ENGINEERING CLUB OF CANADA.

Of all the steam driver air compressors in use, the ones showing the very worst results as far as the economy of steam is concerned are those used on locomotives for operating the air brakes. For compressing a given volume of air to a given pressure, the air pump uses about eight times as much steam as the best air compressors use for the sance amount of work and I suppose there are more of these pumps in use than all the other air compressors combined, but while it is not economical, there is still good reason for its use. It is very compact and simple and always ready and the steam it uses, is generally waste steam. The pump is doing most work when stops are being made or running down grade with engine shut off and excess steam would be blown off through pop valves, if pump was not using it. It is only when the air brake pump is used

	Card	No.4.	
H.P. Deve	eloped to C	ompress 10	O Cu.Feet.
of Free A	ir to Vario	us Pressure	25.
Guage Pressure	One Stage Compression H.P.	Two Stage Compression H.P.	Four Stage Compression H.P.
60	13.41	11.70.	10.80
80	15.94.	13.70	12.50
100	18.15	1540	14.20.

for general air supply that its use should be condemned. Card 5 shows excess steam used by this class of pump.

There is another important matter and that is to get the free air as low a temperature as possible, thereby getting a larger volume in the cylinder. This is, I believe partly well looked after now by users of compressed air, but formerly air was taken at a high temperature from the engine room. There is one form of intake pipe in use which seems to me to be objectionable. This is a pipe usually running up through the roof and a top on it in the shape of a ventilator. I believe that the wind will form a partial vacuum in the pipe and interfere with the flow of air in the cylinder.

There is another matter I wish to note in regard to air compressors. The question often asked is their danger of ex-

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