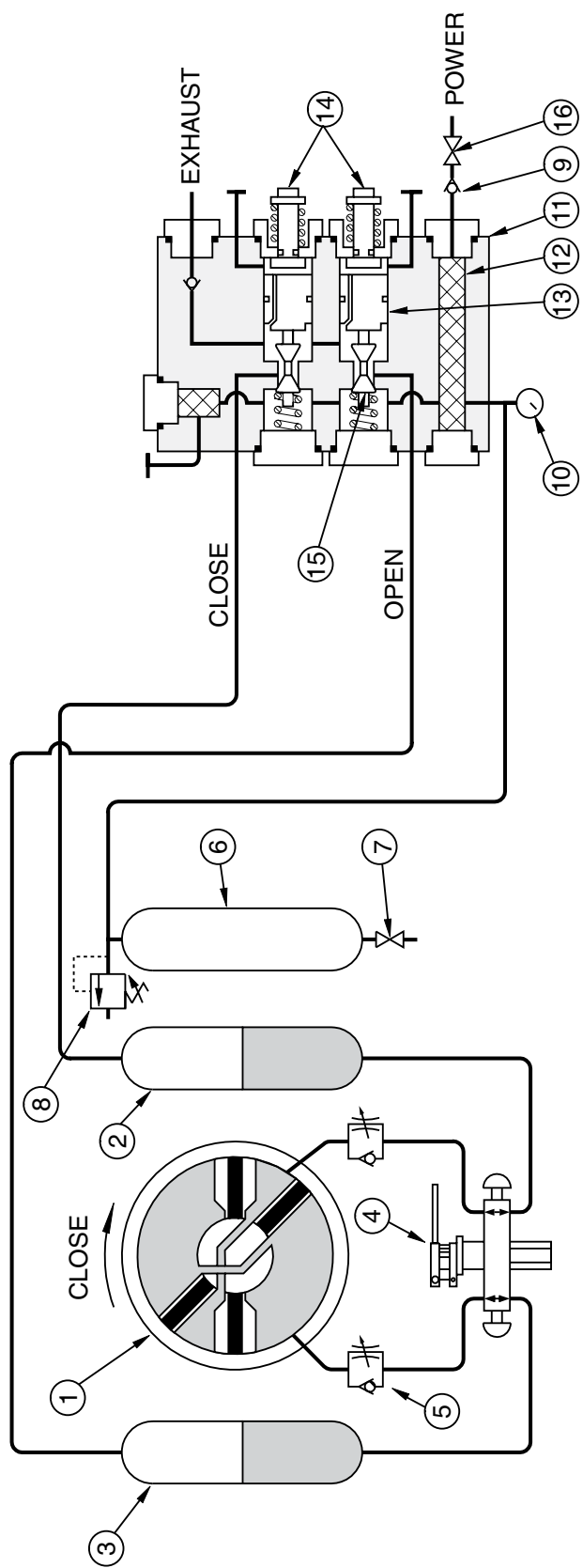




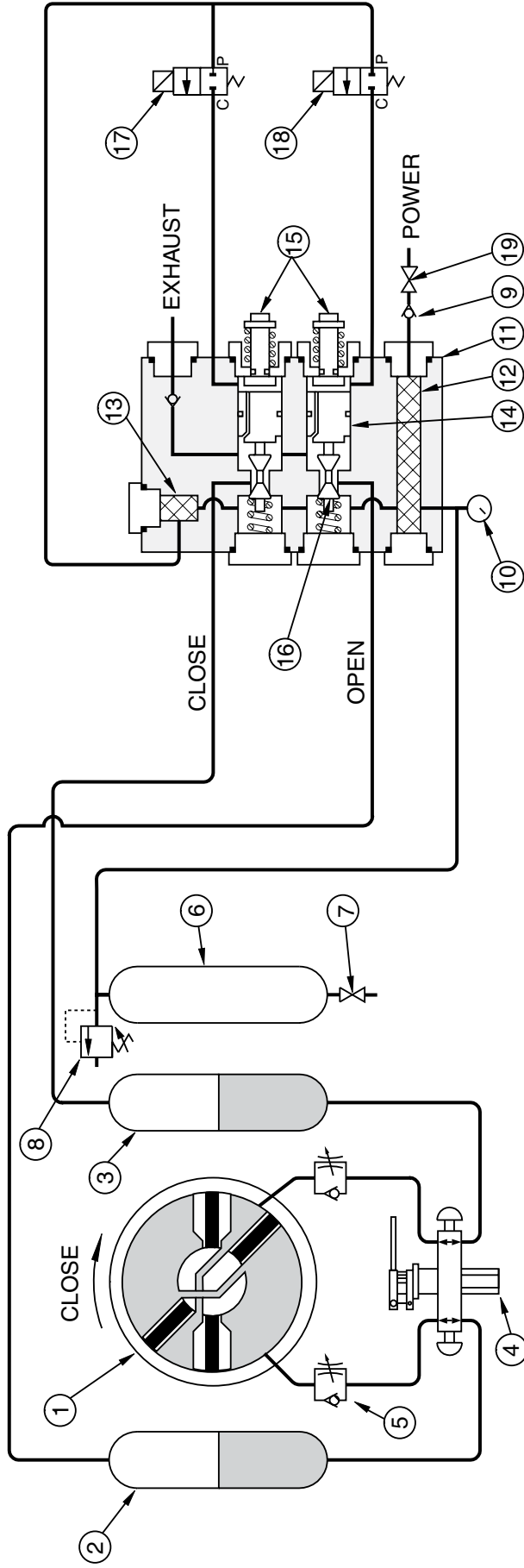
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- 1. Shafer Operator (shown in open position)
 - 2. Closing Gas Hydraulic Tank
 - 3. Opening Gas Hydraulic Tank
 - 4. Hand Pump
 - 5. Speed Control (optional)
 - 6. Power Storage Tank
 - 7. Drain Valve
 - 8. Relief Valve
 - 9. Check Valve
- OPTIONAL PACKAGE

- 10. Gauge
- 11. Control Block
- 12. Power Strainer (140 micron)
- 13. Control Pilot Piston (with orifice)
- 14. Manual Operation (handles not shown)
- 15. Power Poppet
- 16. Power Shutoff Valve (optional)



1. Shafer Operator (shown in open position)
2. Opening Gas Hydraulic Tank
3. Closing Gas Hydraulic Tank
4. Hand Pump
5. Speed Control (optional)
6. Power Storage Tank
7. Drain Valve
8. Relief Valve
9. Check Valve
10. Gauge

OPTIONAL
PACKAGE

11. Control Block

12. Power Strainer (140 micron)

13. Pilot Strainer (25 micron)

14. Control Pilot Piston (with orifice)

15. Manual Operation (handles not shown)

16. Power Poppet

17. 2-Way Normally Closed Solenoid Valve

18. 2-Way Normally Closed Solenoid Valve

19. Power Shutoff Valve (optional)

ELECTRIC REMOTE 2-WAY FEATURE

- A. Energize solenoid (17) to close the operator.
 - B. Energize solenoid (18) to open the operator.
- The solenoids must be de-energized at the end of the operators stroke.*

LEGEND

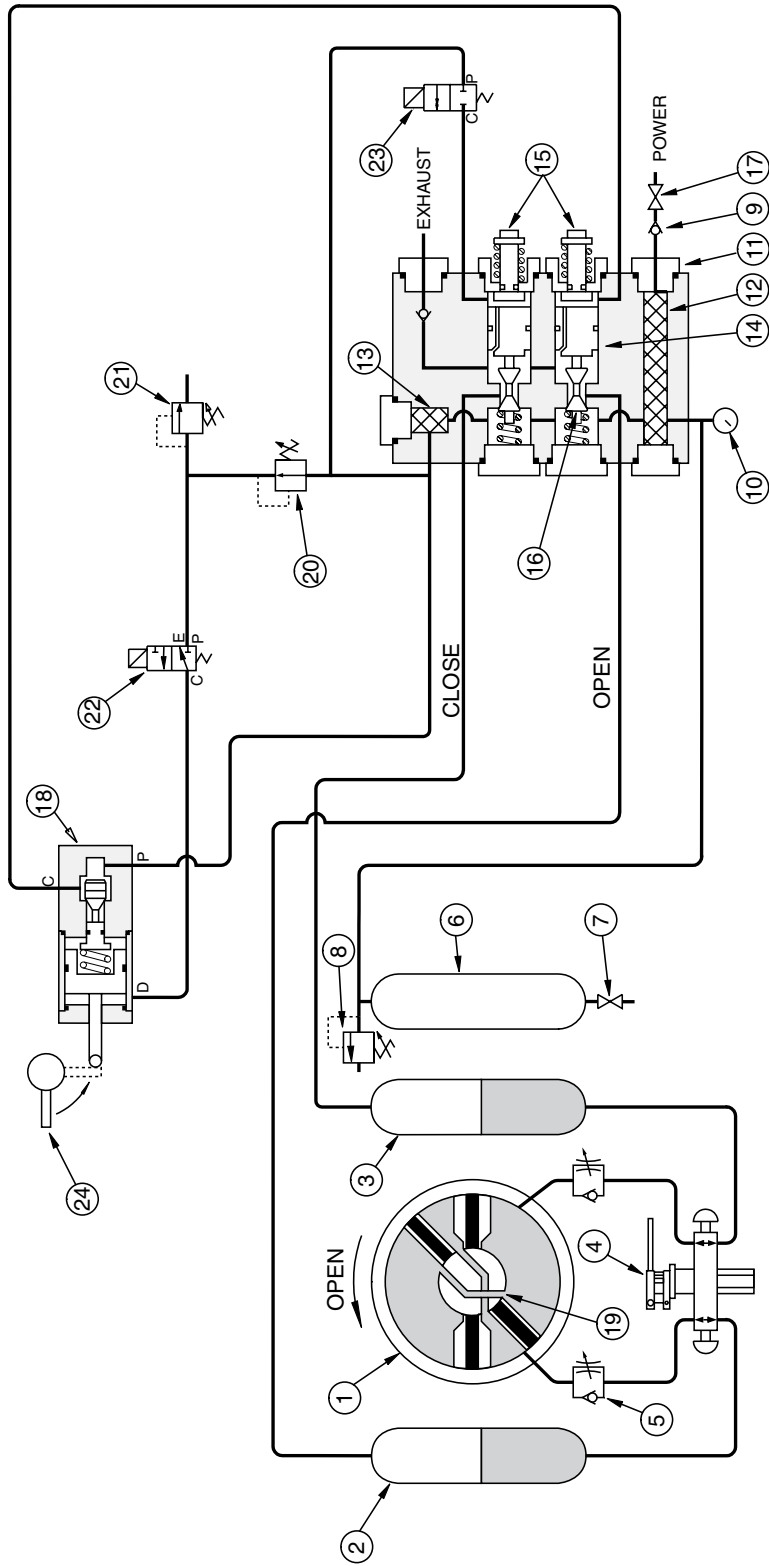
P - POWER

C - CYLINDER

SHAFER

Electric Remote
2-Way Schematic

4944-S



1. Shafer Operator (shown in closed position)
2. Opening Gas Hydraulic Tank
3. Closing Gas Hydraulic Tank
4. Hand Pump
5. Speed Control (optional)
6. Power Storage Tank
7. Drain Valve
8. Relief Valve
9. Check Valve
10. Gauge
11. Control Block
12. Power Strainer (140 micron)
13. Pilot Strainer (25 micron)
14. Control Pilot Piston (with orifice)

OPTIONAL PACKAGE

15. Manual Operation (handles not shown)
16. Power Poppet
17. Power Shutoff Valve (optional)
18. 2-Way Normally Open, Pilot Actuated Limit Valve located and actuated at the end of the operators opening stroke.
19. Operator Rotor
20. Regulator
21. Relief Valve
22. 3-Way Normally Closed Solenoid Valve
23. 2-Way Normally Closed Solenoid Valve
24. Mechanical Actuating Device attached to the top of the operator rotor.

ELECTRIC REMOTE 2-WAY FEATURE

- A. Energize solenoids (22) and (23) to close the operator.
 - B. De-energize solenoid (22) and (23) to open the operator.
- Solenoids (23) must be de-energized at the end of the operators closing stroke.*

ELECTRIC FAILSAFE FEATURE

Solenoid (22) is constantly energized open. Upon loss of electric, it closes and vents the pilot of valve (18) and causes the operator to open.

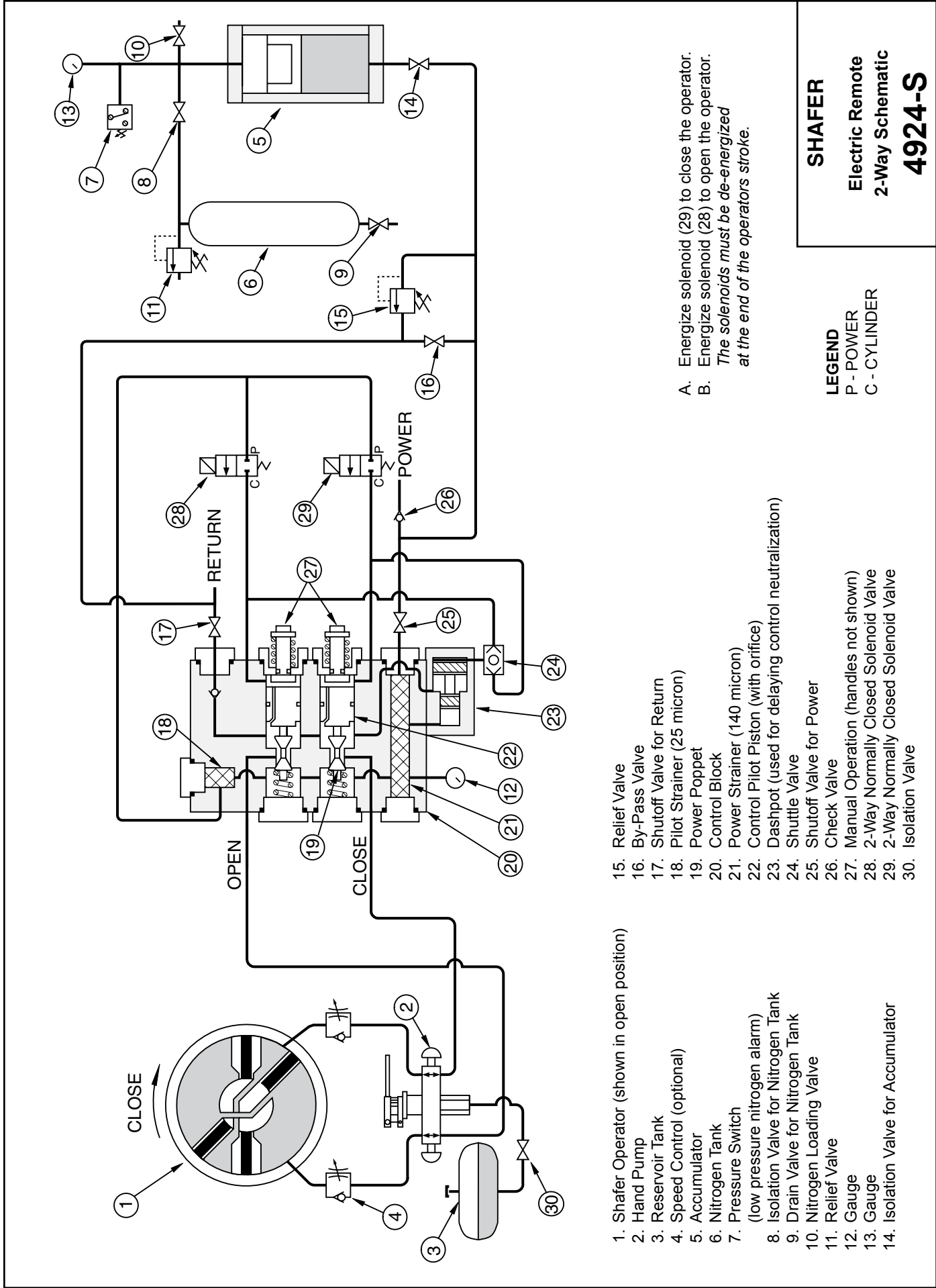
LEGEND

- P - POWER
- C - CYLINDER
- E - EXHAUST
- D - PILOT

SHAFER

**Electric Remote 2-Way
With Fail-Safe Schematic**

8420-S

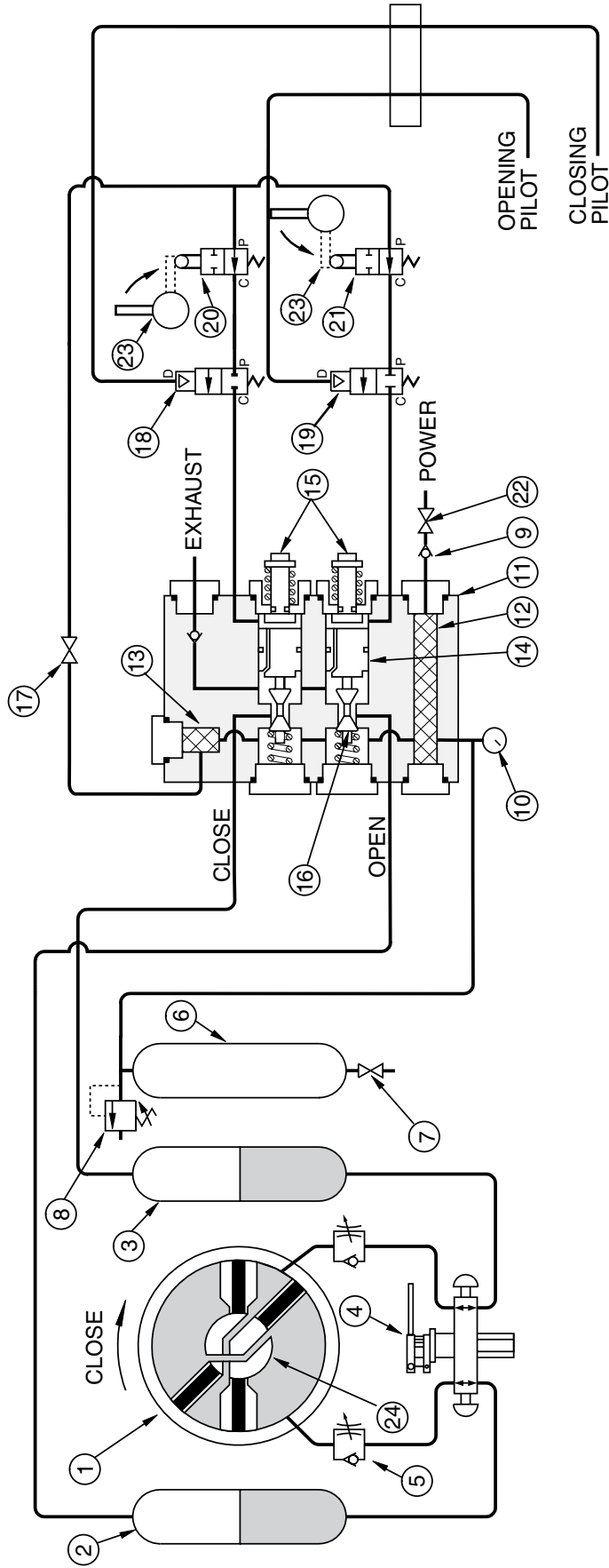


- 1. Shafer Operator (shown in open position)
- 2. Hand Pump
- 3. Reservoir Tank
- 4. Speed Control (optional)
- 5. Accumulator
- 6. Nitrogen Tank
- 7. Pressure Switch (low pressure nitrogen alarm)
- 8. Isolation Valve for Nitrogen Tank
- 9. Drain Valve for Nitrogen Tank
- 10. Nitrogen Loading Valve
- 11. Relief Valve
- 12. Gauge
- 13. Gauge
- 14. Isolation Valve for Accumulator
- 15. Relief Valve
- 16. By-Pass Valve
- 17. Shut-off Valve for Return
- 18. Pilot Strainer (25 micron)
- 19. Power Poppet
- 20. Control Block
- 21. Power Strainer (140 micron)
- 22. Control Pilot Piston (with orifice)
- 23. Dashpot (used for delaying control neutralization)
- 24. Shuttle Valve
- 25. Shut-off Valve for Power
- 26. Check Valve
- 27. Manual Operation (handles not shown)
- 28. 2-Way Normally Closed Solenoid Valve
- 29. 2-Way Normally Closed Solenoid Valve
- 30. Isolation Valve

- A. Energize solenoid (29) to close the operator.
- B. Energize solenoid (28) to open the operator. The solenoids must be de-energized at the end of the operators stroke.

SHAFER
Electric Remote
2-Way Schematic
4924-S

LEGEND
P - POWER
C - CYLINDER



1. Shafer Operator (shown in open position)
2. Opening Gas Hydraulic Tank
3. Closing Gas Hydraulic Tank
4. Hand Pump
5. Speed Control (optional)
6. Power Storage Tank
7. Drain Valve
8. Relief Valve
9. Check Valve
10. Gauge
11. Control Block
12. Power Strainer (140 micron)
13. Pilot Strainer (25 micron)
14. Control Pilot Piston (with orifice)

OPTIONAL PACKAGE

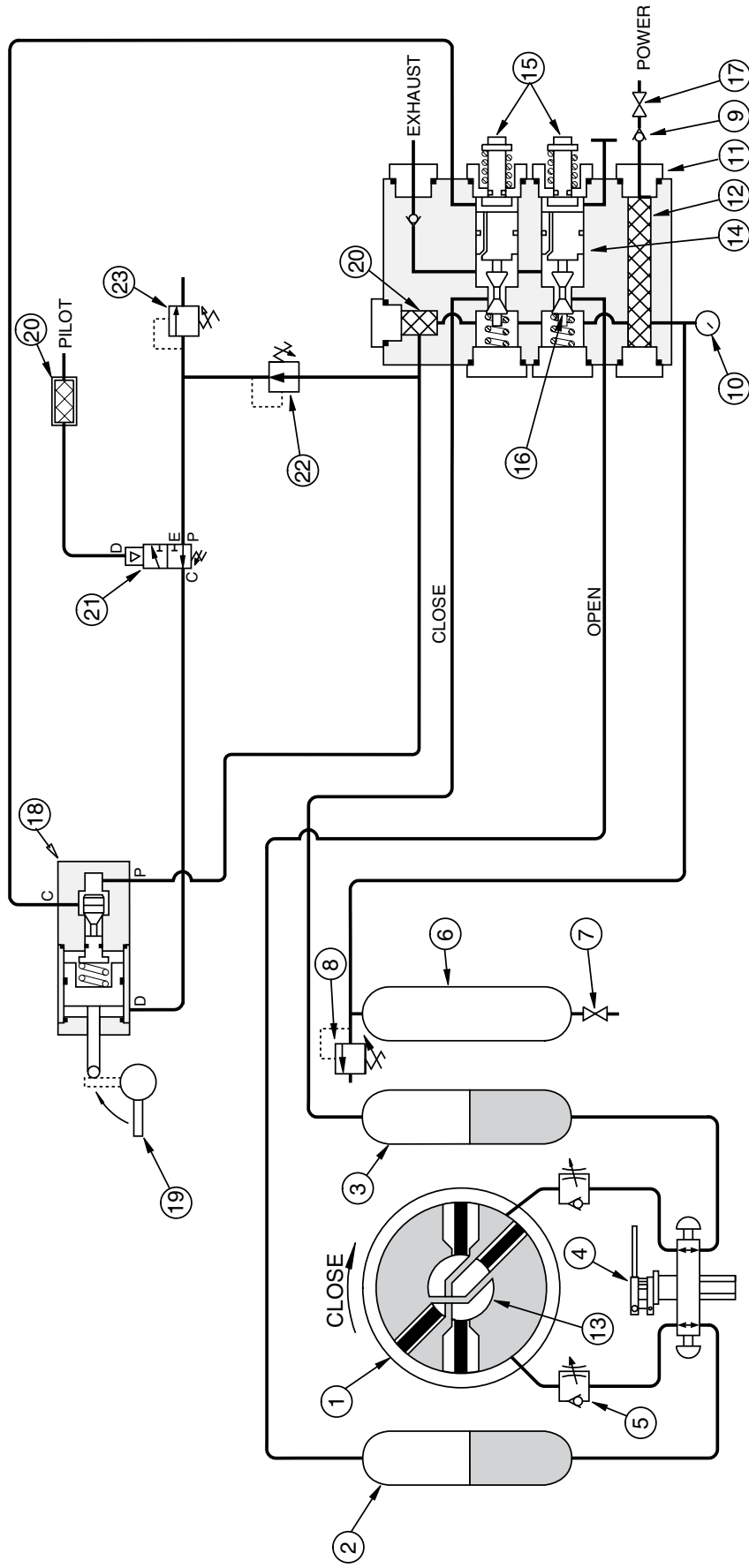
15. Manual Operation (handles not shown)
16. Power Poppet
17. Pilot Isolation Valve
18. 2-Way Normally Closed Pilot Valve
19. 2-Way Normally Closed Pilot Valve located and actuated at the end of the operators closing stroke.
20. 2-Way Normally Open Pilot Valve located and actuated at the end of the operators opening stroke.
21. 2-Way Normally Open Limit Valve located and actuated at the end of the operators opening stroke.
22. Power Isolation Valve (optional)
23. Mechanical Actuating Device attached to the top of the operator rotor.
24. Operator Rotor

2-WAY PNEUMATIC FEATURE

- A. Pressurize the opening pilot to open the operator.
- B. Pressurize the closing pilot to close the operator.

SHAFER
2-Way Pneumatic Schematic
4984-S

LEGEND
P - POWER
C - CYLINDER
D - PILOT



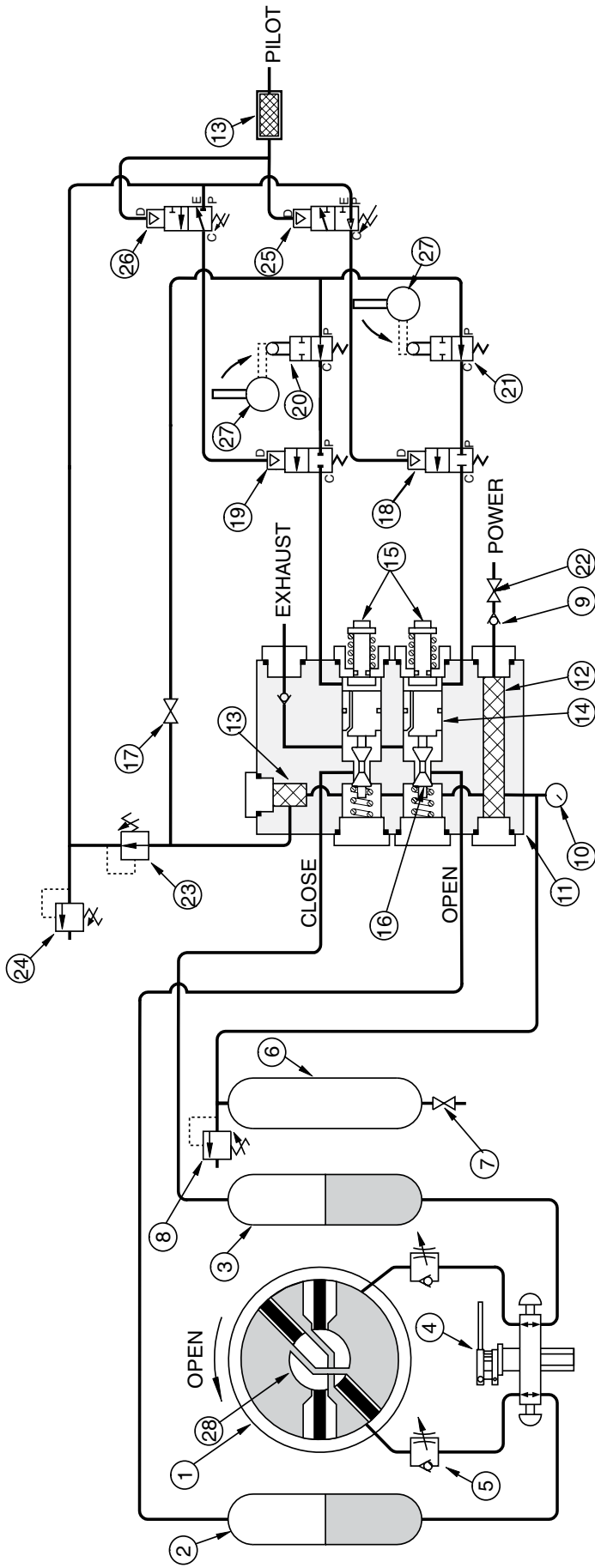
1. Shafer Operator (Shown in open position)
 2. Opening Gas Hydraulic Tank
 3. Closing Gas Hydraulic Tank
 4. Hand Pump
 5. Speed Control (Optional)
 6. Power Storage Tank
 7. Drain Valve
 8. Relief Valve
 9. Check Valve
 10. Gauge
 11. Control Block
 12. Power Strainer (140 micron)
 13. Operator Rotor
 14. Control Pilot Piston (with orifice)
- OPTIONAL PACKAGE

15. Manual Operation (handles not shown)
16. Power Poppet
17. Power Shutoff Valve (optional)
18. 2-Way Normally Open Pilot Actuated Limit Valve located and actuated at the end of the operators opening stroke.
19. Mechanical Actuating Device Attached to the top of the operator rotor.
20. Pilot Strainer (25 micron)
21. 3-Way Normally Open Air Relay Valve
22. Regulator
23. Relief Valve

HIGH PRESSURE SHUTOFF FEATURE
 When the pilot pressure rises to the trip point of valve (21) it closes and vents the pilot of valve (18) and causes the operator to close.

LEGEND
 P - POWER
 C - CYLINDER
 E - EXHAUST
 D - PILOT

SHAFER
High Pressure Shutoff Schematic
8339-S



1. Shafer Operator (shown in closed position)
2. Opening Gas Hydraulic Tank
3. Closing Gas Hydraulic Tank
4. Hand Pump
5. Speed Control (optional)
6. Power Storage Tank
7. Drain Valve
8. Relief Valve
9. Check Valve
10. Gauge
11. Control Block
12. Power Strainer (140 micron)
13. Pilot Strainer (25 micron)
14. Control Pilot Piston (with orifice)
15. Manual Operation (handles not shown)
16. Power Poppet
17. Pilot Isolation Valve

OPTIONAL PACKAGE

18. 2-Way Normally Closed Pilot Valve
19. 2-Way Normally Closed Pilot Valve
20. 2-Way Normally Open Limit Valve located and actuated at the end of the operators closing stroke.
21. 2-Way Normally Open Limit Valve located and actuated at the end of the operators opening stroke.
22. Power Shutoff Valve (optional)
23. Regulator
24. Relief Valve
25. 3-Way Normally Open Air Relay Valve
26. 3-Way Normally Closed Air Relay Valve
27. Mechanical Actuating Device attached to the top of the operator rotor.
28. Operator Rotor

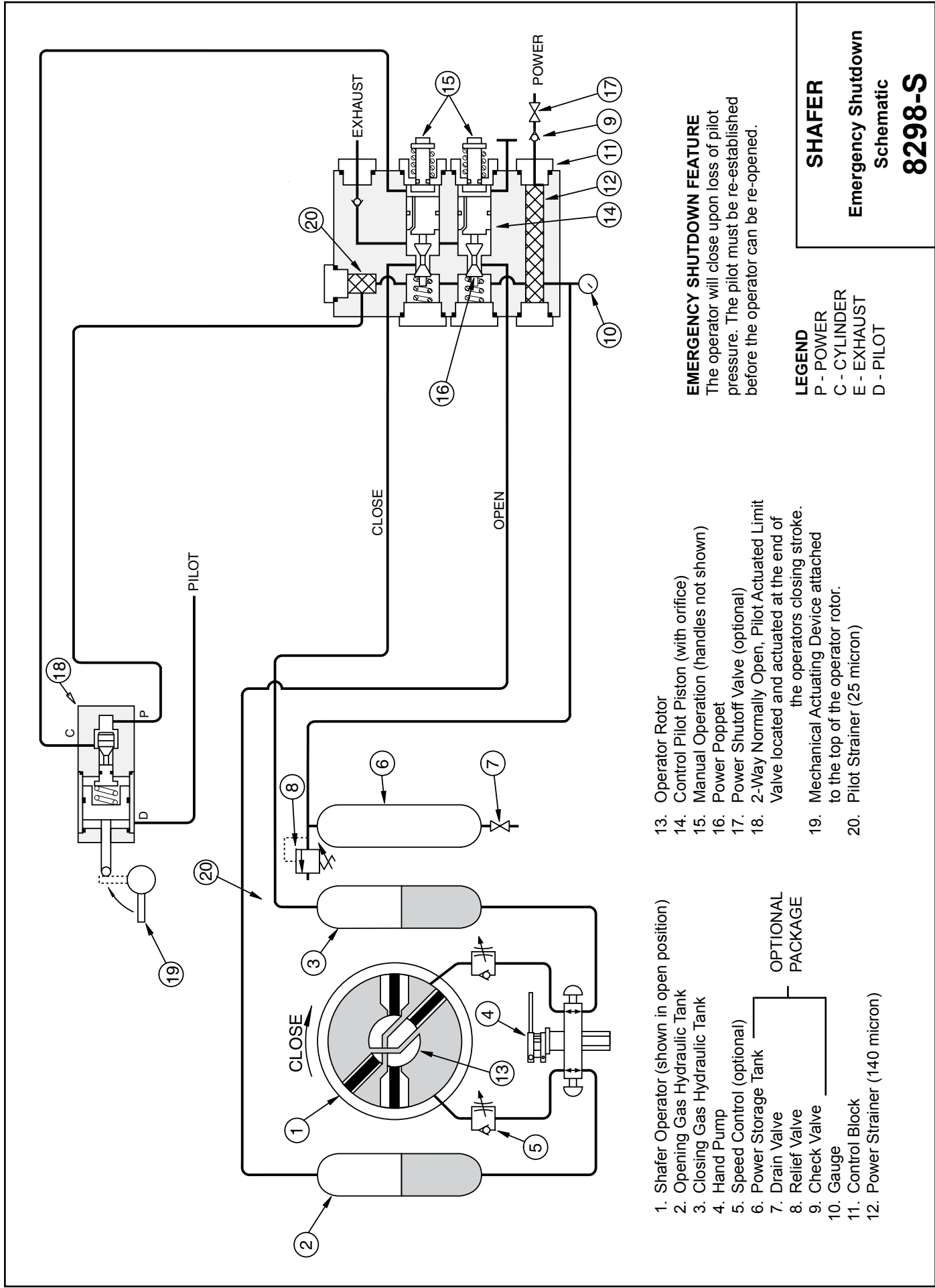
HIGH-CLOSE FEATURE
When the pilot pressure rises to the set point of valve (26), it trips open and causes the operator to close.

LOW-OPEN FEATURE
When the pilot pressure falls to the set point of valve (25), it trips open and causes the operator to open.

NOTE: Before the operator can be operated manually, pilot isolation valve (17) must be closed.

SHAFER
High-Close and Low-Open Schematic
5802-S

LEGEND
P - POWER
C - CYLINDER
E - EXHAUST
D - PILOT



1. Shafer Operator (shown in open position)
2. Opening Gas Hydraulic Tank
3. Closing Gas Hydraulic Tank
4. Hand Pump
5. Speed Control (optional)
6. Power Storage Tank
7. Drain Valve
8. Relief Valve
9. Check Valve
10. Gauge
11. Control Block
12. Power Strainer (140 micron)

OPTIONAL PACKAGE

13. Operator Rotor
14. Control Pilot Piston (with orifice)
15. Manual Operation (handles not shown)
16. Power Poppet
17. Power Shutoff Valve (optional)
18. 2-Way Normally Open, Pilot Actuated Limit Valve located and actuated at the end of the operators closing stroke.
19. Mechanical Actuating Device attached to the top of the operator rotor.
20. Pilot Strainer (25 micron)

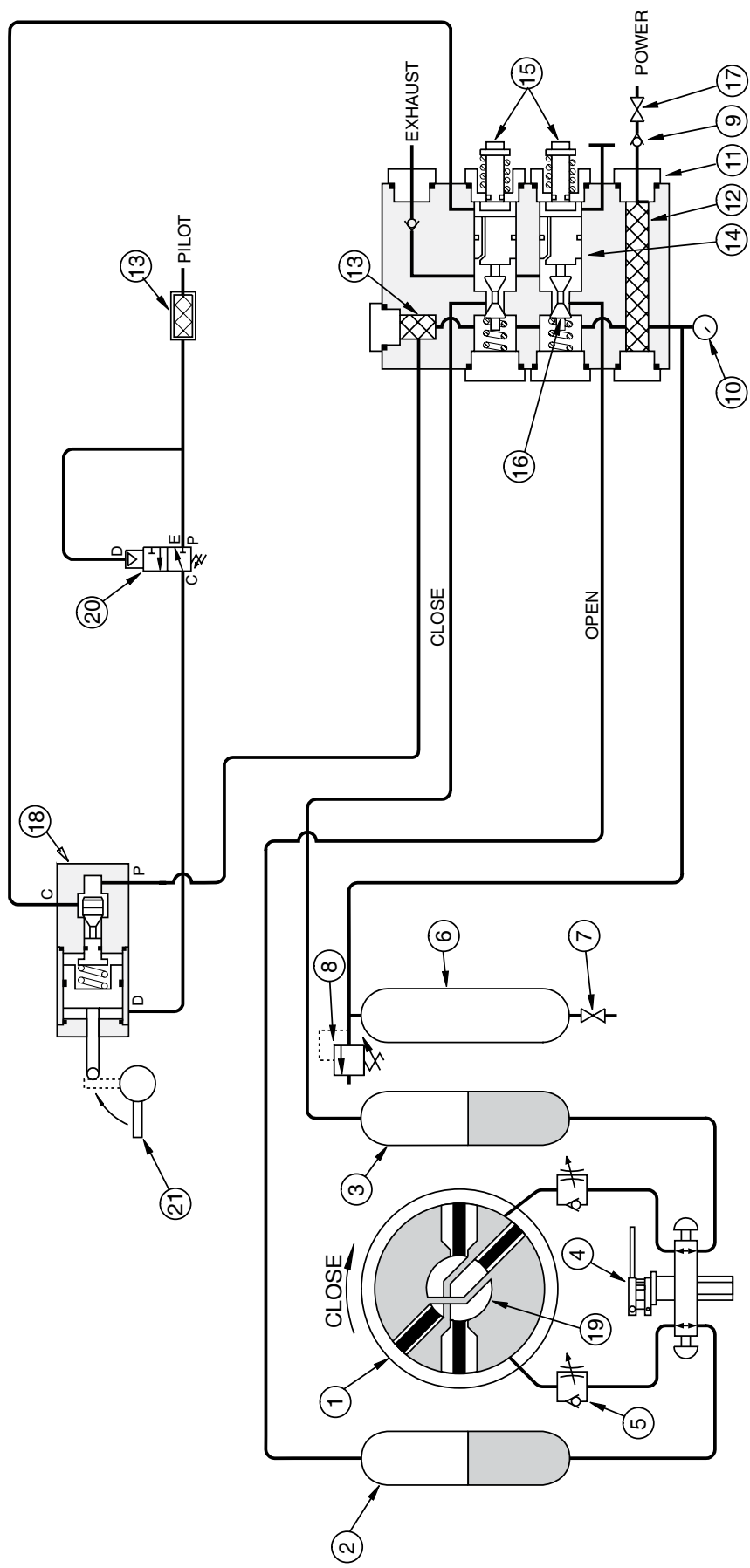
EMERGENCY SHUTDOWN FEATURE

The operator will close upon loss of pilot pressure. The pilot must be re-established before the operator can be re-opened.

LEGEND

- P - POWER
- C - CYLINDER
- E - EXHAUST
- D - PILOT

SHAFER
Emergency Shutdown
Schematic
8298-S



1. Shafer Operator (shown in open position)
2. Opening Gas Hydraulic Tank
3. Closing Gas Hydraulic Tank
4. Hand Pump
5. Speed Control (optional)
6. Power Storage Tank
7. Drain Valve
8. Relief Valve
9. Check Valve
10. Gauge
11. Control Block
12. Power Strainer (140 micron)
13. Pilot Strainer (25 micron)

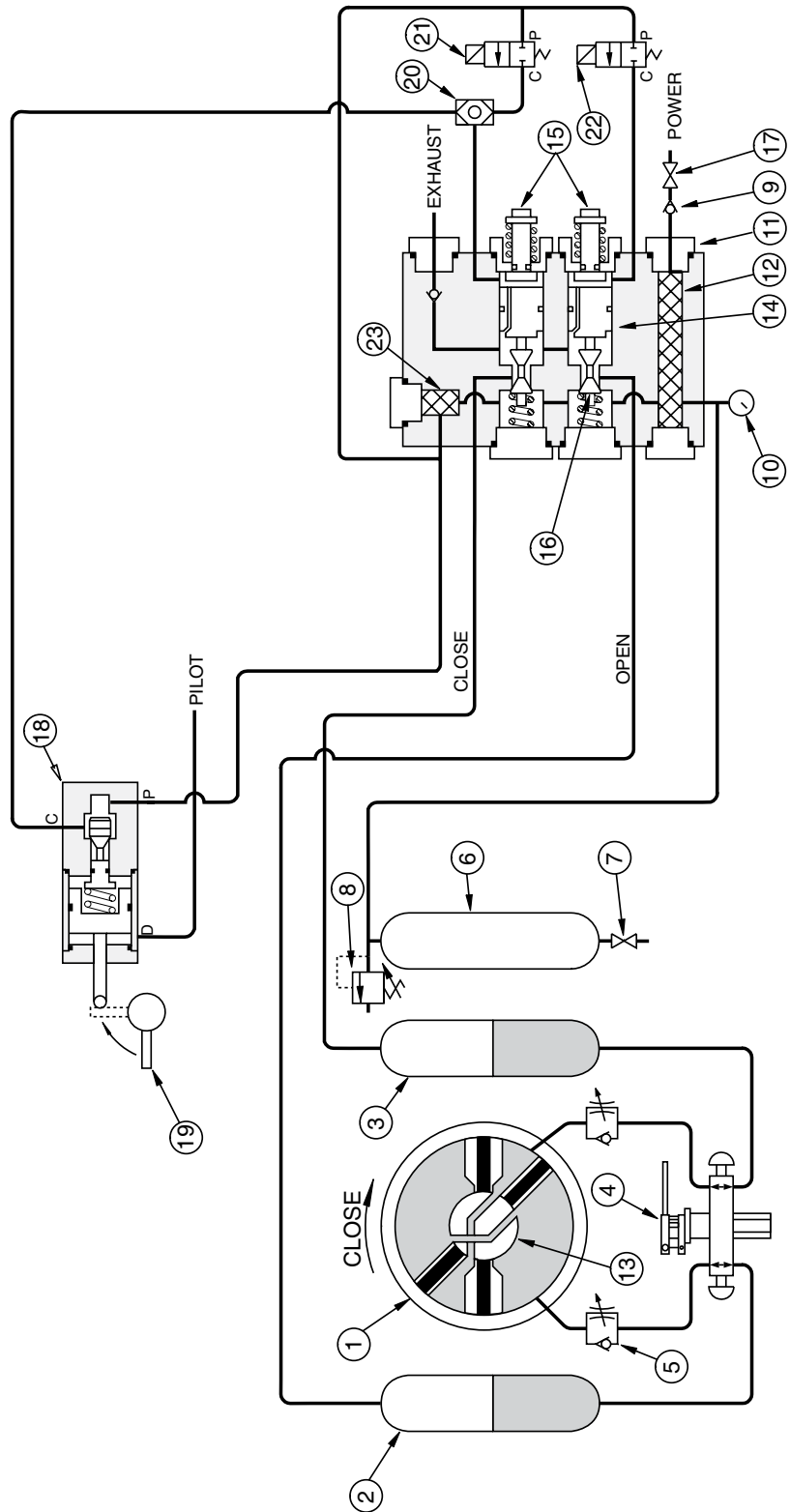
OPTIONAL PACKAGE

14. Control Pilot Piston (with orifice)
15. Manual Operation (handles not shown)
16. Power Poppet
17. Power Shutoff Valve (optional)
18. Limit Valve located and actuated at the end of the operators closing stroke.
19. Operator Rotor
20. 3-Way Normally Closed Air Relay Valve
21. Mechanical Actuating Device attached to the operator rotor.

EMERGENCY SHUTDOWN FEATURE
 Valve (20) is constantly tripped open. When the pilot pressure falls to the low trip point of valve (20), it closes, vents the pilot of valve (18) and causes the operator to close.

LEGEND
 P - Power
 C - Cylinder
 E - Exhaust
 D - Pilot

SHAFER
Emergency Shutdown Schematic
8421-S



- 1. Shafer Operator (shown in open position)
- 2. Opening Gas Hydraulic Tank
- 3. Closing Gas Hydraulic Tank
- 4. Hand Pump
- 5. Speed Control (optional)
- 6. Power Storage Tank
- 7. Drain Valve
- 8. Relief Valve
- 9. Check Valve
- 10. Gauge
- 11. Control Block
- 12. Power Strainer (140 micron)
- 13. Operator Rotor

OPTIONAL PACKAGE

- 14. Control Pilot Piston (with orifice)
- 15. Manual Operation (handles not shown)
- 16. Power Poppet
- 17. Power Shutoff Valve (optional)
- 18. 3-Way Normally Open, Pilot Actuated Limit Valve located and actuated at the end of the operators closing stroke.
- 19. Mechanical Actuating Device attached to the top of the operator rotor.
- 20. Shuttle Valve
- 21. 2-Way Normally Closed Solenoid Valve
- 22. 2-Way Normally Closed Solenoid Valve
- 23. Pilot Strainer (25 micron)

EMERGENCY SHUTDOWN FEATURE

The operator will close upon loss of pilot pressure. The pilot must be re-established before the operator can be re-opened.

ELECTRIC REMOTE 2-WAY FEATURE

- A. Energize Solenoid (21) to Close The Operator.
- B. Energize Solenoid (22) to Open The Operator.

The Solenoids Must Be De-Energized At The End Of The Operators Stroke.

LEGEND

- P - Power
- C - Cylinder
- E - Exhaust
- D - Pilot

SHAFER
Emergency Shutdown and
Electric Remote 2-Way
Schematic
8357 -

LINEBREAK FEATURE

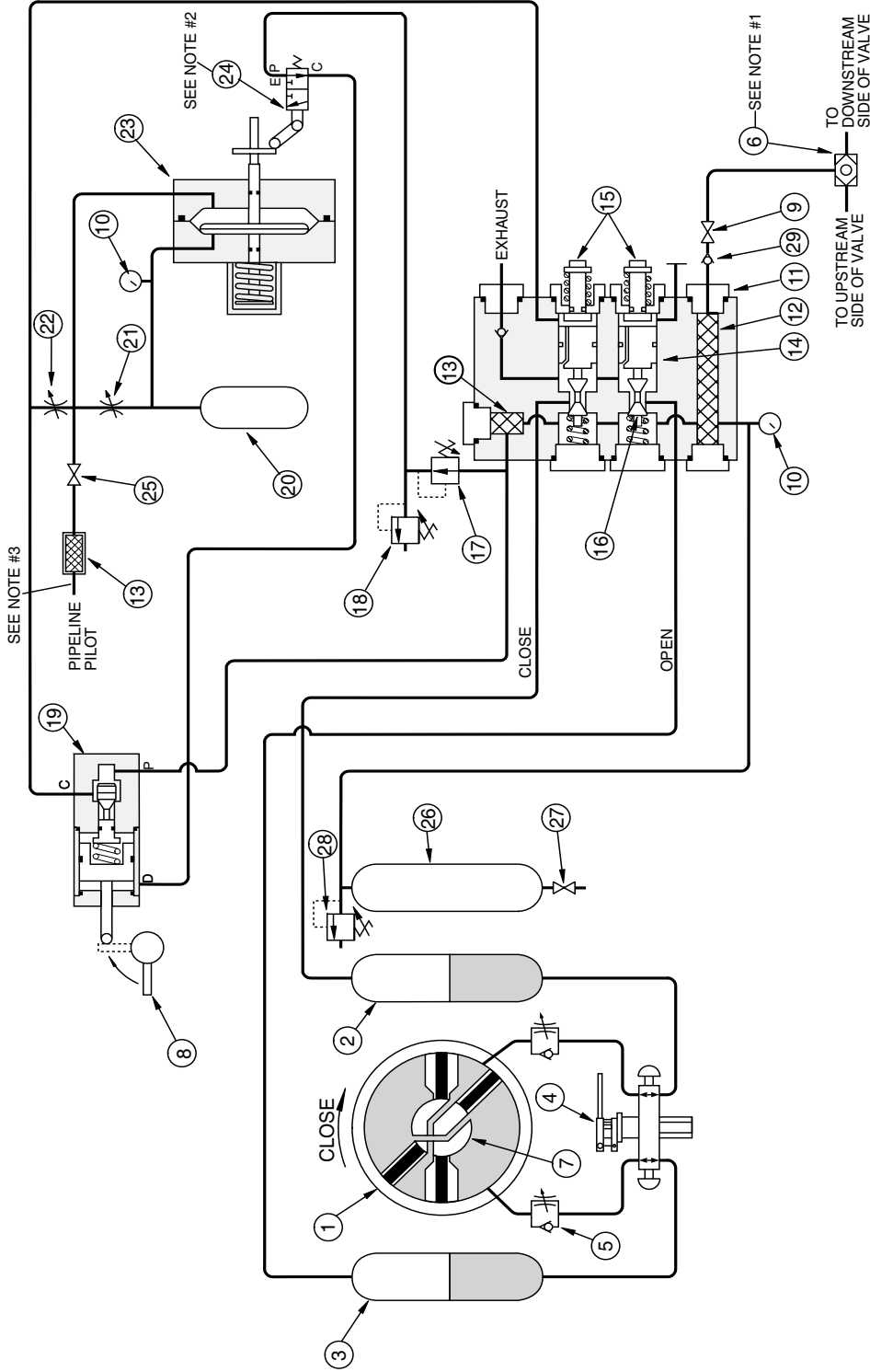
A rapid loss of pipeline pressure creates a differential across the diaphragm in assembly (23) which causes the stem to move outward, and trips valve (24) closed. Vents the pilot of valve (19) and causes the operator to close.

NOTES:

1. We recommend the customer connections to shuttle valve (6) as shown. If the customer prefers making only one connection, eliminate shuttle valve (6).
2. After the linebreak feature trips, toggle valve (24) must be manually reset before the operator can be re-opened.
3. The pilot is to be connected to the pipeline or riser at a point where powering the operator will not affect the pressure in the pilot portion of the control.

LEGEND

- P - Power
- C - Cylinder
- E - Exhaust
- D - Pilot



- | | |
|---|-------------------------|
| <ol style="list-style-type: none"> 1. Shafer Operator (shown in open position) 2. Closing Gas Hydraulic Tank 3. Opening Gas Hydraulic Tank 4. Hand Pump 5. Speed Control 6. Shuttle Valve 7. Operator Rotor 8. Mechanical Actuating Device attached to the top of the operator rotor. 9. Power Shutoff Valve 10. Gauge 11. Control Block 12. Power Strainer (140 micron) 13. Pilot Strainer (25 micron) 14. Control Pilot Piston (with orifice) 15. Manual Operation (handles not shown) 16. Power Poppet 17. Regulator 18. Relief Valve 19. 2-Way Normally Open, Pilot Actuated Limit Valve located and actuated at the end of the operators closing stroke. 20. Reference Tank 21. Orifice (adjustable or fixed) used to set rate of pressure drop for linebreak setting. 22. Blowdown Orifice 23. Diaphragm Assembly 24. 3-Way Toggle Valve which is open until a linebreak condition trips it closed. It must be manually reset. 25. Pilot Isolation Valve 26. Power Storage Tank 27. Drain Valve 28. Relief Valve 29. Check Valve | <p>OPTIONAL PACKAGE</p> |
|---|-------------------------|

SHAFER
Automatic Linebreak
Schematic
8354-S

LINEBREAK FEATURE

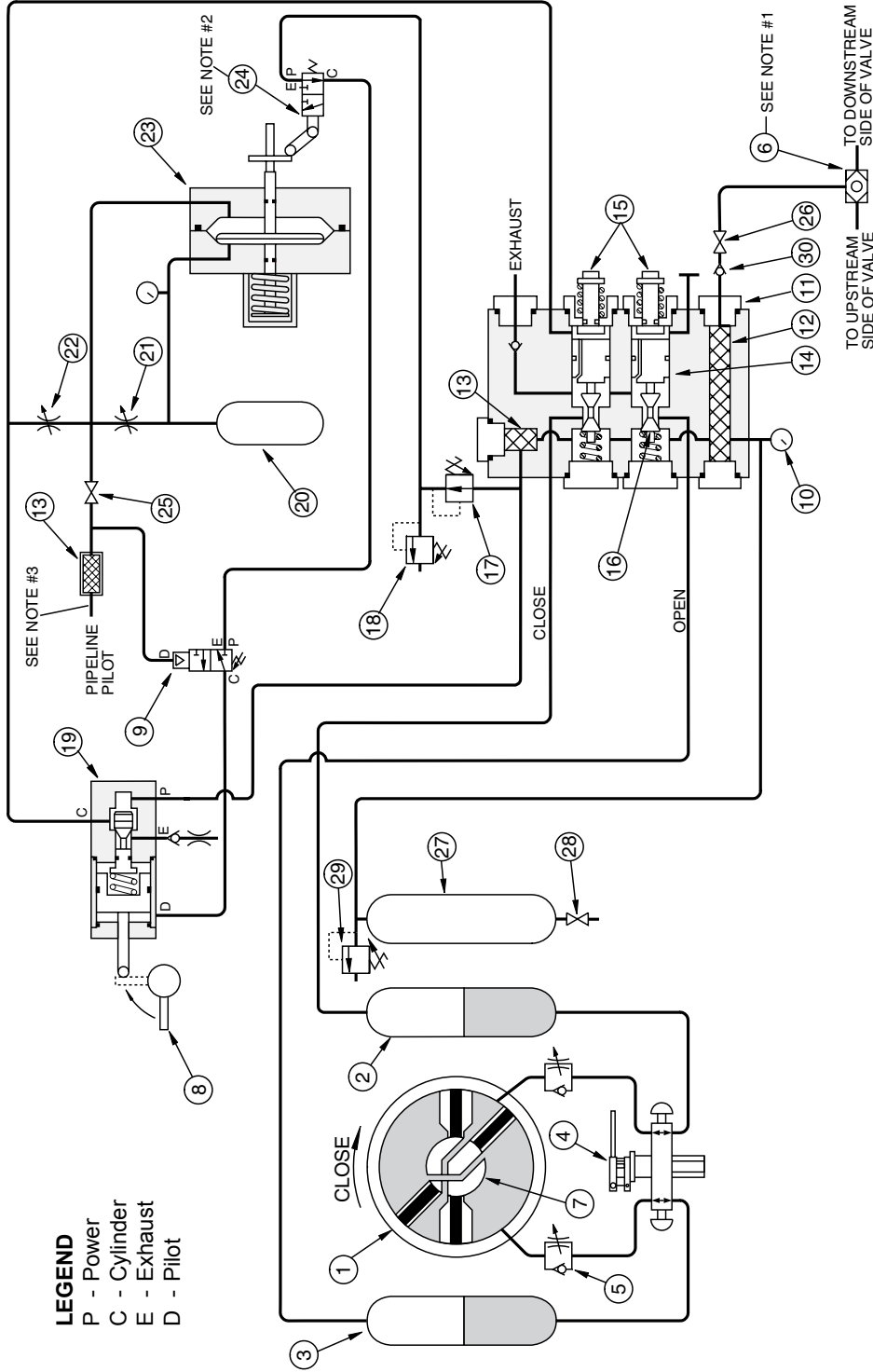
A rapid loss of pipeline pressure creates a differential across the diaphragm in assembly (23) which causes the stem to move outward, and trips valve (24) closed. Vents the pilot of valve (19) and causes the operator to close.

LOW PRESSURE SHUTOFF FEATURE

Valve (9) is constantly tripped open. When the pilot pressure falls to the trip point of valve (9), it closes, vents the pilot of valve (19) and causes the operator to close.

NOTES:

1. We recommend the customer connections to shuttle valve (6) as shown. If the customer prefers making only one connection, eliminate shuttle valve (6).
2. After the linebreak feature trips, toggle valve (24) must be manually reset before the operator can be re-opened.
3. The pilot is to be connected to the pipeline or riser at a point where powering the operator will not affect the pressure in the pilot portion of the control.



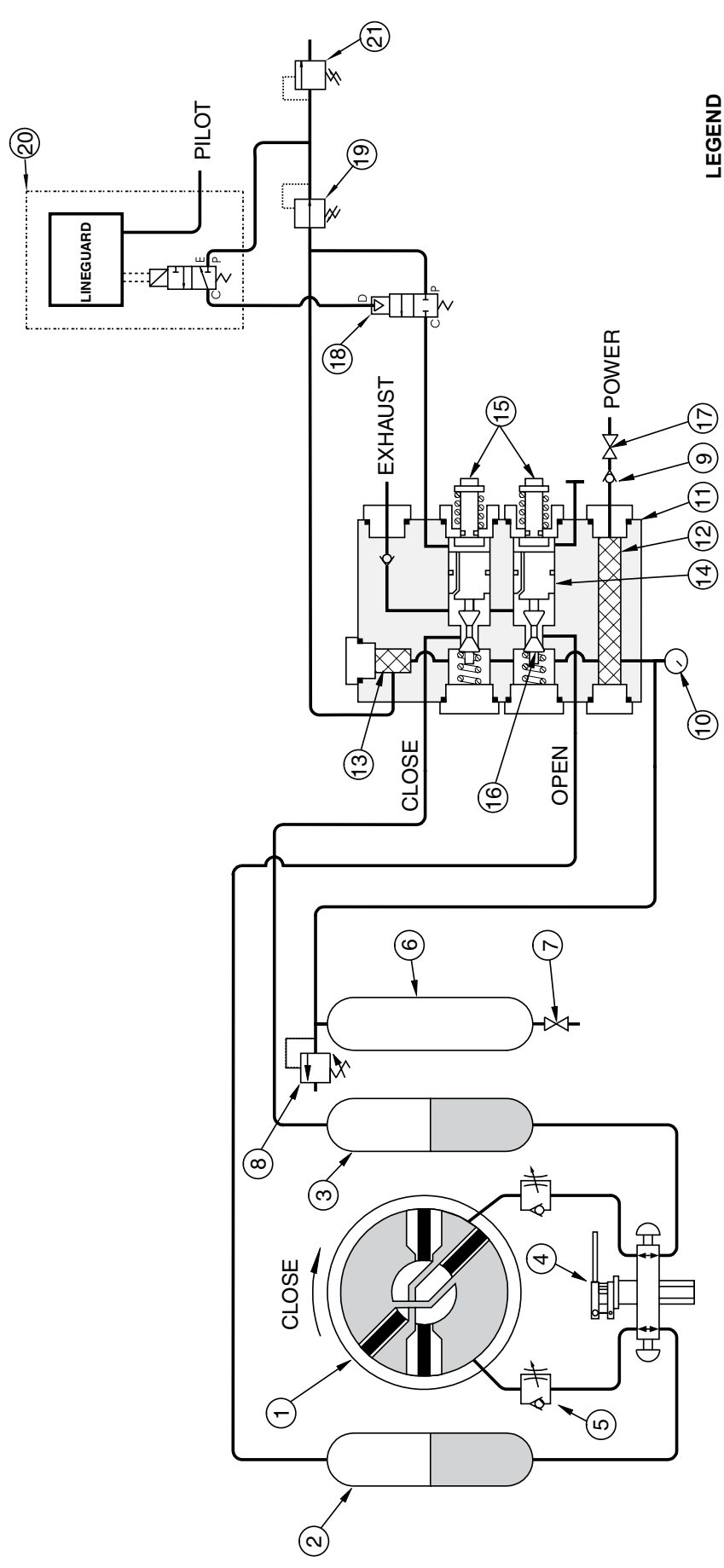
LEGEND

- P - Power
- C - Cylinder
- E - Exhaust
- D - Pilot

1. Shafer Operator (shown in open position)
2. Closing Gas Hydraulic Tank
3. Opening Gas Hydraulic Tank
4. Hand Pump
5. Speed Control (optional)
6. Shuttle Valve
7. Operator Rotor
8. Mechanical Actuating Device attached to the top of the operator rotor.
9. 3-Way Normally Closed Air Relay Valve
10. Gauge
11. Control Block
12. Power Strainer (140 micron)
13. Pilot Strainer (25 micron)
14. Control Pilot Piston (with orifice)
15. Manual Operation (handles not shown)
16. Power Poppet
17. Regulator
18. Relief Valve
19. 2-Way Normally Open, Pilot Actuated Limit Valve located and actuated at the end of the operators closing stroke.
20. Reference Tank
21. Orifice (adjustable or fixed) used to set rate of pressure drop for linebreak setting.
22. Blowdown Orifice
23. Diaphragm Assembly
24. 3-Way Toggle Valve which is open until a linebreak condition trips it closed. It must be manually reset.
25. Pilot Isolation Valve
26. Power Shutoff Valve
27. Power Storage Tank
28. Drain Valve
29. Relief Valve
30. Check Valve

SHAFER
Automatic Linebreak and
Low Pressure Shutoff
Schematic
8333-S

SHAFER
Lineguard Electronic Line-
break Schematic
7802-S



LEGEND
P - Power
C - Cylinder
E - Exhaust
D - Pilot

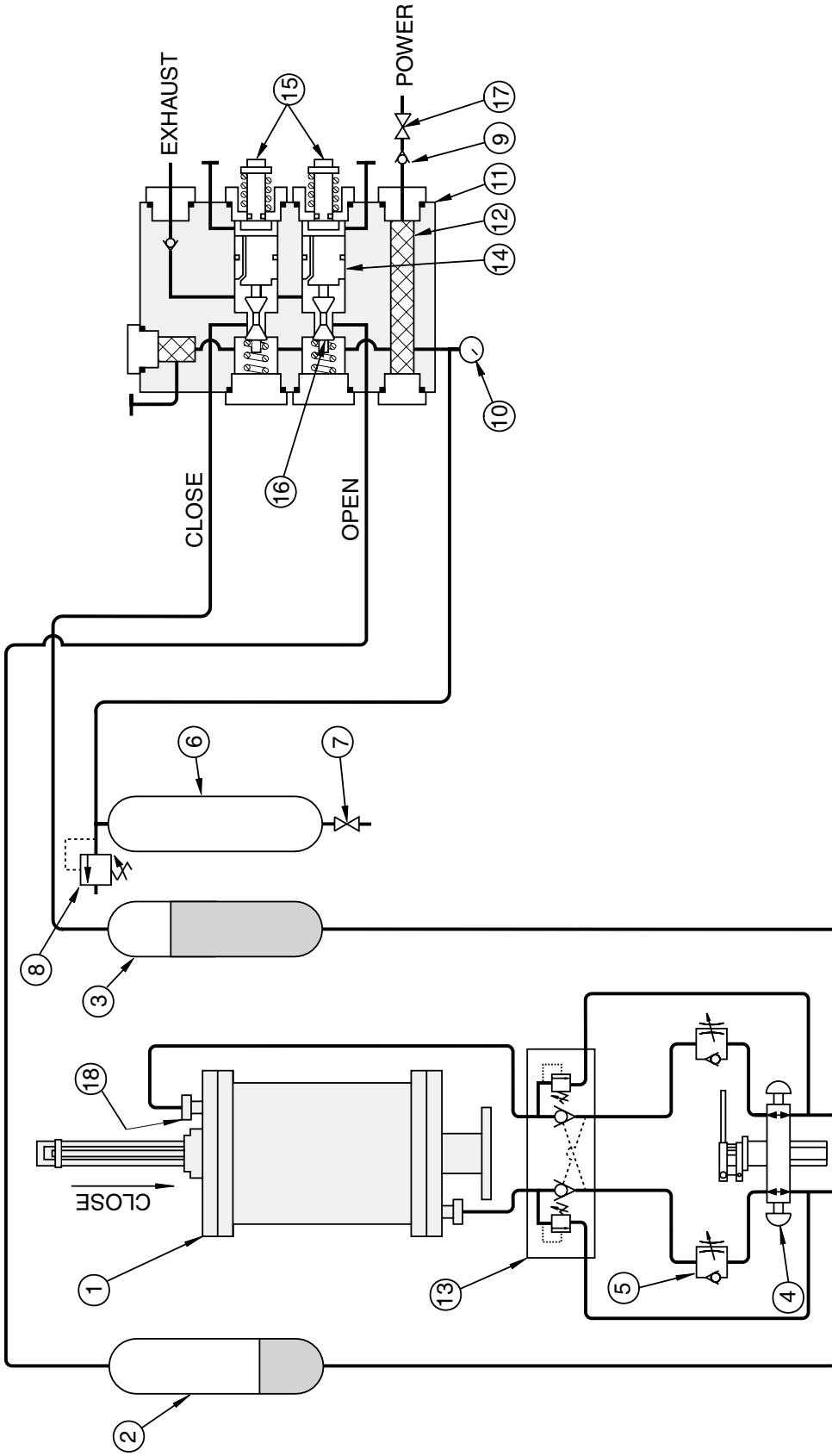
LINEGUARD ELECTRONIC LINEBREAK FEATURE

The Lineguard (electronic linebreak control) (20) is set to detect a pre-selected rate of pressure drop in the pipeline. Pressurizes the pilot of the valve (18) and causes the operator to close.

- 12. Power Strainer (140 micron)
- 13. Pilot Strainer (25 micron)
- 14. Control Pilot Piston (with orifice)
- 15. Manual Operation (handles not shown)
- 16. Power Poppet
- 17. Power Shutoff Valve (optional)
- 18. 2-way Normally Closed Pilot Valve Regular (set at 150 PSI)
- 20. Lineguard (electronic linebreak control)
- 21. Relief Valve (set at 165 PSI)

- 1. Shafer Operator (shown in open position)
- 2. Opening Gas Hydraulic Tank
- 3. Closing Gas Hydraulic Tank
- 4. Hand Pump
- 5. Speed Control (optional)
- 6. Power Storage Tank
- 7. Drain Valve
- 8. Relief Valve
- 9. Check Valve
- 10. Gauge
- 11. Control Block

OPTIONAL PACKAGE

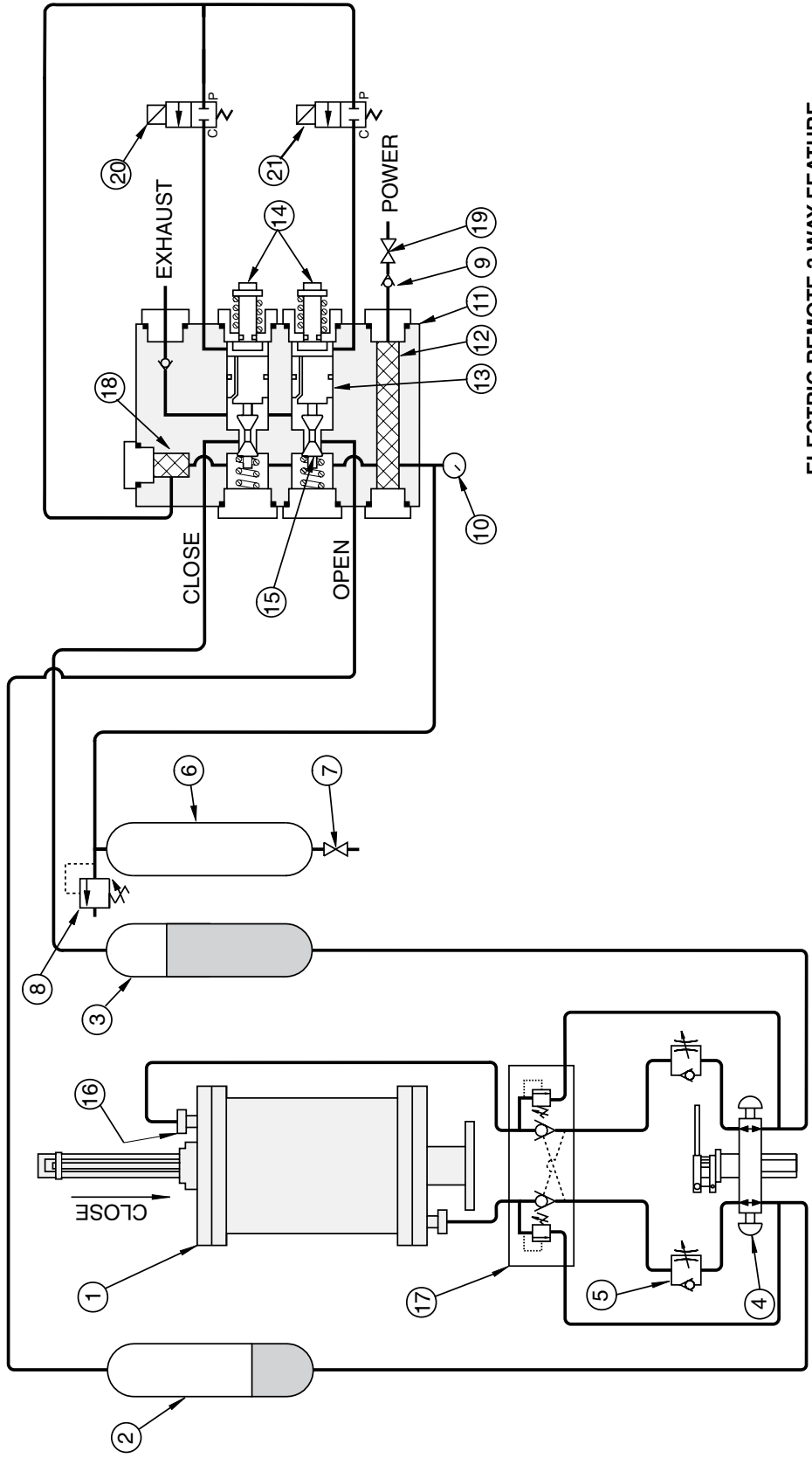


- 1. Shafer Operator (shown in open position)
- 2. Opening Gas Hydraulic Tank
- 3. Closing Gas Hydraulic Tank
- 4. Hand Pump
- 5. Speed Control (optional)
- 6. Power Storage Tank
- 7. Drain Valve
- 8. Relief Valve
- 9. Check Valve

OPTIONAL
PACKAGE

- 10. Gauge
- 11. Control Block
- 12. Power Strainer (140 micron)
- 13. Double Holding Valve
- 14. Control Pilot Piston (with orifice)
- 15. Manual Operation (handles not shown)
- 16. Power Poppet
- 17. Power Shutoff Valve (optional)
- 18. Hydraulic Snubber (optional)

SHAFER
Manual Schematic
5016-S



ELECTRIC REMOTE 2-WAY FEATURE

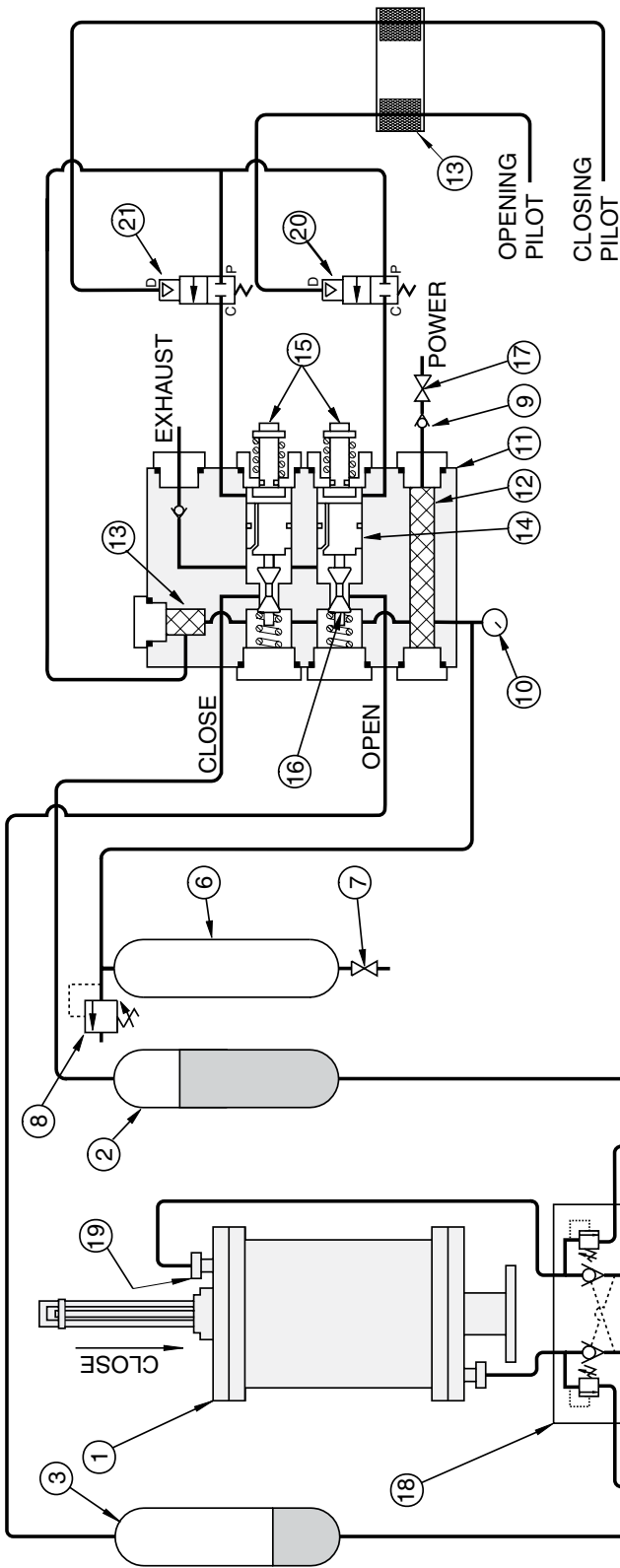
- A. Energize solenoid (20) to close the operator.
 - B. Energize solenoid (21) to open the operator.
- The solenoids must be de-energized at the end of the operators stroke.*

- 1. Shafer Operator (shown in open position)
- 2. Opening Gas Hydraulic Tank
- 3. Closing Gas Hydraulic Tank
- 4. Hand Pump
- 5. Speed Control (optional)
- 6. Power Storage Tank
- 7. Drain Valve
- 8. Relief Valve
- 9. Check Valve
- 10. Gauge
- 11. Control Block
- 12. Power Strainer (140 micron)
- 13. Control Pilot Piston (with orifice)
- 14. Manual Operation (handles not shown)
- 15. Power Poppet
- 16. Hydraulic Snubber (optional)
- 17. Double Holding Valve
- 18. Pilot Strainer (25 micron)
- 19. Power Shutoff Valve (optional)
- 20. 2-Way Normally Closed Solenoid Valve
- 21. 2-Way Normally Closed Solenoid Valve

OPTIONAL PACKAGE

SHAFER
Electric Remote
2-Way Schematic
5043-S

LEGEND
P - POWER
C - CYLINDER



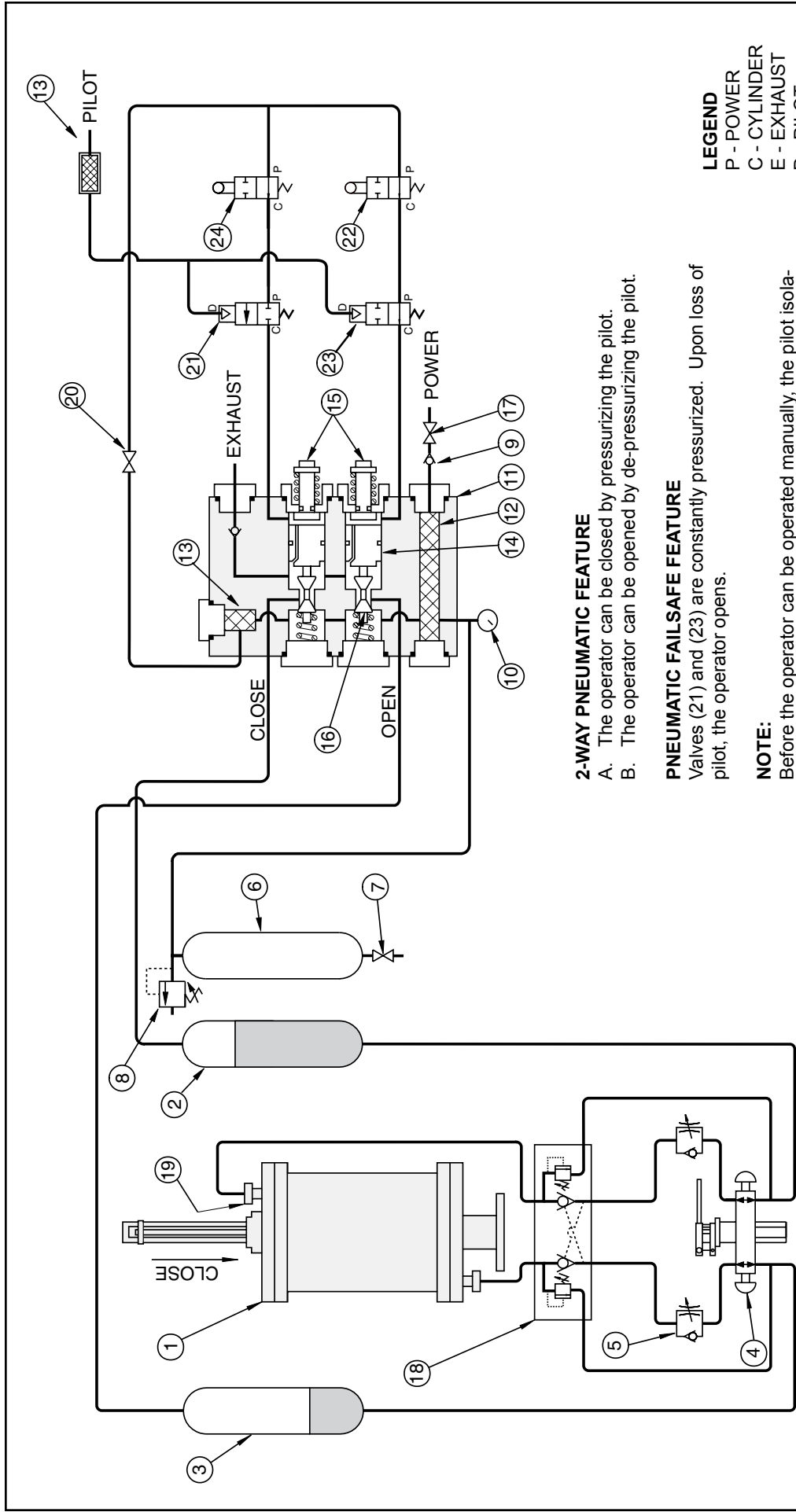
1. Shafer Operator (shown in open position)
2. Closing Gas Hydraulic Tank
3. Opening Gas Hydraulic Tank
4. Hand Pump
5. Speed Control (optional)
6. Power Storage Tank
7. Drain Valve
8. Relief Valve
9. Check Valve
10. Gauge
11. Control Block
12. Power Strainer (140 micron)
13. Pilot Strainer (25 micron)
14. Control Pilot Piston (with orifice)
15. Manual Operation (handles not shown)
16. Power Poppet
17. Power Shutoff Valve (optional)
18. Double Holding Valve
19. Hydraulic Snubber (optional)
20. 2-Way Normally Closed Pilot Valve
21. 2-Way Normally Open Pilot Valve

2-WAY PNEUMATIC FEATURE

- A. Pressurize the opening pilot to open the operator.
- B. Pressurize the closing pilot to close the operator.
The control must be neutralized at the end of the operators stroke.

LEGEND
 P - POWER
 C - CYLINDER
 D - PILOT

SHAFER
2-Way Pneumatic
Schematic
7004-S



LEGEND
 P - POWER
 C - CYLINDER
 E - EXHAUST
 D - PILOT

2-WAY PNEUMATIC FEATURE

- A. The operator can be closed by pressurizing the pilot.
- B. The operator can be opened by de-pressurizing the pilot.

PNEUMATIC FAILSAFE FEATURE

Valves (21) and (23) are constantly pressurized. Upon loss of pilot, the operator opens.

NOTE:

Before the operator can be operated manually, the pilot isolation valve (20) must be closed.

- 1. Shafer Operator (shown in open position)
- 2. Closing Gas Hydraulic Tank
- 3. Opening Gas Hydraulic Tank
- 4. Hand Pump
- 5. Speed Control (optional)
- 6. Power Storage Tank
- 7. Drain Valve
- 8. Relief Valve
- 9. Check Valve

OPTIONAL PACKAGE

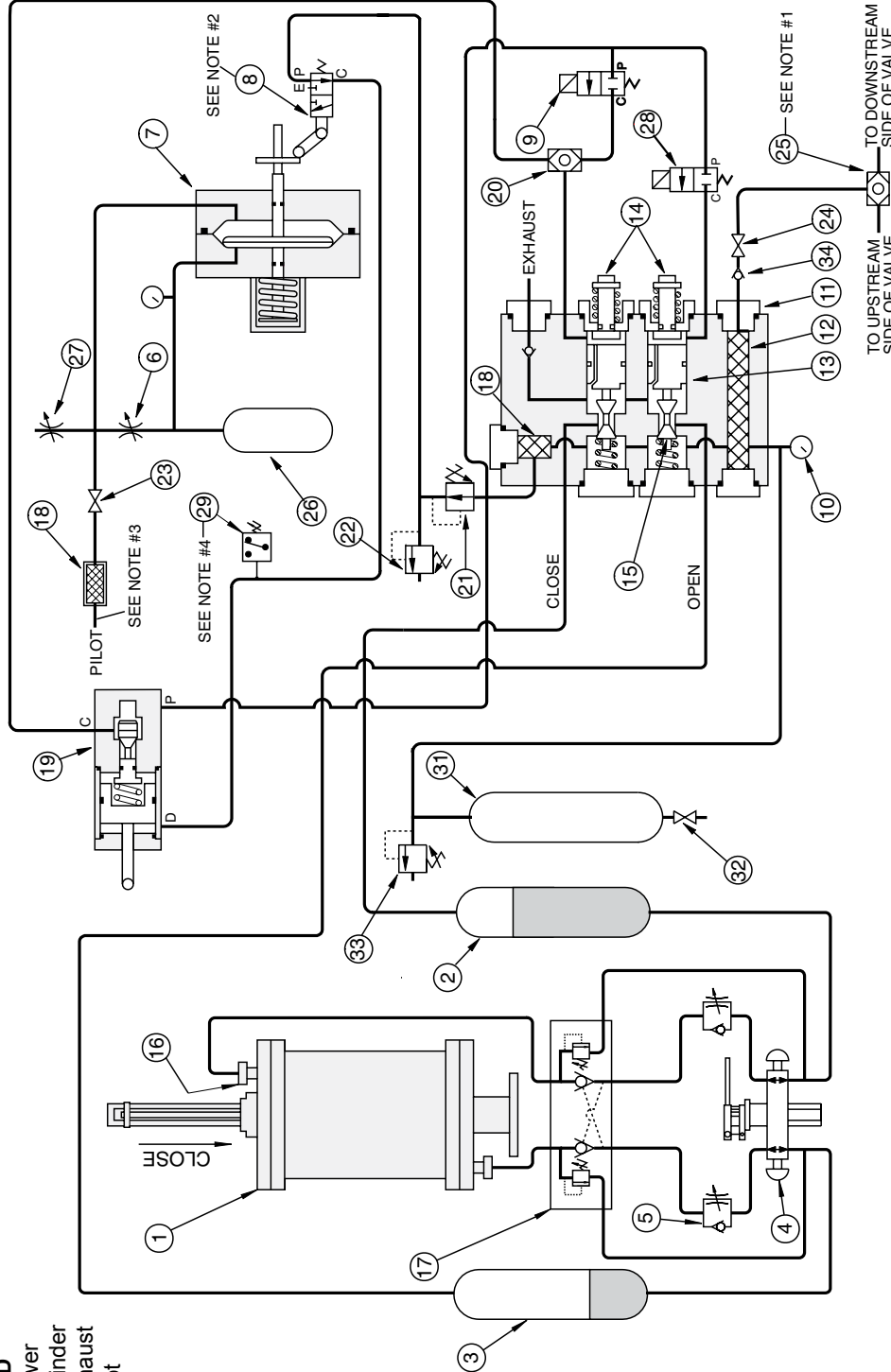
- 10. Gauge
- 11. Control Block
- 12. Power Strainer (140 micron)
- 13. Pilot Strainer (25 micron)
- 14. Control Pilot Piston (with orifice)
- 15. Manual Operation (handles not shown)
- 16. Power Poppet
- 17. Power Shutoff Valve (optional)
- 18. Double Holding Valve

- 19. Hydraulic Snubber (optional)
- 20. Pilot Isolation Valve
- 21. 2-Way Normally Closed Pilot Valve
- 22. 2-Way Normally Open, Limit Valve located and actuated at the end of the operators opening stroke.
- 23. 2-Way Normally Open Pilot Valve located and actuated at the end of the operators closing stroke.

SHAFER
2-Way Pneumatic
With Fail-Safe Schematic
9223-S

LEGEND

- P - Power
- C - Cylinder
- E - Exhaust
- D - Pilot



LINEBREAK FEATURE

A rapid loss of pipeline pressure creates a differential across the diaphragm in assembly (7) which causes the stem to move outward, and trips valve (8) closed. Vents the pilot of valve (19) and causes the operator to close.

ELECTRIC REMOTE 2-WAY FEATURE

- A. Energize solenoid (9) to close the operator
- B. Energize solenoid (28) to open the operator.

The solenoids must be de-energized at the end of the operators stroke.

NOTES:

1. We recommend the customer connections to shuttle valve (25) as shown. If the customer prefers making only one connection, eliminate shuttle valve (25).
2. After the linebreak feature trips, toggle valve (8) must be manually reset before the operator can be re-opened.
3. The pilot is to be connected to the pipeline or riser at a point where powering the operator will not affect the pressure in the pilot portion of the control.
4. Pressure switch (29) is used to lockout the electric remote 2-way feature while the linebreak feature is tripped.

1. Shafer Operator

- (shown in open position)
- 2. Closing Gas Hydraulic Tank
- 3. Opening Gas Hydraulic Tank
- 4. Hand Pump
- 5. Speed Control (optional)
- 6. Orifice (adjustable or fixed) used to set rate of pressure drop for linebreak setting.
- 7. Diaphragm Assembly
- 8. 3-Way Toggle Valve which is open until a linebreak condition trips it closed. It must be manually reset.
- 9. 2-Way Normally Closed Solenoid Valve

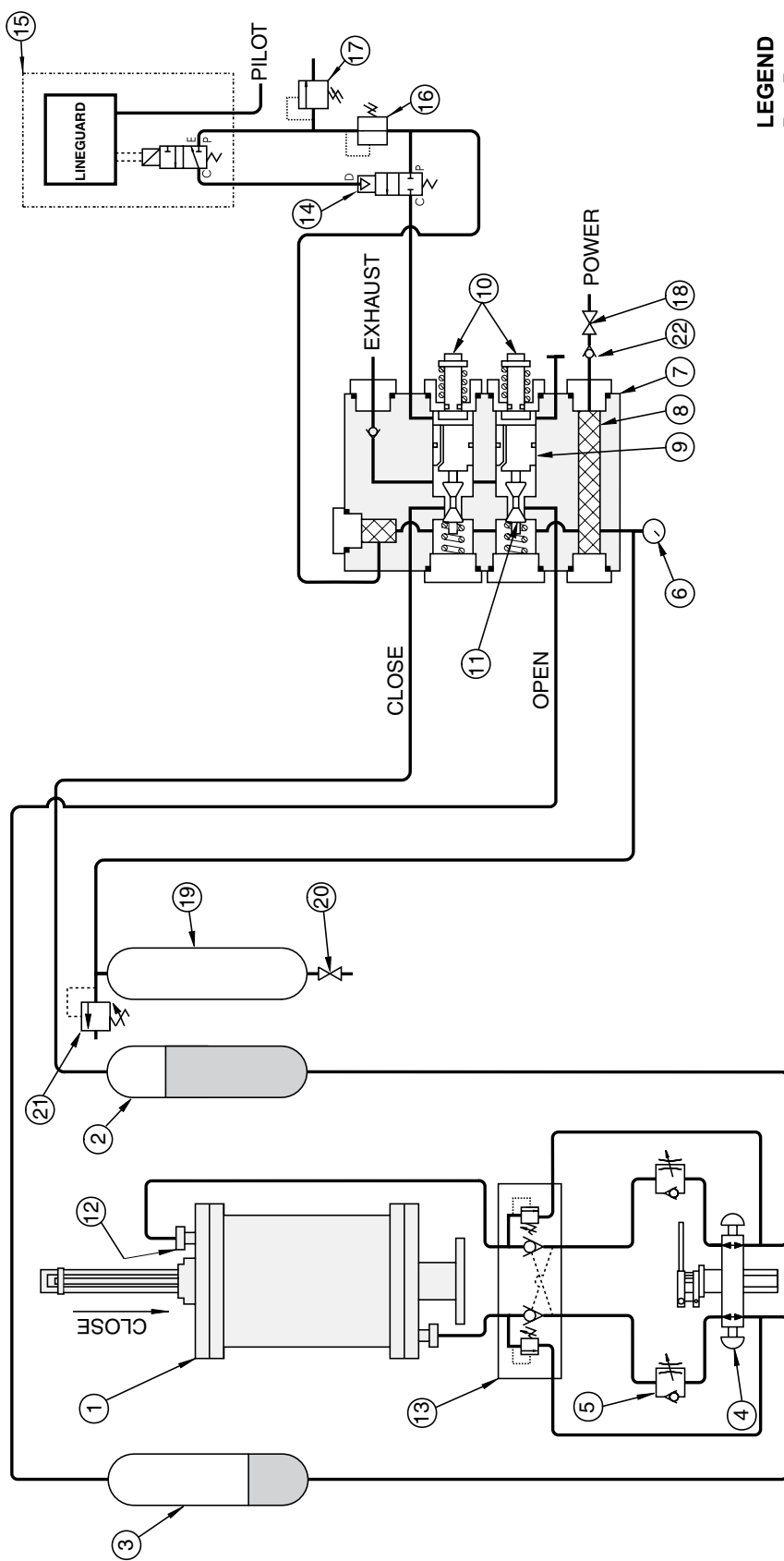
10. Gauge

- 11. Control Block
- 12. Power Strainer (140 micron)
- 13. Control Pilot Piston (with orifice)
- 14. Manual Operation (handles not shown)
- 15. Power Poppet
- 16. Hydraulic Snubber (optional)
- 17. Double Holding Valve
- 18. Pilot Strainer (25 micron)
- 19. 2-Way Normally Open, Pilot Actuated Limit Valve located and actuated at the end of the operators closing stroke.
- 20. Shuttle Valve

21. Regulator

- 22. Relief Valve
- 23. Pilot Isolation Valve
- 24. Power Shutoff Valve
- 25. Shuttle Valve
- 26. Reference Tank
- 27. Blowdown Orifice
- 28. 2-Way Normally Closed Solenoid Valve
- 29. Pressure Switch
- 30. Power Storage Tank
- 31. Drain Valve
- 32. Relief Valve
- 33. Relief Valve
- 34. Check Valve

OPTIONAL PACKAGE



LEGEND
 P - Power
 C - Cylinder
 E - Exhaust
 D - Pilot

LINEGUARD ELECTRONIC LINEBREAK FEATURE

The Lineguard (electronic linebreak control) (15) is set to detect a pre-selected rate of pressure drop in the pipeline. Pressurizes the pilot of the valve (14) and causes the operator to close.

- 12. Hydraulic Snubber (optional)
- 13. Double Holding Valve
- 14. 2-way Normally Closed Pilot Valve
- 15. Lineguard (electronic linebreak control)
- 16. Regular (set at 150 PSI)
- 17. Relief Valve (set at 165 PSI)
- 18. Power Shutoff Valve (optional)
- 19. Power Storage Tank
- 20. Drain Valve
- 21. Relief Valve
- 22. Check Valve

- 1. Shafer Operator (shown in open position)
- 2. Closing Gas Hydraulic Tank
- 3. Opening Gas Hydraulic Tank
- 4. Hand Pump
- 5. Speed Control (optional)
- 6. Gauge
- 7. Control Block
- 8. Power Strainer (140 micron)
- 9. Control Pilot Piston (with orifice)
- 10. Manual Operation (handles not shown)
- 11. Power Poppet

SHAFER
 Lineguard Electronic Linebreak Schematic
9042-S