7.0	9.3	11.7	13.0	14.5
	15				3.4	5.4	7.0	9.3	11.7	13.0	14.5
	20					4.6	7.0	9.3	11.7	13.0	14.5
5/8" Orifice	2	4.2	6.2	8.0	9.2	10.7	11.5	13.0	15.0	17.5	
	3	3.6	6.2	8.0	9.2	10.7	11.5	13.0	15.0	17.5	
	5		5.0	7.5	9.2	10.7	11.5	13.0	15.0	17.5	
	10			7.0	9.2	12.5	13.5	15.0	16.0	18.5	
	15				7.6	13.0	16.0	18.0	18.0	19.5	
	20					11.0	16.0	22.0	22.0	23.0	
7/8" Orifice	2	6.3	8.7	9.6	11.0	11.5	12.0	13.5	16.0		
	3	4.8	8.7	9.6	11.0	11.5	12.5	14.5	16.5		
	5		8.7	10.5	11.7	13.0	13.5	15.0	17.0		
	10			10.5	13.5	14.5	16.0	17.0	18.5		
	15				10.5	14.5	16.5	17.5	20.0		
	20					16.0	19.5	21.0	22.0		
1" Orifice	2	5.9	8.6	9.4	11.0	12.0	13.5	16.5			
	3	5.5	8.6	10.1	11.5	12.0	13.5	16.5			
	5		8.6	10.5	11.5	12.5	14.0	17.5			
	10			11.0	14.0	16.0	16.5	19.0			
	15				11.0	16.0	18.0	20.0			
	20					17.0	19.0	22.0			
1½" Orifice	2	7.2	9.6	12.0	13.0	13.5	14.0				
	3	7.2	9.6	12.0	13.0	14.0	15.0				
	5		9.6	12.0	14.0	15.0	16.5				
	10			11.5	14.5	17.0	18.0				
	15				14.1	18.0	19.0				
	20					18.0	20.0				

\*Set pressure for maximum inlet pressure shown

TABLE IIC

Model 2002 - Connections 2 Inches  
Flow Capacities in MSCFH

Orifice	OUTLET PRESSURE PSI	INLET PRESSURE, PSIG									
		5	10	15	20	30	40	60*	80	100	125
1/4" Orifice	2	0.75	1.3	1.5	1.6	2.0	2.1	3.7	5.0	6.0	7.7
	3	0.50	1.1	1.5	1.6	2.0	2.5	3.7	5.0	6.0	7.7
	5		1.0	1.5	1.6	2.0	2.5	3.7	5.0	6.0	7.7
	10			1.2	1.6	2.0	2.5	3.7	5.0	6.0	7.7
	15				1.4	2.0	2.5	3.7	5.0	6.0	7.7
	20					1.8	2.3	3.7	5.0	6.0	7.7
3/8" Orifice	2	1.5	2.3	3.3	4.0	5.2	6.3	9.0	11.7	13.0	15.0
	3	1.0	2.3	3.3	4.0	5.2	6.3	9.0	11.7	13.0	15.0
	5		2.2	3.1	4.0	5.2	6.3	9.0	11.7	13.0	15.0
	10			2.5	3.7	5.2	6.3	9.0	11.7	13.0	15.0
	15				2.7	5.0	6.3	9.2	12.0	13.0	15.0
	20					4.6	6.1	9.2	12.0	13.0	15.0
5/8" Orifice	2	3.5	6.7	8.6	10.0	13.0	15.5	20.5	18.0	17.3	
	3	3.0	6.0	8.4	10.0	13.0	15.5	20.5	19.0	19.0	
	5		5.8	7.6	9.6	13.0	16.0	20.5	25.5	28.0	
	10			6.8	9.0	12.5	16.0	21.5	25.5	28.0	
	15				7.5	12.0	16.0	21.0	25.5	29.0	
	20					11.2	15.0	21.0	25.0	29.5	
7/8" Orifice	2	6.4	11.5	13.4	17.0	21.0	22.5	22.7	18.6		
	3	4.5	10.0	13.6	17.5	21.5	23.0	24.0	19.0		
	5		9.7	12.5	17.5	23.7	26.0	28.0	26.0		
	10			11.5	15.5	24.2	28.0	30.0	35.0		
	15				10.0	20.5	28.5	37.0	40.0		
	20					17.3	26.5	40.0	42.0		
1" Orifice	2	7.5	13.0	14.3	17.5	22.0	23.0	23.0			
	3	4.2	10.0	13.9	17.5	22.0	23.4	24.0			
	5		9.5	13.0	17.0	23.5	26.0	28.0			
	10			12.0	16.0	24.5	28.0	30.0			
	15				14.5	21.5	29.0	38.0			
	20					18.6	29.0	42.0			
1 1/4" Orifice	2	8.0	14.5	21.0	25.2	35.2	42.5				
	3	6.5	14.0	18.0	24.0	34.0	41.0				
	5		13.5	18.0	24.0	33.0	41.0				
	10			17.0	18.5	33.0	41.0				
	15				18.0	31.5	40.0				
	20					25.7	38.0				

\*Set pressure for maximum inlet pressure shown

TABLE IID

Model 2302 - Connections: 2 Inches

Flow Capacities in MSCFH

	OUTLET PRESSURE PSI	INLET PRESSURE, PSIG									
		5	10	15	20	30*	40	60*	80	100	125
5/8" Orifice	2	3.6	6.2	7.5	10.3	14.3	17.6	19.5	20.0		
	3	3.2	6.3	8.4	10.6	14.1	17.6	21.7	22.0		
	5		5.6	7.2	10.1	14.5	17.6	23.4	26.0		
	10			7.0	9.0	15.0	18.0	24.0	26.0		
	15				7.4	13.2	17.6	24.5	30.0		
	20					11.3	17.3	25.0	30.0		
7/8" Orifice	2	2.9	4.5	8.8	11.3	14.4	18.0	20.0	19.0		
	3	2.4	6.0	9.7	11.5	16.2	20.0	23.4	21.6		
	5		4.8	10.0	12.0	16.6	22.5	26.1	23.4		
	10			9.0	12.0	17.1	23.0	27.8	30.0		
	15				10.0	18.0	23.5	30.0	33.0		
	20					15.5	23.0	33.0	36.5		
3/16" Orifice	2	4.7	8.5	11.2	13.9	17.5	19.8				
	3	4.0	8.3	11.7	13.0	17.0	18.0				
	5		6.3	9.9	13.0	17.0	20.0				
	10			9.9	13.0	17.0	21.0				
	15				13.0	19.0	23.4				
	20					18.0	23.4				

\* Set pressure for maximum inlet pressure shown

TABLE IIIA

Pilot Pressure Springs

Model 2002 - Connections 1 1/2 and 2 Inches

OUTLET PRESSURE PSI	PILOT ORIFICE DIA.	MAXIMUM INLET PRESSURE PSIG					
		125	125	100	80	60	40
		MAIN ORIFICE DIAMETERS					
		1/4"	3/8"	1/2"	3/4"	1"	1 1/4"
2	3/16" 73161G002	70017P061	70017P061	70017P062	70017P063	70017P063	70017P064
3		70017P060	70017P061	70017P061	70017P063	70017P063	70017P064
4		70017P060	70017P060	70017P061	70017P061	70017P061	70017P064
5		70017P048	70017P060	70017P060	70017P061	70017P061	70017P062
6		70017P048	70017P060	70017P060	70017P061	70017P061	70017P062
7		70017P030	70017P048	70017P048	70017P061	70017P061	70017P062
8		70017P030	70017P048	70017P048	70017P061	70017P061	70017P062
9		1/4" 73161G001	70017P061	70017P062	70017P030	70017P060	70017P060
10	70017P061		70017P062	70017P030	70017P060	70017P060	70017P061
11	70017P061		70017P062	70017P062	70017P060	70017P060	70017P061
12	70017P060		70017P061	70017P062	70017P060	70017P060	70017P061
13	70017P060		70017P061	70017P062	70017P048	70017P048	70017P061
14	70017P060		70017P061	70017P061	70017P048	70017P048	70017P061
15	70017P060		70017P060	70017P061	70017P062	70017P062	70017P061
16	1/4" x 3/16" 73161G003		70017P041	70017P060	70017P061	70017P061	70017P061
17		70017P041	70017P060	70017P060	70017P061	70017P061	70017P060
18		70017P064	70017P064	70017P060	70017P061	70017P061	70017P060
19		70017P064	70017P064	70017P041	70017P061	70017P061	70017P060
20		70017P064	70017P064	70017P041	70017P061	70017P061	70017P060



TABLE VIII

Pilot Pressure Springs

Model 2303 - Connections 1 1/2 Inches

OUTLET PRESSURE PSI	PILOT ORIFICE DIA.	MAXIMUM INLET PRESSURE PSIG		
		100	80	40
		MAIN ORIFICE DIAMETERS		
		3/8"	1/2"	3/4"
2		70017P061	70017P061	70017P061
3		70017P061	70017P061	70017P061
4		70017P060	70017P060	70017P063
5		70017P060	70017P060	70017P063
6	1/16"	70017P048	70017P048	70017P060
7		70017P048	70017P048	70017P062
8		70017P030	70017P030	70017P062
9		70017P030	70017P030	70017P062
10		70017P030	70017P030	70017P062
11		70017P063	70017P063	70017P061
12		70017P062	70017P062	70017P061
13		70017P062	70017P062	70017P061
14	1/8"	70017P061	70017P061	70017P061
15		70017P061	70017P061	70017P060
16		70017P060	70017P060	70017P060
17		70017P060	70017P060	70017P060
18		70017P060	70017P060	70017P060
19	1/4" x 1/16"	70017P064	70017P064	70017P063
20		70017P064	70017P064	70017P063

Model 2302 - Connections 2 Inches

OUTLET PRESSURE PSI	PILOT ORIFICE DIA.	MAXIMUM INLET PRESSURE PSIG		
		125	100	80
		MAIN ORIFICE DIAMETERS		
		3/8"	1/2"	3/4"
2		70017P061	70017P061	70017P061
3		70017P060	70017P061	70017P061
4		70017P060	70017P060	70017P060
5		70017P060	70017P060	70017P060
6	1/16"	70017P048	70017P048	70017P048
7		70017P048	70017P048	70017P048
8		70017P030	70017P030	70017P030
9		70017P030	70017P030	70017P030
10		70017P030	70017P030	70017P030
11		70017P062	70017P063	70017P063
12		70017P062	70017P062	70017P062
13		70017P062	70017P062	70017P062
14	1/8"	70017P061	70017P061	70017P062
15		70017P061	70017P061	70017P061
16		70017P060	70017P060	70017P061
17		70017P060	70017P060	70017P060
18		70017P060	70017P060	70017P060
19	1/4" x 1/16"	70017P064	70017P064	70017P064
20		70017P064	70017P064	70017P064