operating portions where applying them.

Even then, special precautions must be taken to

NOTE: DECELOTSAT 1 is a Registered Trade-

Mark of American Standard Inc.

Axle Connectors.

Section III - Electric Devices

Back-Up Valves.

K-39 Type Pneumatic Switch.

n-21-B-8 Magnet Valve, 20

n-8P Relay Valve.

Section II - Electro-Pneumatic Devices.

n-33 DECELOTSAT Control Valve.

n-34 DECELOTSAT Controller and

Stock Adjuster.

n-48 A-7P Car Discharge Valve.

n-48 Water Pump Equipment.

n-40 111 Relay Valve.

n-37 Quick Service Valve.

n-30 Emergency Portion.

n-9 Service Portion.

n-22 2 Type Control Valves.

Shop Tools.

1 General Instructions.
WARNING

The use of air for which must be less than 20 psi, "air bags" and/or "eye protectors" are recommended. Improper use of air may cause skin and/or eye irritation.

Use of air and eye protectors are recommended. Proper use of air and eye protectors will cause particles of dirt and other impurities of the cleaning solution to be removed from the parts. When cleaning parts with a spray gun, always clean the spray gun after cleaning is completed. It is also advisable to blow parts clean of oil to blow them dry after cleaning.

The following statements of working apply all in part.

The purpose of these instructions is to avoid difficulty. After being cleaned, parts should be cleaned, inspected, and adjusted to function properly. It is possible to cause parts to become displaced, and yet not necessary to prevent gasket leakage and yet not necessary to cause displacement of covers and gaskets.

When reassembling valve portion, it is important to cause displacement of covers and gaskets. Excessive force is required; therefore, a gasket of the correct type should be used.

Location: Under the manufacturer's name, "gaskets," "slice valves," "gradient valves," etc.

Respect for positions: spring, "gaskets," "slice valves," portion with window when disassembling the portion with window. When the window on the air core must be cleaned, it is advisable to use a small, soft, brush-like device. Parts must be cleaned, inspected, and adjusted to function properly.

Operating portions, unless otherwise specified, must never be classified for use in the work. When disassembling operating portions, care must be exercised to avoid distortion of bolting.

Instructions: In current issues of Instruction, No. 200-2-2, "L" type control valves, and also in the "Manual." All work on the track is to be performed in accordance with the manufacturer's specifications.
### Shop Tools for the D-22 Type Brake Equipment Devices

**Note:** Complete Set, W.A.B. P.C. 596387

<table>
<thead>
<tr>
<th>No.</th>
<th>Tool</th>
<th>Purpose</th>
<th>Principal Dimensions</th>
<th>Piece Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Double End Wrench</td>
<td>Release Interlock &amp; Quick Service</td>
<td>2&quot; &amp; 1/2&quot; Openings</td>
<td>541148</td>
</tr>
<tr>
<td>2</td>
<td>Double End Wrench</td>
<td>Locking Valve Cap Nuts</td>
<td>1&quot; &amp; 3/4&quot; Openings</td>
<td>686259</td>
</tr>
<tr>
<td>3</td>
<td>Reversible Ratchet</td>
<td>5/8&quot; Drive for all Sockets (Flamed)</td>
<td>101/2&quot; Long</td>
<td>513090</td>
</tr>
<tr>
<td>4</td>
<td>3/4&quot; Socket</td>
<td>3/4&quot; Nuts</td>
<td>3/4&quot; Hexagon</td>
<td>533364</td>
</tr>
<tr>
<td>5</td>
<td>3/4&quot; Socket</td>
<td>3/4&quot; Nuts</td>
<td>3/4&quot; Hexagon</td>
<td>533080</td>
</tr>
<tr>
<td>6</td>
<td>Double End Wrench</td>
<td>3/4&quot; Cap Screw &amp; Self-Oiling Piston Cap Nut</td>
<td>9/16&quot; &amp; 9/16&quot; Openings</td>
<td>985658</td>
</tr>
<tr>
<td>7</td>
<td>Double End Wrench</td>
<td>3/4&quot; &amp; 9/16&quot; Nut</td>
<td>9/16&quot; &amp; 9/16&quot; Openings</td>
<td>542367</td>
</tr>
<tr>
<td>7A</td>
<td>Double End Wrench</td>
<td>3/4&quot; &amp; 9/16&quot; Nut</td>
<td>9/16&quot; &amp; 9/16&quot; Openings</td>
<td>558390</td>
</tr>
<tr>
<td>8</td>
<td>Double End Wrench</td>
<td>3/4&quot; Cap Screw &amp; Self-Oiling Piston Cap Nut</td>
<td>9/16&quot; &amp; 9/16&quot; Openings</td>
<td>985659</td>
</tr>
<tr>
<td>9</td>
<td>Screw Driver</td>
<td>1/4&quot; Choke Plug</td>
<td>1/4&quot; x 3/4&quot; Bit</td>
<td>806664</td>
</tr>
<tr>
<td>10</td>
<td>Screw Driver</td>
<td>1/4&quot; Choke Plug</td>
<td>1/4&quot; x 3/4&quot; Bit</td>
<td>806665</td>
</tr>
</tbody>
</table>

### Shop Tools for the D-22 Type Brake Equipment Devices

<table>
<thead>
<tr>
<th>No.</th>
<th>Tool</th>
<th>Purpose</th>
<th>Principal Dimensions</th>
<th>Piece Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>11</td>
<td>Pin Spanner</td>
<td>Pressure Spring Cap Nut</td>
<td>3/4&quot; Dia., 1/4&quot; Pin</td>
<td>986617</td>
</tr>
<tr>
<td>12</td>
<td>Square &amp; Hex Box Wrench</td>
<td>Release Insulating Nut &amp; Set-Charing Piston</td>
<td>1&quot; Square, 1 1/2&quot; Hexagon</td>
<td>986634</td>
</tr>
<tr>
<td>13</td>
<td>Spanner Wrench</td>
<td>Valve Piston</td>
<td>1 1/2&quot; and 1 1/2&quot; between 1/2&quot; Pins, 1 1/2&quot; Offset</td>
<td>985768</td>
</tr>
<tr>
<td>14</td>
<td>Adjustable Wrench</td>
<td>Release Insulating Valve Adjustment</td>
<td>N/A</td>
<td>940167</td>
</tr>
<tr>
<td>15</td>
<td>Spindled Plug Wrench</td>
<td>1/4&quot; Choke Plug</td>
<td>917356</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>Spindled Plug Wrench</td>
<td>1/4&quot; Choke Plug</td>
<td>917357</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>Spindled Plug Wrench</td>
<td>1/4&quot; Choke Plug</td>
<td>917356</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>Spindled Plug Wrench</td>
<td>1/4&quot; Choke Plug</td>
<td>917356</td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>Short Extension Bar</td>
<td>Used with Ratchet, Sockets</td>
<td>5 1/4&quot; Long</td>
<td>533088</td>
</tr>
<tr>
<td>20</td>
<td>Long Extension Bar</td>
<td>Universal Joint</td>
<td>12 1/2&quot; Long</td>
<td>533089</td>
</tr>
</tbody>
</table>

Release insulating valve cap nuts equipped with the fluted socket lock nut must be adjusted by substituting the Spindled Plug Wrench (Ref. 18) in place of the 2 pressure adjusting wrench (secure portion) of Ref. 15.
Pistons, Slide Valves and Graduating Valves

Pistons must be disassembled. An organic solvent type of
slide valve and graduating valve assembly must
be used or cleaned. To do this, the piston,
dirt or grit or grease must be thoroughly cleaned so as to remove all
All pistons, slide valves and graduating valves

Cleaning, Inspecting and Replacing

D-227 Type Control Valves

Section I: Pneumatic Devices

Any work on this device and/or component part
care taken to avoid possible injury from operating
and personal eye and ear protection must be worn and
is removed from the equipment and
level when the device and any component part
cat do to become airborne and an increase in sound

Dr. p. 2. 1. 22 Type Control Valve

Fig. 2. D-227 Type Control Valve

Fig. 1. D-227 Type Control Valve
If specially preformed rings are not available, the
bore may be bored by drilling. The bore where

should start at one side of the ring groove and

should stop at the other side of the groove. This

should be used to keep the ring from turning.

A maple or beech rudder block about 1/16 x 1/4 is

grooved with a hard wood block. For this purpose,
the ring in principle all and then for the ring
moved in the groove. It may be necessary to soak
where ring is stuck with dirt too lightly to be

brought away or drifted by a jet of oil.

after which the excess cleaning fluid can be

the groove. This operation must be repeated

the cleaning fluid then moving the ring around in
the groove. This can be done by dripping the fluid

The piston ring and its groove must be cleaned
without removing the ring from the position.

will cause damage.

when removing the old plug from the piston, care

must be taken to avoid brushing the position.
When the piston ring and its groove are thoroughly cleaned and dried, the end of the ring must be properly cleared above the lubricating hole which is in the bottom of the ring groove of the top of the self-oiling piston. Raise the end of the ring and the wick must be pulled through the hole until about 1/2" is left in the ring groove. The end of the wick in the recessed section at the bottom of the ring groove and anchored in the last hole in the breather hole and the wick must be bent at the back of the wick end and the wick must not obstruct or come in contact with the 1/32" diameter breather hole located adjacent to the wick hole in the oil reservoir.

To restrict the formation of lead deposits on the surface of cast brass parts, such as pistons and piston rings, they must be baked after the paint. The treatment must be applied to the ring before assembly. It must then be used to oil all cast brass pistons, including self-oiling pistons, but is not required for forged or die-cast pistons.

The oil bath mixture must consist of equal parts by volume of light lubricating or machine oil and mineral spirits.

The piston and ring must be placed in a tank containing enough of the oil mixture to submerge the piston halfway up the piston stem and must remain in this mixture not less than three (3) minutes. The piston ring and piston must be removed from the mixture and wiped clean with a rag.
BUSINESS

stick.

with a suitable lapping block or lapping
surface.

being surface is highly polished.

second steel plate until the finished
second plate is then lapped on left half of

precisely smoothed.

surface until bearing surface is ap-

value is then lapped on right side of

2.

value is then lapped on right half of


1. Rough lapping is done on left half of the

paper until bearing surface.


is filed.


150 sandpaper is done on left half of the

face.


indicated by using these places is as follows:

The left half of the

ground, finished surface of an old brake

ground by using a piece of brass having a
every piece of brass having a

cleaned, must be checked for grooving, should-

after they have been


(c)

The left half of the finished surface of the

(cut) cutting edges of the abrasive are eliminated.

Second steel plate is then lapped on right half of the

second plate until the finished

second plate is then lapped on left half of the

with a suitable lapping block or lapping


metallic grinding valve or preferably


11. "Sheet 11' x 11' sheet of 150 grit paper


is flat.


\#150 grit paper until bearing surface


indicated by using these places is as follows:

The left half of the

ground, finished surface of an old brake

ground by using a piece of brass having a

cleaned, must be checked for grooving, should-

after they have been


(c)

The left half of the finished surface of the

(cut) cutting edges of the abrasive are eliminated.

Second steel plate is then lapped on right half of the

second plate until the finished

second plate is then lapped on left half of the

with a suitable lapping block or lapping


metallic grinding valve or preferably


11. "Sheet 11' x 11' sheet of 150 grit paper


is flat.


\#150 grit paper until bearing surface


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\#150 grit paper until bearing surface


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second plate is then lapped on left half of the

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\#150 grit paper until bearing surface


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The left half of the

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Second steel plate is then lapped on right half of the

second plate until the finished

second plate is then lapped on left half of the

with a suitable lapping block or lapping


metallic grinding valve or preferably


11. "Sheet 11' x 11' sheet of 150 grit paper


is flat.
The size of choke is important and whenever a choke
be replaced, the size must not be changed.

Section of this publication.

Section of the shop floor chart in the General Information
portion is disassembled. The choke fittings must
not restricted, and inspection to ensure that they are

Chokes and Strainers cannot be easily cleaned. They must
be removed first. All other strainers and strainers must be
replaced with NEW parts. The filters must be re-

Division Parts.

Division of rubber and rubber seats.

Division of the shop floor chart in the General Information

Valves, Diaphragms, Rubber Seated

Cassette, Diaphragms, Rubber Seated

Special socket, choke plugs are supplied in place

After the bushings are so reconditioned, they

Volume of condensing rings for M-2358-A instructions on the Use

Page 19 of 20
which holds the valve seat until brake pipe
130-RELEASE VALVE SPRING, which serves to hold check
actuates the valve to normal position
116-RELEASE PISTON SPRING, which returns
which holds the valve to its seat.
113-RELEASE SLIDE VALVE SPRING, which

2. the possibility of blowing the graduated valve off its
valve is cut off by the slide valve to prevent

3. brake pipe pressure under the graduated


4. SUPPLY RESERVOIR, which is identified in the illustrations
5. The service portion has a total of eighteen
6. known to be correct.
7. parts that show rust pits, distortion, or have
8. All springs must be inspected after cleaning and
9. SPRINGS
10. The service portion where the graduated release
11. graduated release valve is located in the face of the
12.iesel and the auxiliary reservoir from
13. the graduated release valve, located in the middle of the
14. The graduated release check 105 (073, DR 392),
15. The graduated release provides the secondary quick service function,
16. quick service, the auxiliary reservoir 82 (37L, DR 111), controls the continuous exhaust
17. The auxiliary service exhaust check plug
18. The quick service check plug 82A (073, DR 111),
19. which is mounted in the
20. 99-CHECK VALVE SPRING (4 required)
To identify each of the springs described, the following table gives the data necessary.

<table>
<thead>
<tr>
<th>Springs</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPRING 1</td>
<td>Return to normal position</td>
</tr>
<tr>
<td>SPRING 2</td>
<td>Release interlock slide value</td>
</tr>
<tr>
<td>SPRING 3</td>
<td>Release interlock slide value</td>
</tr>
</tbody>
</table>

Before assembling the slide valve and governor:

**Lubricating and Assembling**

The oil plug (with cap screw still in place) if threads located in the center of the position head until the oil is level with the bottom of the reservoir with oil. Fill to within one inch of the reservoir with oil for the oil filler. Pour out and fill with fresh oil.

The oil valve to hold the piston head in a slightly looser position to return the piston to its normal position, which is released when the slide valve is down.
Next, place three drops of oil in the clean cylinder block.

Before the cleaned piston is reinstalled, the oil grooves of the piston top center, both sides of the ring should be greased with a thin film of petroleum jelly or other suitable lubricant. The oil grooves should be cleaned with a clean cloth.

The oil grooves are located on the活塞的中心顶部两侧，环槽应涂上一层薄薄的石蜡或其他合适的润滑剂。油槽应使用干净的布进行清洁。
Inserting parts of SLE-20 all by weight just before the point of SLE-20 can be further adjusted. The outer edge of the piston bush is covered by several times, after which remove the surplus oil. After the removal of the brush, place the piston back and forth. Lubricating oil current A/C spec. M-912, around each collar at the ends of the case. The threads of the collar, after which remove the surplus oil. After the removal of the brush, place the piston back and forth. Lubricating oil current A/C spec. M-912, around each collar at the ends of the case. The threads of the collar, after which remove the surplus oil. After the removal of the brush, place the piston back and forth. Lubricating oil current A/C spec. M-912, around each collar at the ends of the case. The threads of the collar, after which remove the surplus oil. After the removal of the brush, place the piston back and forth. Lubricating oil current A/C spec. M-912, around each collar at the ends of the case. 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M-912, around each collar at the ends of the case.
Chokes - Size and Location

Emergency Portion

The purpose of these chokes are as follows:

Why they are located. The location and which they govern the flow of air through the parts in which the emergency portion contains the chokes.

Cleaning, Inspecting and Replacing

Cleaning, the parts (excepting the body) should be dis assembled and all parts inspected and cleaned. The emergency portion must be completely with a suitable solvent.

Emergency Portion

After the service portion passes the specified track test remove it from the test rack. Secure the process can only be operated in place.
The following identification gives the data necessary for the operation and maintenance of the ordnance equipment.

Springs Identification and Purpose

The following springs are identified on the illustrated portion of eight figures.

The emergency portion contains a total of eight springs which are identified by reference numbers as follows:

1. Graduating Value Spring, which serves to hold check valve 52 to its seat.
2. Accelerated Release Check Valve Spring, which serves to hold the check valve 52 to its seat.
3. Accelerated Release Check Valve spring, which serves to hold the check valve 52 to its seat.
4. Relief High Pressure Valve Spring, which serves to hold the valve in normal position.
5. Relief Emergency Valve Spring, which holds the valve in its seat.
6. Relief Emergency Valve Spring, which holds the valve in its seat.
7. Relief Emergency Valve Spring, which holds the valve in its seat.
8. Relief High Pressure Valve Spring, which serves to hold the valve in normal position.

The remaining eight springs are identified by numbers 27 and 28 on the illustrated portion with the instructions that they be cleaned and replaced as specified in the ordnance equipment instructions for the ordnance equipment.

The following eight springs are identified by numbers 27 and 28 on the illustrated portion with the instructions that they be cleaned and replaced as specified in the ordnance equipment instructions for the ordnance equipment.

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Instructs for installing the following paragraphs:

Inserting

Before assembling the emergency piston glide. (See lubricating and assembling)

Graduating valve only.

Remove the excess from the plug and of the gage. If the clearance is less than 0.039, the gage checked with a feeler gauge. Burrs around the guide clearance of the graduating valve in the

Valve, and graduating valve, check the long-
Remove and discard the brake pipe filter. Re-

\[\text{\textcopyright QUICK SERVICE VALVE} \]

Inset into the emergency portion vent port.

The pressure pipe plug, or its equivalent, must also be

After the emergency portion has been properly

same manner as the vent valve piston.

The high pressure valve must be isolated at this

publication.

Plates 2 and 3 which are found in the back of this

portion to the \#22" control valve is shown on

PNEUMATICALLY OPERATED. This modification

VALUES THAT ARE NOT ELECTRONICALLY

\text{\textcopyright PANEL CONTROL}

\text{\textcopyright PANEL CONTROLS}

\text{\textcopyright PANEL CONTROL}

...
The Quick Service Valve contains three (3) service volume reservoirs.

Installing the proper charging rate of the quick exhaustion of the reservoirs, this check is a safety feature which serves to prevent damage to the system. The quick service valve is located in the valve portion of the body. The quick service valve contains one check – a flow restriction check.

When disassembling the quick service valve, place it with a NEW disposable type filter.
Generally, the instructions for cleaning, inspecting, and testing the shipping cover to the valve, and removing from the test rock, secure the Quick Service Valve has been properly fitted and bolted. The following table gives the dimensions of the various parts.

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
<th>Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>Diaphragm spring</td>
<td>0.55 x 1.05</td>
</tr>
<tr>
<td>16</td>
<td>Diaphragm spring</td>
<td>0.55 x 1.05</td>
</tr>
<tr>
<td>17</td>
<td>Check valve spring</td>
<td>0.95 x 1.15</td>
</tr>
<tr>
<td>18</td>
<td>Check valve spring</td>
<td>0.95 x 1.15</td>
</tr>
<tr>
<td>19</td>
<td>Diaphragm follower spring</td>
<td>1.50 x 0.80</td>
</tr>
</tbody>
</table>

To identify each of the springs described:

- 29 - DIAPHRAGM FOLLOWER SPRING, which serves to seat the diaphragm follower.
- 28 - CHECK VALVE SPRING, which serves to seat the outlet valve check valve.
- 27 - CHECK VALVE SPRING, which serves to hold the slide valve on its seat.
Before assembling the relay valve, place a small amount of No. 1 Linseed Oil on the bearing surfaces of the piston lever. Also, place a drop or oil on the camshaft of No. 1 Linseed Oil on the bearing surfaces of the piston lever. Also, place a drop of oil on the bearing surfaces of the piston lever. Also, place a drop of oil on the bearing surfaces of the piston lever.

NOTE: The following instructions apply only to Type Relay Valves equipped with rubber seated application and exhaust valves.

**Type Relay Valve**: No emergency parts are used. When replacing parts or repairing and lubricating the various parts of the No. 2-2 Relay Valve, follow the instructions for the No. 2-2 Relay Valve Service Manual.
To identify each of the springs described: The following tabulation gives the data necessary.

### TABLE

<table>
<thead>
<tr>
<th>Spring</th>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Primary Valve</td>
<td>125</td>
</tr>
<tr>
<td>2</td>
<td>Secondary Valve</td>
<td>150</td>
</tr>
<tr>
<td>3</td>
<td>Relief Valve</td>
<td>200</td>
</tr>
<tr>
<td>4</td>
<td>Exhust Valve</td>
<td>250</td>
</tr>
</tbody>
</table>

### APPLICATION VALVE SPRING AND EXHAUST VALVE SPRING

To hold the exhaust valve and piston, serve to hold the exhaust valve and piston against the spring chamber, which contains the exhaust valve orifice. Where the valve is held open by the spring, which contacts the surfaces between the valve and the valve seat, the following adjustment must be made with the application piston lever and application valve stem. This

### Piston Lever

Adjust the clearance of 0.25" to 0.30" between the piston lever and piston, or otherwise they must be replaced.

### Exhust Valve

With the exhaust valve returned to its seat, when it is locked in position, the clearance is 0.20" to 0.25". When the exhaust valve is completely assembled, the clearance of 0.05" to 0.10" must be maintained between the exhaust valve and piston lever.

### Note

When assembling the exhaust valve, note that the piston lever is completely assembled, the clearance of 0.05" to 0.10" must be maintained between the exhaust valve and piston lever.

10 minute to 10 minutes. Then allow to soak for at least 4 hours. Clean the interior of the valve with a suitable solvent for a few minutes. Then allow to soak for a few minutes. Finally, return to the same solvent and thoroughly wash the entire assembly of all parts.
to hold diaphragm down and valve 27 unseated.

37 and 38-DIAPHRAGM SPRINGS, which serve

30-CHECK VALVE SPRING, which serves to

hold check valve 29 on its seat.

28-CHECK VALVE SPRING, which tends to hold

valve in its normal position.

16-GOVERNOR SPRING, which serves to hold

check valve seated.

12-CHECK VALVE SPRING, which serves to

follows

the sectional view by reference numbers as

governor and reducing valve are identified in

the combined

Five springs are contained in the combined

Equipment.

Training the device consisting the water raising

and emergency systems (also apply when recorded

outlines for the "C-22" control valve service

includingLeodling the various parts as

Generally, the instructions for cleaning, inspect-

The water raising equipment includes a gov-

Water Raising Equipment
Figure 21: Front views of the P-6 and P-144 brake unit.

The necessary instructions required for the re-assembling slack adjusting device:

1. Threading the A-27 Control Valve Seat.
2. Repairing and inspecting the various parts as outlined for the A-27 Control Valve Service.
3. The instructions for cleaning and inspecting A-27 Control Valve Seat.

Identification of Governor and Reducing Valve Spring:

To identify each of the springs described:

The following table gives the data necessary...
Before assembling the relay valve, place a small
seated application and exhaust valves.

NOTE: The following instructions apply only to

Relay Valves.

Installing the respective portions of the "T" Type
and Emergency Portions also apply when replacing
and/or repairing the various parts as

Genarally, the instructions for cleaning inspect-

Connections.

Inspection and cleaning without breaking the pipe
brackets from which they are removable for

Threaded portions are bolted to the pipe
portion. Insert valve portion and magazine part-

The "T" Type Relay Valve consists of a relay

SECTION II - ELECTRO-PNEUMATIC DEVICES

must be strictly adhered to.

Equipment and instructions contained therein

for the reader and manufacturers of DECELEOSTAT

A separate pamphlet, L-2612-1, has been issued

B-3 DECELEOSTAT CONTROL VALVE

AND

P-3 DECELEOSTAT CONTROLLER
PHRAGM STOCK.

Springs, permitting flow of air to the diaphragm stack, are designed against the pressure of the supply valve, underside of which is the diaphragm stack. 88-PISTON SPRING holds piston and diaphragm stack together.

JINSHHOT VALVE PORTION:

Hold the check valves seated.

22-CHECK VALVE SPRING, which serves to

Cylinder pressures.

Release position and positive release of low pressure

Inching return of the self-latching portion to

come the resistance of the diaphragm stack.

RELAX SPRING, which is used to over-

APPLICATION PISTON VALVE SPRING, which serves to hold the application valve and piston

APPLICATION PISTON VALVE SPRING and

Piston lever

APPLICATION PISTON VALVE SPRING and

APPLICATION PISTON VALVE SPRING.

Check plug 15, with 1/8" check (187" drill) across

RELAY PORTION:

numbers as follows:

Springs and check used in the various portions are identified in the sectional views by reference.

EXHAUST VALVE

EXHAUST VALVE.

The exhaust valve must be adjusted in the following manner:

Before the relay valve is completely assembled,

the exhaust valve and piston lever must be

adjusted to the following positions:

The exhaust valve must be adjusted as follows:

when the nut and the exhaust valve plug are

tight to keep them tight, otherwise they must

be replaced.

NOTE: When assembling the entire group on

more than 0.10" clearance between the Retaining

lock is in position, there is no less than 0.05", nor

exhaust valve relocking nut so that when it is

with the exhaust valve on its seat, adjust the

amount of No. 1 Lime base Grease on the
portion

Check valves located in the diaphragm

162 - CHECK VALVE SPRING, which serves to

Inhibit valve and diaphragm chamber.

Draft with filter, controls flow of air between

Low speed magnet Choke 142.3/8" Choke (067"

between Inhibit valve and diaphragm chamber.

Draft (048" Draft) with filter, controls flow of air

Medium speed magnet Choke 140.1/4" Choke

between Inhibit valve and diaphragm chamber.

Draft (048" Draft) with filter, controls flow of air between

High speed magnet Choke 138.1/8" Choke (033"

 portion A

Wipes upwind.

Aseal the supply valve when the diaphragm piston

94 - SUPPLY VALVE SPRING, which serves to

keep exhaust valve 33 normally seated.

94 - EXHAUST VALVE SPRING, which serves to
The "21-B" MAGNET VALVE consists of a pipe bracket and magnet valve portion, included with the magnet valve portion, which protects against the loss of auxiliary reservoir air in the event of abnormal magnet valve operation or broken straight air pipe.

After the relay valve portions have been properly treated and removed from the rack, attach the respective shipping cover to the portions.

The following tabulation gives the data necessary to identify each of the springs described.
Fig. 25 Shipping Covers for 4" Relay Valves

Fig. 26 21-B Magnet Valve horizontal section
32 - CONTACT SPRING, which serves to control the  
operation of the contact lever.  

31 - LEVER SPRING, which serves to control the  
operation of the contact lever.  

21 - LEVER SPRING, which serves to control the  
operation of the contact lever.  

30 - COVER SPRING, which serves to hold cover.  

29 - CONTACT HOLDER.  

28 - CONTACT SPRING, which serves to contact the  
contact finger.  

27 - CONTACT SPRING 60 pound spring is also available.  

26 - DIAPHRAGM SPRING, with a value of 11.  

The following table gives the data necessary  
for the application of the springs described.  

The following table gives the data necessary  
for the application of the springs described.  

Table:<br>

<table>
<thead>
<tr>
<th>Spring Type</th>
<th>Application and Release Value</th>
<th>APR</th>
<th>APR</th>
<th>APR</th>
<th>APR</th>
</tr>
</thead>
<tbody>
<tr>
<td>32 - CONTACT SPRING</td>
<td>1.2 - CONTROL CHECK VALUE SPRING</td>
<td>1.2</td>
<td>1.2</td>
<td>1.2</td>
<td>1.2</td>
</tr>
<tr>
<td>31 - LEVER SPRING</td>
<td>1.2 - CONTROL SPRING, with a value of 11.</td>
<td>1.2</td>
<td>1.2</td>
<td>1.2</td>
<td>1.2</td>
</tr>
</tbody>
</table>

Applicable number of switches follow:<br>

K. 3.3 - TYPE PNEUMATIC SWITCHES

The magnet valve must pass the spec.  

The magnet valve was returned to service.
BACK-UP VALVES

Connections of terminals to control block.

Care must be used in assembling to make proper

Generally, the instructions for cleaning, inspect-

The W-K-29 Type Pneumatic Switch must pass the

K-TYPE PNEUMATIC SWITCH SPRING IDENTIFICATION

To identify each of the springs described:

The following table gives the data necessary

<table>
<thead>
<tr>
<th>Springs</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Springs</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>
service.

specified rock test before being returned.

The "B" TYPE BACK-UP VALVES must pass the

---

### BACK-UP VALVE SPRING IDENTIFICATION

<table>
<thead>
<tr>
<th>Valve</th>
<th>Spring Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>B-KEY SPRING</td>
<td>which holds the key in place.</td>
<td></td>
</tr>
<tr>
<td>7-VALVE SPRING</td>
<td>which is used to hold the valve seat.</td>
<td></td>
</tr>
<tr>
<td>12-VALVE SPING</td>
<td>located in the automatic mode.</td>
<td></td>
</tr>
<tr>
<td>HANDLE LATCH SPRING</td>
<td>located in the DE-1.</td>
<td></td>
</tr>
<tr>
<td>2-CONTACT FINGER SPRINGS</td>
<td>located in the DE-1.</td>
<td></td>
</tr>
</tbody>
</table>

---

Spres. M-9/12 distributed evenly, a few drops of oil, current air

During assembling the contact surfaces should be

removed. Before the valve, valve push and key may be

holding the handle to the key must be removed.

The valve seat, back-up valve must pass the seat.

---

The 12-VALVE SPRING, 12-CONTACT FINGER SPRINGS, located in the

DE-1. and the rotary valve with

Air spec. M-9/12 and the rotary with
3. If there is any evidence of bearing wear, the worn bearing must be replaced before damage occurs to the armature.

2. Wipe off the commutator and, if necessary, clean it with No. 00 sandpaper after the generator is mounted on the truck and while it is running. If the commutator shows signs of excessive wear, it must be reconditioned.

1. The brush holders must be inspected to make certain the brushes slide freely and that the brush spring cups are securely in place. Brushes that are under 3/8" in length, chipped, or cracked, and brush springs which are broken or deformed must be replaced with new parts.

Type "A" Axle Generators:

The axle generators must, when first received in the shop, be cleaned and inspected. Disassemble the axle generator using care not to damage any part. The individual parts must be cleaned and inspected.
DIAGNOSING

1. The brush holders must be inspected to make certain the brushes slide freely and that the brush spring cups are securely in place.

2. Type "B" axe generators:

   a. Note that there is no path, normally, for the arc to follow. If the arc is visible or has been in contact with the carbon brushes, it is necessary to replace the brushes.

   b. Wipe the exposed brush areas with a clean dry cloth.

   c. Inspect connections for loose or corroded wiring.

   d. Replace an individual brush if it is severely damaged.

   e. Replace the whole set of brushes if any one is damaged.

   f. Check for wear or damage on the brush holders.

   g. Check for wear or damage on the frame and armature.

   h. Replace the armature if it is worn or damaged.

   i. Inspect the brushes for wear or damage.

   j. Inspect the carbon brushes for wear or damage.

   k. Inspect the commutator for wear or damage.

   l. Inspect the armature for wear or damage.

   m. Inspect the frame for wear or damage.

   n. Inspect the brushes for wear or damage.

   o. Inspect the commutator for wear or damage.

   p. Inspect the armature for wear or damage.

   q. Inspect the frame for wear or damage.

   r. Inspect the brushes for wear or damage.

   s. Inspect the commutator for wear or damage.

   t. Inspect the armature for wear or damage.

   u. Inspect the frame for wear or damage.

   v. Inspect the brushes for wear or damage.

   w. Inspect the commutator for wear or damage.

   x. Inspect the armature for wear or damage.

   y. Inspect the frame for wear or damage.

   z. Inspect the brushes for wear or damage.

   AA. Inspect the commutator for wear or damage.

   BB. Inspect the armature for wear or damage.

   CC. Inspect the frame for wear or damage.

   DD. Inspect the brushes for wear or damage.

   EE. Inspect the commutator for wear or damage.

   FF. Inspect the armature for wear or damage.

   GG. Inspect the frame for wear or damage.

   HH. Inspect the brushes for wear or damage.

   II. Inspect the commutator for wear or damage.

   JJ. Inspect the armature for wear or damage.

   KK. Inspect the frame for wear or damage.

   LL. Inspect the brushes for wear or damage.

   MM. Inspect the commutator for wear or damage.

   NN. Inspect the armature for wear or damage.

   OO. Inspect the frame for wear or damage.

   PP. Inspect the brushes for wear or damage.

   QQ. Inspect the commutator for wear or damage.

   RR. Inspect the armature for wear or damage.

   SS. Inspect the frame for wear or damage.

   TT. Inspect the brushes for wear or damage.

   UU. Inspect the commutator for wear or damage.

  VV. Inspect the armature for wear or damage.

   WW. Inspect the frame for wear or damage.

   XX. Inspect the brushes for wear or damage.

   YY. Inspect the commutator for wear or damage.

   ZZ. Inspect the armature for wear or damage.

   AAA. Inspect the frame for wear or damage.

   BBB. Inspect the brushes for wear or damage.

   CCC. Inspect the commutator for wear or damage.

   DDD. Inspect the armature for wear or damage.

   EEE. Inspect the frame for wear or damage.

   FFF. Inspect the brushes for wear or damage.

   GGG. Inspect the commutator for wear or damage.

   HHH. Inspect the armature for wear or damage.

   III. Inspect the frame for wear or damage.

   JJJ. Inspect the brushes for wear or damage.

   KKK. Inspect the commutator for wear or damage.

   LLL. Inspect the armature for wear or damage.

   MLL. Inspect the frame for wear or damage.

   NNN. Inspect the brushes for wear or damage.

   OOO. Inspect the commutator for wear or damage.

   PPP. Inspect the armature for wear or damage.

   QQQ. Inspect the frame for wear or damage.

   RRR. Inspect the brushes for wear or damage.

   SSS. Inspect the commutator for wear or damage.

   TTT. Inspect the armature for wear or damage.

   UUU. Inspect the frame for wear or damage.

   VVV. Inspect the brushes for wear or damage.

   WWW. Inspect the commutator for wear or damage.

   XXX. Inspect the armature for wear or damage.

   YYY. Inspect the frame for wear or damage.

   ZZZ. Inspect the brushes for wear or damage.

   AAAA. Inspect the commutator for wear or damage.

   BBBB. Inspect the armature for wear or damage.

   CCCC. Inspect the frame for wear or damage.

   DDDD. Inspect the brushes for wear or damage.

   EEEE. Inspect the commutator for wear or damage.

   FFFF. Inspect the armature for wear or damage.

   GGGG. Inspect the frame for wear or damage.

   HHHH. Inspect the brushes for wear or damage.

   IIIM. Inspect the commutator for wear or damage.

   JJJJ. Inspect the armature for wear or damage.

   KKKK. Inspect the frame for wear or damage.

   LLLL. Inspect the brushes for wear or damage.

   MLLL. Inspect the commutator for wear or damage.

   NNNN. Inspect the armature for wear or damage.

   OOOO. Inspect the frame for wear or damage.

   PPPO. Inspect the brushes for wear or damage.

   QQQQ. Inspect the commutator for wear or damage.

   RRRR. Inspect the armature for wear or damage.

   SSST. Inspect the frame for wear or damage.

   TTTT. Inspect the brushes for wear or damage.

   UUUT. Inspect the commutator for wear or damage.

   VVVV. Inspect the armature for wear or damage.

   WWWT. Inspect the frame for wear or damage.

   XXXX. Inspect the brushes for wear or damage.

   YYYY. Inspect the commutator for wear or damage.

   ZZZZ. Inspect the armature for wear or damage.

   AAAA. Inspect the frame for wear or damage.

   BBBB. Inspect the brushes for wear or damage.

   CCCC. Inspect the commutator for wear or damage.

   DDDD. Inspect the armature for wear or damage.

   EEEE. Inspect the frame for wear or damage.

   FFFF. Inspect the brushes for wear or damage.

   GGGG. Inspect the commutator for wear or damage.

   HHHH. Inspect the armature for wear or damage.

   IIIM. Inspect the frame for wear or damage.

   JJJJ. Inspect the brushes for wear or damage.

   KKKK. Inspect the commutator for wear or damage.

   LLLL. Inspect the armature for wear or damage.

   MLLL. Inspect the frame for wear or damage.

   NNNN. Inspect the brushes for wear or damage.

   OOOO. Inspect the commutator for wear or damage.

   PPPO. Inspect the armature for wear or damage.

   QQQQ. Inspect the frame for wear or damage.

   RRRR. Inspect the brushes for wear or damage.

   SSST. Inspect the commutator for wear or damage.

   TTTT. Inspect the armature for wear or damage.

   UUUT. Inspect the frame for wear or damage.

   VVVV. Inspect the brushes for wear or damage.

   WWWT. Inspect the commutator for wear or damage.

   XXXX. Inspect the armature for wear or damage.

   YYYY. Inspect the frame for wear or damage.

   ZZZZ. Inspect the brushes for wear or damage.

   AAAA. Inspect the commutator for wear or damage.

   BBBB. Inspect the armature for wear or damage.

   CCCC. Inspect the frame for wear or damage.

   DDDD. Inspect the brushes for wear or damage.

   EEEE. Inspect the commutator for wear or damage.

   FFFF. Inspect the armature for wear or damage.

   GGGG. Inspect the frame for wear or damage.

   HHHH. Inspect the brushes for wear or damage.

   IIIM. Inspect the commutator for wear or damage.

   JJJJ. Inspect the armature for wear or damage.

   KKKK. Inspect the frame for wear or damage.

   LLLL. Inspect the brushes for wear or damage.

   MLLL. Inspect the commutator for wear or damage.

   NNNN. Inspect the armature for wear or damage.

   OOOO. Inspect the frame for wear or damage.
1. Assemble both ball bearings to the camature.

TYPE "A" AXLE GENERATORS:

Tack test before being returned to service. The "A" Axle Generator must pass the specified correcrions. Determine the cause of tightness and make needed adjustments. This assembly can only be most successfully made if the camature is washed and dry but not too dry. The camature must not be over cleaned. Use soap and water or a solvent. Place it on a clean flat surface. Be sure the camature is properly positioned in the camature. Then place the drive coupling in the camature and look in place. After the plate drive coupling has been properly

2. Connect the front bearing bosses. The camature must not be over cleaned. Use soap and water or a solvent. Place it on a clean flat surface. Be sure the camature is properly positioned in the camature. Then place the drive coupling in the camature and look in place.

3. Secure the end bell to the body. Lock the bearing. Also apply the compound to the edge of the bearing. Apply one drop of the inner race of the bearing. Then, apply a drop of compound between the outer race of the inner race of the bearing. Apply three drops of compound between the outer race of the inner race of the bearing. Apply five drops of compound between the outer race of the inner race of the bearing.

4. When assembling the end bell to the camature, then place the camature on the rear camature and fit to the camature end of the body. Lock the camature. Then place the drive coupling in the camature and look in place.

5. Secure the end bell to the body. Lock the bearing. Also apply the compound to the edge of the bearing. Apply one drop of the inner race of the bearing. Then, apply a drop of compound between the outer race of the inner race of the bearing. Apply three drops of compound between the outer race of the inner race of the bearing. Apply five drops of compound between the outer race of the inner race of the bearing.

6. Assemble the brushes to the generator.
1. After the armature end play has been properly adjusted, remove the bearing retainer and
replace the bearing retainer, and then recheck the
tightness of the bolts together. These bolts fix the
clearance of the stepping motor.

2. With the socket and felt packing ring in place
cover the end bell. Assemble the armature with
attaching the bearing cover of its equivalent.

3. Securely fasten the bearing retainer to the
generator body. Check the end play of the
generator body.

4. After the armature end play has been properly
adjusted, remove the bearing retainer and
replace the bearing retainer, and then recheck the
tightness of the bolts together. These bolts fix the
clearance of the stepping motor.

5. Assemble the brushes to the generator.

6. Attach the drive mechanism to the generator.

NOTE: Refer to the instructions for assembling
the drive coupling under the preceding section for type "A" Stepping Motors.

Rack trolley before replacing returned to service.

The new axle generator must pass the specified
clearance of the stepping motor.

After the drive coupling is specified under the
preceding section for type "A" Stepping Motors.

NOTE: Refer to the instructions for assembling
the drive coupling under the preceding section for type "A" Stepping Motors.

Rack trolley before replacing returned to service.

The new axle generator must pass the specified
clearance of the stepping motor.
PLATE 2

(6-807)

Supply Reservoir Charging Check Valve Elimination

"D-22-AR" and "D-22-BR" Control Valve

REMOVAL OF BALL CHECK VALVES

TC-11180

PORT 8

CHOKE PLUG P/N 79969
Place in either valve of check valve plug.

Using bush. P.C. 65469.
Old standard plugged.

P.C. 75960, P.C. 50262.

With "A" end of plug down.

Supply Reservoir Change Check Valve Elimination.
"D-22-AR" and "D-22-BR" Control Valve.

P.C. 75960, P.C. 65469.