

# The DUO-ART Reproducing Piano

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## COMBINATION FOOT IMPELLED AND ELECTRIC DUO-ART EXPRESSION BOX

REFER TO ILLUSTRATION "T"

The combination foot impelled and electric Duo-Art expression box is slightly different from the standard Duo-Art expression box found on page 17 illustration "E" with treatise on pages 19 and 20. The difference is as follows:

Spill valve pneumatic "F" with connections and pneumatic "G" which opens a channel between the unregulated supply and the Theme chamber with slide valve "H" opening port "P". The two ports "O" are used for graduated expression manually, with slide valves "L" and "M" which are connected to the "Bass and Treble" levers on the keybed, when used as a pianola piano. The Dynamic or Expression primary Valve Box is divided near the center with four valves on the Theme side and five on the Accompaniment side, adding an additional  $\frac{1}{4}$ " accordion pneumatic on the Accompaniment side. Nipple "B" is the exhaust supply for the Accompaniment side of the Dynamic Valve Box and nipple "D" the exhaust supply for the Theme side.

### TUBING CONNECTIONS

- "A" Main supply tubed directly to foot bellows reservoir.
- "B" Accompaniment side supply tubed to nipple "C".
- "D" Theme side supply is connected to the supply block between the rotary blower and the foot bellows.
- "E" Supply tube to Loud and Soft pedal regulator.
- "F" and "G" Tubed to low air pressure chamber on Theme side of Dynamic Valve Box.
- "J" Spill valve pneumatic tension spring.
- "Q" Spill valve.
- "N" Action cutout slide valve on reroll.
- "I" Additional  $\frac{1}{4}$ " accordion pneumatic tubed to the fifth valve on Accompaniment side "B" of Dynamic Valve Box. This fifth valve, counting from the division, is tubed to the fifth nipple on the Theme side "D" which is connected to the low air pressure chamber on the Theme side. The balance of the connections are precisely the same as shown in illustration "E" page 17 with treatise on pages 19 and 20.

### AS A DUO-ART FOOT IMPELLED

Duo-Art lever in upper left side of tracker box should be in the "On" position and the two levers on the key-

bed marked "Bass and Treble" should be placed and locked in the "Soft" position by the small lever screwed to the keyclip. These two levers are connected to slide valve wires "L" and "M" closing ports "O" which are open only when operating by foot power as an ordinary pianola piano. When the foot bellows are operated pneumatics "F" and "G" are open, "F" holding the spill valve closed, conserving the pressure created in the foot bellows making easy and pleasant operation, and "G" opening a channel "P" between the unregulated supply and the Theme chamber. These two pneumatics remain open because they are tubed to the Theme side "D" of the Dynamic Valve Box which is not under exhaust when operating by foot power. Pneumatic "F" is normally held open by coil spring "J" and pneumatic "G" by a hinge spring. As there is no exhaust on the Theme side of the Dynamic Valve Box air is admitted to the fifth valve on the Accompaniment side causing the additional  $\frac{1}{4}$ " accordion pneumatic "I" to be collapsed pulling down the heel of the knife valve in the Accompaniment regulator giving a zero or normal setting suitable for foot impelled Duo-Art operation. The Accompaniment accordion pneumatics control the degrees of expression in the Accompaniment of a composition and since there is no exhaust on the Theme side of the Dynamic Valve Box the Theme accordion pneumatics do not function but the Theme expression is obtained by the degree of pumping on the foot bellows. See treatise on pages 16, 19 and 20 with illustrations "E" page 17 and "G" page 21 for the Accompaniment dynamic control.

### AS A DUO-ART ELECTRICALLY OPERATED

Duo-Art lever in upper left side of tracker box should be in the "On" position and the two levers on the keybed marked "Bass and Treble" should be locked in the "Soft" position by the small lever screwed to the keyclip. In turning on the switch, starting the electric motor and pump in operation, we now have exhaust on the Theme side "D" of the Dynamic Valve Box causing the pouch of the fifth valve on the Accompaniment side "B" to be exhausted thereby permitting that valve to drop opening the additional  $\frac{1}{4}$ " Accompaniment accordion pneumatic "I", allowing the knife valve in the Accompaniment regulator pneumatic to come back to the normal setting for electric operation.

As pneumatics "F" and "G" are tubed to the exhaust chamber on the Theme side they are also exhausted at the same time and collapse, pneumatic "F" releasing the spill valve "Q" so it may open to normal for electric operation, (see treatise on spill valve page 29 with illustration "J" page 28), and pneumatic "G" closing the channel "P" with slide valve "H" between the unregulated

supply and the Theme chamber. As an electric Duo-Art this expression box functions exactly the same as the expression box seen on page 17 illustration "E" with treatise on pages 15-16, 19 and 20. The zero or pianissimo setting *must* be adjusted with the piano electrically operated. (See treatise on how to adjust the zero setting pages 23 and 24 Test No. 7 and No. 8.) The zero or pianissimo setting for the piano as a foot impelled Duo-Art is automatically set by the collapse of the additional  $\frac{1}{4}$ " Accompaniment accordion pneumatic as explained previously.

### AS A PIANOLA PIANO FOOT IMPELLED

Duo-Art lever in spool box should be pushed in the "Off" position, thus cancelling the automatic expression, and the two levers on the keybed marked "Bass and Treble" should now be released and the spring tension will then pull them in the "Loud" position. By releasing the two levers, which are connected to slide valve wires "L" and "M", the slide valves open ports "O". As a foot impelled Duo-Art the Theme side "D" of the Dynamic Valve Box is not under exhaust consequently pneumatics "F" and "G", which are tubed to the exhaust chamber of the Theme side, are open. Pneumatic "F" is normally held open by tension spring "J" thus closing the spill valve and pneumatic "G" with a hinge spring opening port "P". With ports "O" and "P" open we now have a direct channel from the bass and treble sides of the pneumatic action to the foot bellows. We now have complete control of both bass and treble sides of the pneumatic action and by using the two levers on the keybed marked "Bass and Treble" the operator may vary the expression manually.

With the Duo-Art lever in the spool-box in the "Off" position the "Repeat On and Off block" is pushed forward and exposes the last port in the block admitting atmosphere to the valve in the Dynamic Valve Box collapsing the first  $\frac{1}{4}$ " Accompaniment accordion pneumatic, and as there is no exhaust on the Theme side "D" atmosphere is admitted to the fifth valve, which is tubed to the Theme side, raising it causing the additional  $\frac{1}{4}$ " Accompaniment accordion pneumatic "I" to collapse. With these two pneumatics collapsed the knife valve in the Accompaniment regulator is opened sufficiently that all the notes speak on very delicate musical compositions, with the two levers on the keybed marked "Bass and Treble" in the extreme soft position.

ILLUSTRATION "T"

