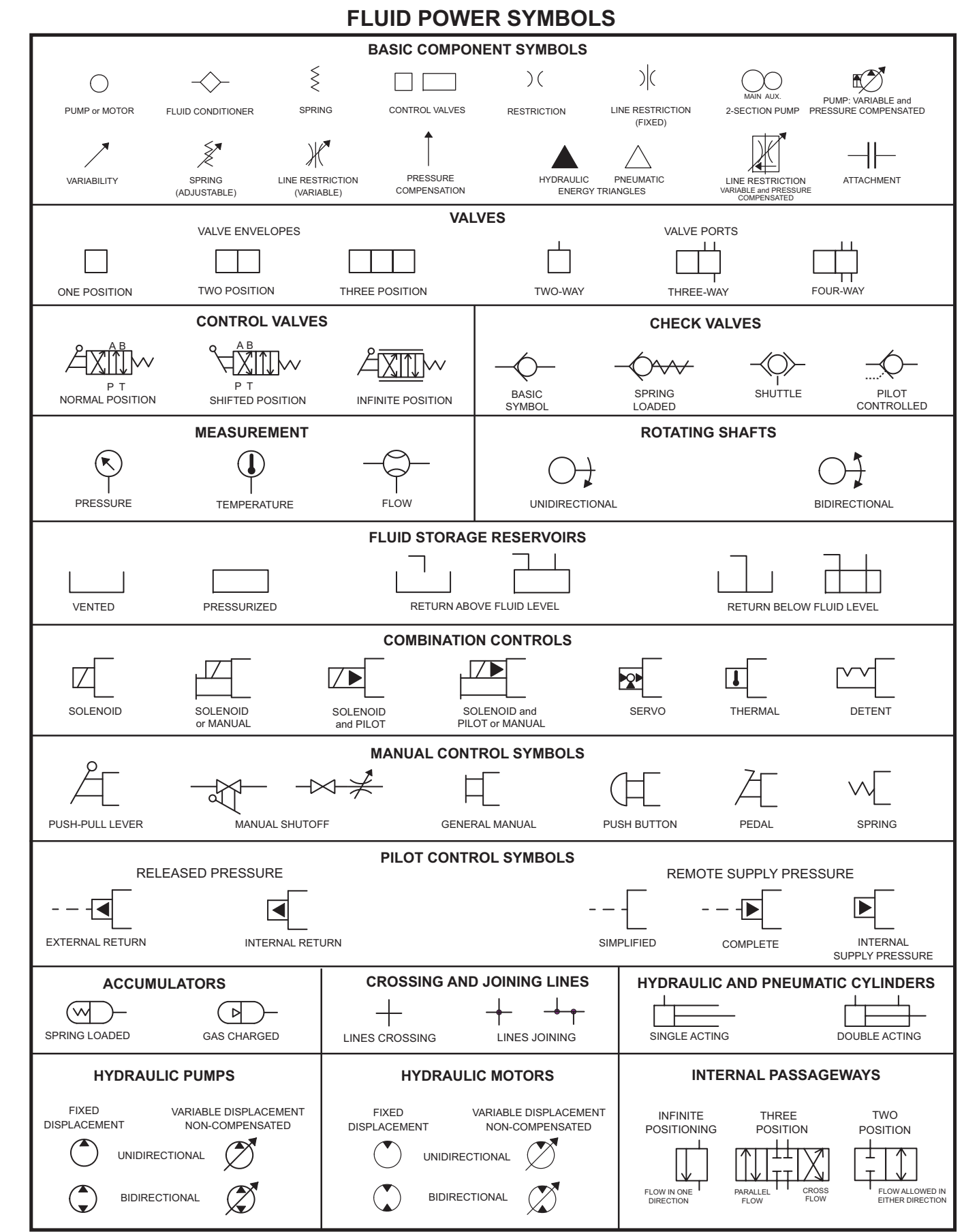


# Schematic

## 432E, 434E, 442E, and 444E Backhoe Loaders Hydraulic System

432E: BXE2200-UP    434E: FSH900-UP    442E: GKZ600-UP    444E: LBE600-UP



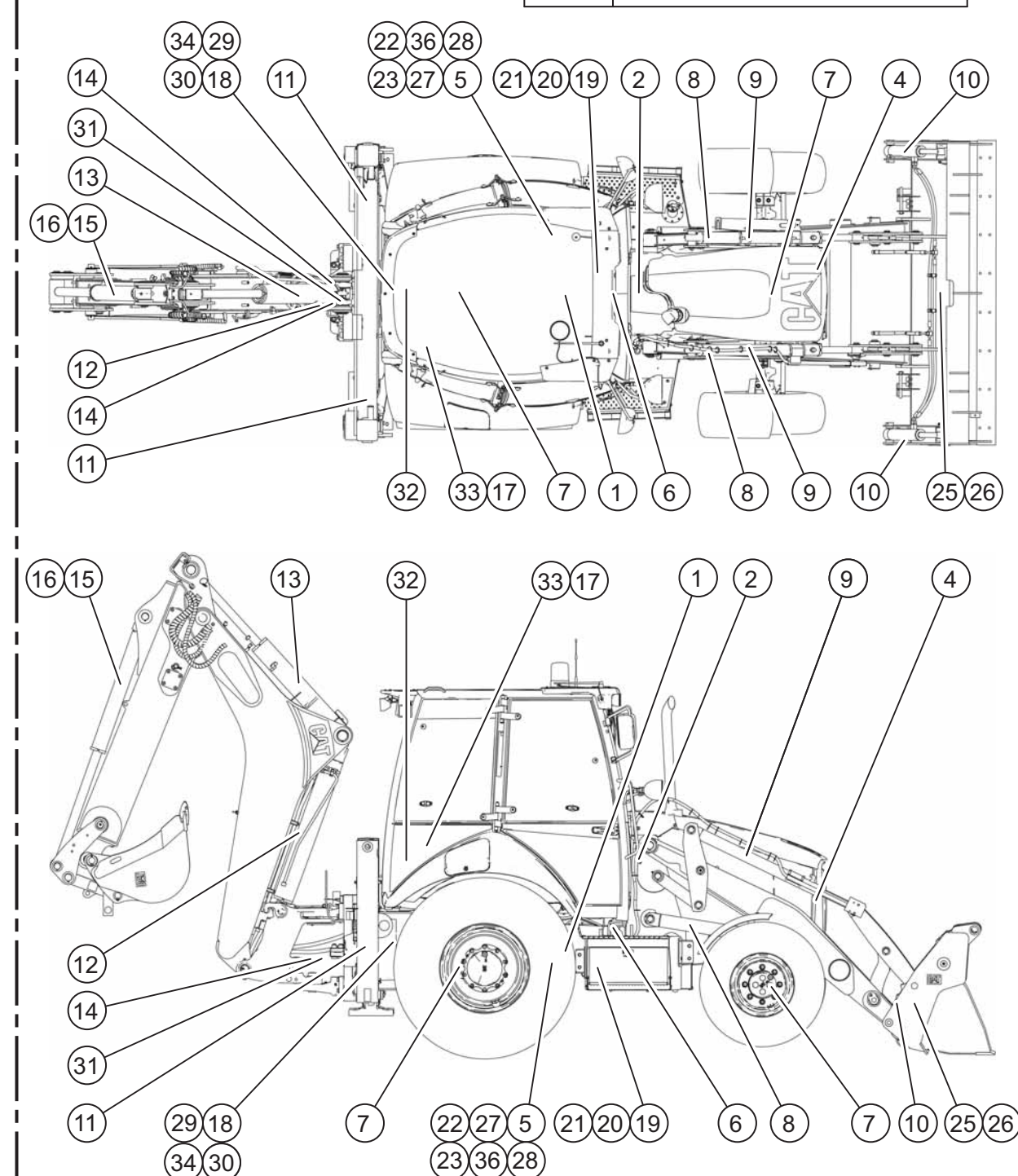
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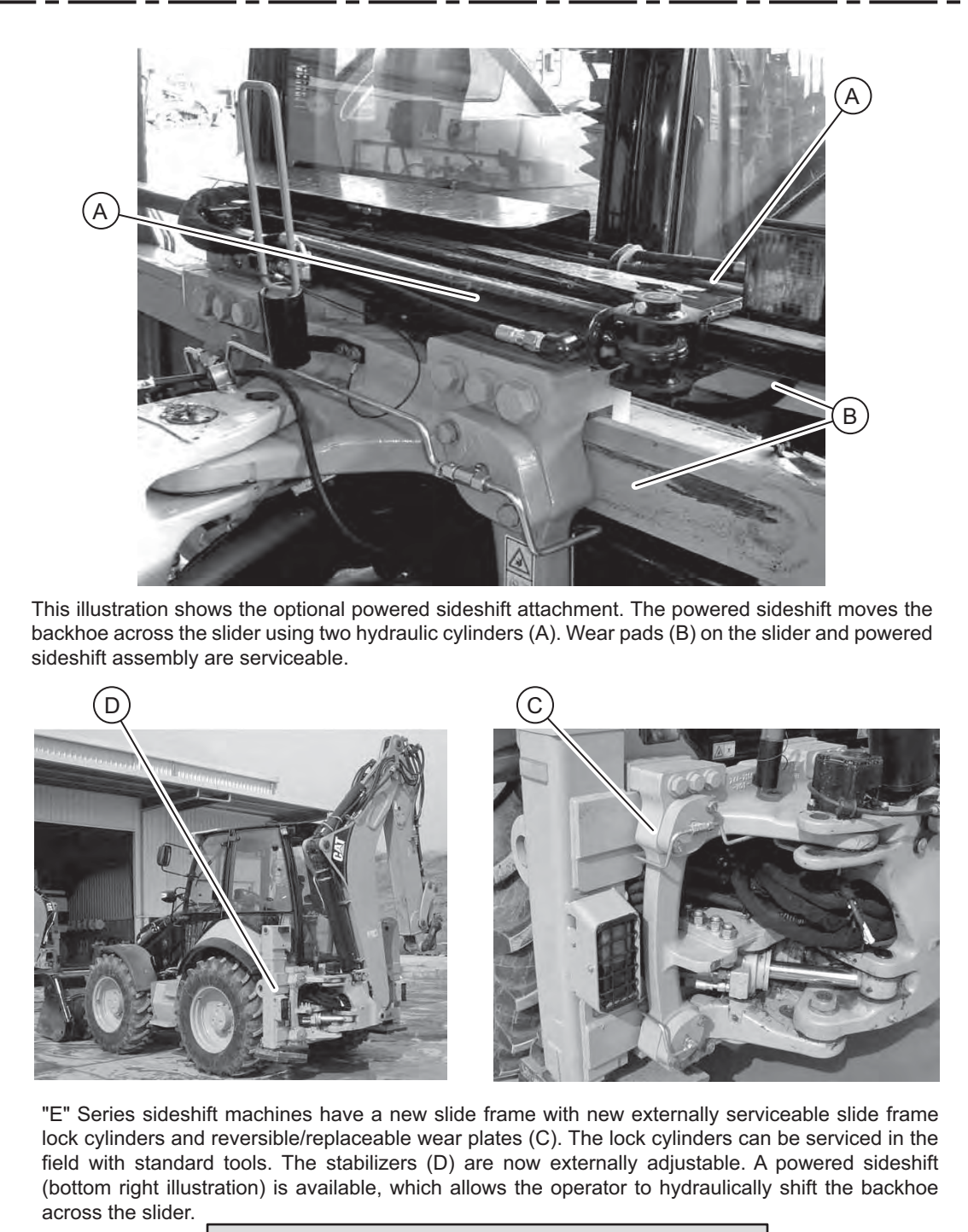
| COMPONENT LIST                     |                                 |                         |                            |                            |                         |
|------------------------------------|---------------------------------|-------------------------|----------------------------|----------------------------|-------------------------|
| ITEM                               | NAME                            | 432E                    | 434E                       | 442E                       | 444E                    |
| 1                                  | PUMP GP.                        |                         |                            | 289-6370                   |                         |
| 2                                  | HYDRAULIC TANK                  |                         |                            | 246-5298                   |                         |
| 3                                  | TANK GROUP                      |                         |                            | 245-8777                   |                         |
| 4                                  | COOLER                          |                         |                            | HYDRAULIC COOLER           |                         |
| 5                                  | FILTER                          |                         |                            | 226-9747                   |                         |
| 6                                  | HMU                             |                         |                            | 210-6240                   |                         |
| <b>STEER CYLINDERS</b>             |                                 |                         |                            |                            |                         |
| 7A                                 | FRONT                           |                         |                            | N/A                        |                         |
| 7B                                 | REAR                            |                         |                            | N/A                        |                         |
| 8                                  | LIFT CYLINDERS                  | 214-9373                | 249-8710 LH<br>249-8711 RH | 249-8710 LH<br>249-8711 RH | 249-8712 LH             |
| 9                                  | TILT CYLINDERS                  | 192-3884                | 210-7101                   | 214-9372                   |                         |
| 10                                 | MP BUCKET CYL.(OPT)             |                         |                            | MP BUCKET CYL.             |                         |
| <b>STABILIZER CYLINDERS</b>        |                                 |                         |                            |                            |                         |
| 11A                                | LH                              |                         |                            | 173-4555                   |                         |
| 11B                                | RH                              |                         |                            | 173-4555                   |                         |
| 12                                 | BOOM CYLINDER                   | 288-9049(S)<br>210-7076 | 288-9051(S)<br>210-7063    | 288-9049(S)<br>210-7076    | 288-9051(S)<br>210-7063 |
| 13                                 | STICK CYLINDER                  | 210-7084                | 210-7084                   | 210-7084                   | 210-7084                |
| 14                                 | SWING CYLINDER                  |                         |                            | 278-1077                   |                         |
| 15                                 | BUCKET CYLINDER                 | 210-7085(S)<br>210-7086 | 210-7085(S)<br>210-7086    | 210-7085(S)<br>210-7086    | 210-7085(S)<br>210-7086 |
| 16                                 | E-STICK CYLINDER (OPT)          |                         |                            | 210-7091(S) / 210-7089     |                         |
| <b>VALVE PILOT</b>                 |                                 |                         |                            |                            |                         |
| 17A                                | VALVE PILOT (SWITCH)            |                         |                            | 297-4394                   |                         |
| 17B                                | VALVE PILOT (SWITCH-DETENT)     |                         |                            | 297-4395                   |                         |
| 18                                 | ACCUMULATOR                     |                         |                            | 226-9240                   |                         |
| 19                                 | RIDE CNTRL. VALVE (OPT)         |                         |                            | 245-8780                   |                         |
| 20                                 | RIDE CNTRL. ADJ.MLTR (OPT)      |                         |                            | 162-3960                   |                         |
| 21                                 | RIDE CNTRL. PRES. SWITCH(OPT)   |                         |                            | 131-9203                   |                         |
| 22                                 | TEMP. SENSOR (OPT)              |                         |                            | TEMP. SENSOR               |                         |
| 23                                 | DRP. PRES. SWITCH (OPT)         |                         |                            | 134-0404                   |                         |
| 24                                 | ALL WHEEL STEER VALVE           |                         |                            | 296-3089 (STD)             |                         |
| 25                                 | COUPLER VALVE (See Volume 2)    |                         |                            | 231-2615                   |                         |
| 26                                 | COUPLER CYLINDER (See Volume 2) |                         |                            | 190-3085                   |                         |
| <b>LOADER VALVE (PL/IT) 3 BANK</b> |                                 |                         |                            |                            |                         |
| 27                                 | LOADER VALVE (3 BANK)           |                         |                            | 289-1081                   | N/A                     |
| 27A                                | LIFT SECTION                    |                         |                            | 308-2157                   |                         |
| 27B                                | TILT SECTION                    |                         |                            | 308-2163                   | N/A                     |
| 27C                                | AUX SECTION                     |                         |                            | 308-2159                   |                         |
| 27D                                | INLET SECTION                   |                         |                            | 289-1083                   | N/A                     |
| <b>LOADER VALVE (E/S) 3 BANK</b>   |                                 |                         |                            |                            |                         |
| 28                                 | LOADER VALVE (3 BANK)           |                         |                            | N/A                        | 293-8702                |
| 28A                                | INLET SECTION                   |                         |                            | N/A                        | 308-2158                |
| 28B                                | TILT SECTION                    |                         |                            | N/A                        | 308-2158                |
| <b>BACKHOE VALVE (BS) 7 BANK</b>   |                                 |                         |                            |                            |                         |
| 29                                 | BACKHOE VALVE (BS) 7 BANK       |                         |                            | 293-8701                   |                         |
| 29A                                | BOOM SECTION                    |                         |                            | 308-2149                   |                         |
| 29B                                | STICK SECTION                   |                         |                            | 308-2152                   |                         |
| 29C                                | E-STICK SECTION                 |                         |                            | 308-2153                   |                         |
| 29D                                | OUTLET SECTION                  |                         |                            | 308-2154                   |                         |
| 29E                                | INLET MANIFOLD                  |                         |                            | 308-2147                   |                         |
| 29F                                | STABILIZER SECTION              |                         |                            | 308-2148                   |                         |
| 29G                                | SWING SECTION                   |                         |                            | 308-2150                   |                         |
| 29H                                | BUCKET SECTION                  |                         |                            | 308-2151                   |                         |
| 30                                 | PATTERN SWITCH VALVE            |                         |                            | 300-4491                   |                         |
| 31                                 | VALVE GP.-CUSHION RELIEF (OPT)  |                         |                            | 206-3685                   |                         |
| 32                                 | VALVE GP.-PILOT (BACKHOE)       |                         |                            | 267-2758                   |                         |
| 33                                 | VALVE GP.-PILOT (LOADER)        |                         |                            | 267-2760                   |                         |
| 34                                 | PRV MANIFOLD                    |                         |                            | 300-4493                   |                         |
| 35                                 | PO CHECK VALVE                  |                         |                            | 308-3437                   |                         |
| 36                                 | CHECK VALVE ADAPTER             |                         |                            | 165-7948                   |                         |

| TAP LOCATIONS |                |
|---------------|----------------|
| Tap           | Description    |
| T1            | Pump Discharge |
| T2            | Load Sense     |
| T3            | Pilot Pressure |
| SOS           | Oil Sampling   |

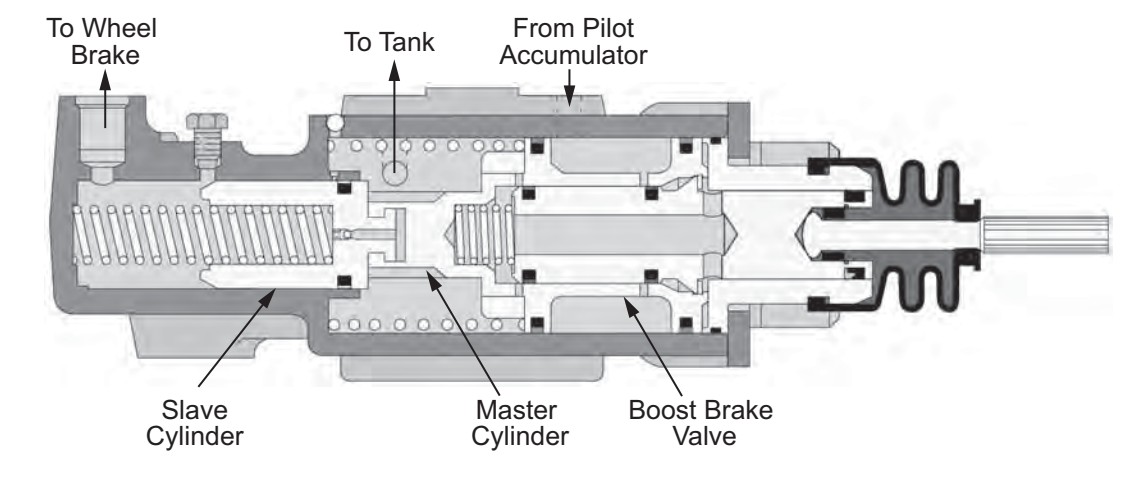
| ITEM | VALVE                    |
|------|--------------------------|
| P1   | LS RELIEF LOADER         |
| P2   | LS RELIEF BACKHOE        |
| P3   | HMU LS RELIEF            |
| P4   | TILT RE                  |
| P5   | TILT HE                  |
| P6   | LOADER AUX HE            |
| P7   | BUCKET RE & HE           |
| P8   | BOOM HE                  |
| P9   | BOOM RE                  |
| P10a | STICK HE                 |
| P10b | STICK RE                 |
| P11  | SWING RE + HE            |
| P12  | E-STICK RE + HE          |
| P13  | BACK PRESSURE CHECKVALVE |
| P14  | FILTER BYPASS            |
| P15  | COOLER BYPASS            |
| P16  | STEERING CYL. RELIEF     |
| P17  | REAR WHEEL LINE RELIEF   |
| P18  | FLUSHING / MARGIN RELIEF |
| PR1  | PILOT PRESSURE REDUCING  |
| R1   | LS DRAIN REGULATOR       |



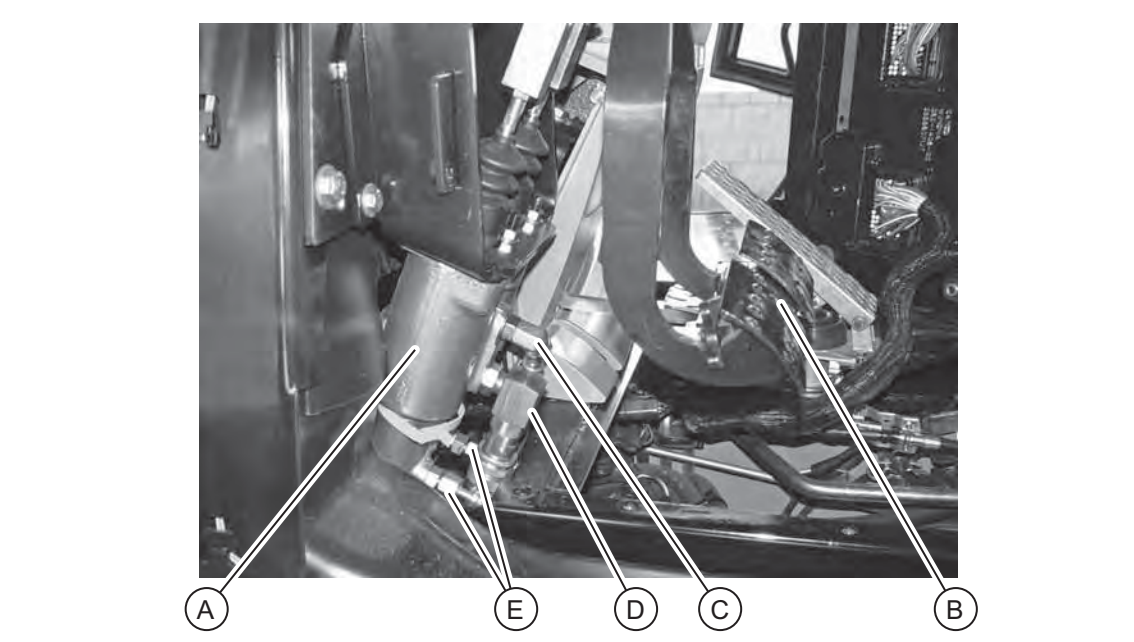
### COMPONENT LOCATIONS



### SIDESHIFT



This illustration shows a sectional view of the boosted brake valve group. When the brake pedal is depressed, the boost brake valve moves to the left and inlet oil from the pilot manifold is directed to the master cylinder.

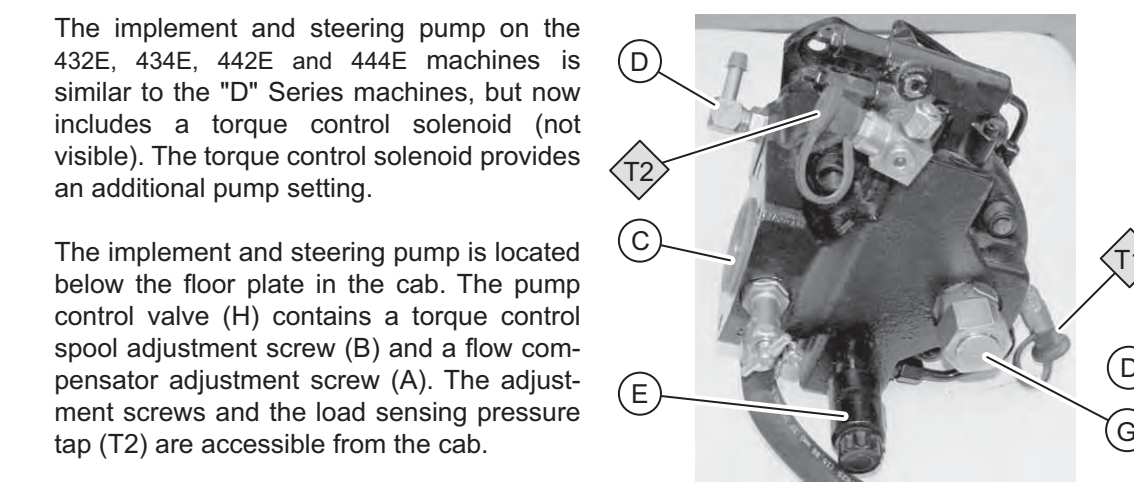
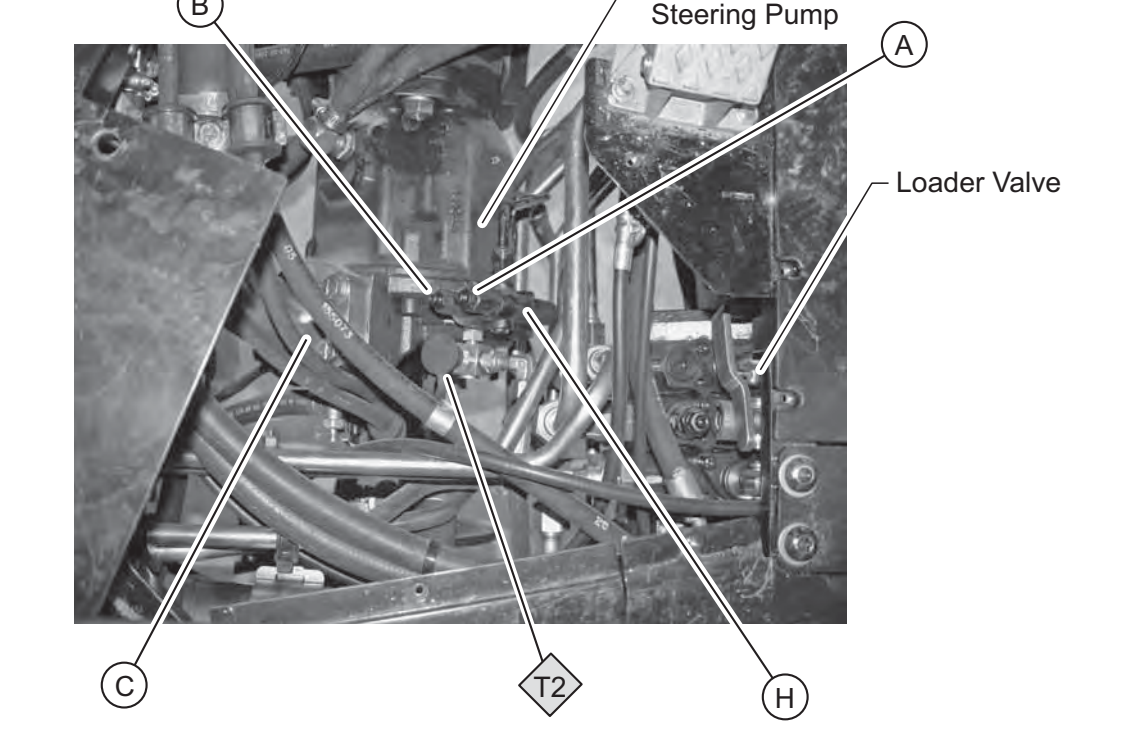


The 432E, 434E, 442E and 444E machines are equipped with hydraulically assisted master cylinders, which decreases the amount of pedal effort when braking. This illustration shows the boosted brakes valve group, which uses oil from the pilot accumulator to add boost to the master cylinder. The hydraulic force multiplies the pedal effort so the operator can get more braking force with less effort.

The brake boost valves are connected to the master cylinder (A) at each brake pedal (B). Oil enters the master cylinder through the supply hose (C) and exits the master cylinder through the return hose (D). The oil flows to the service brakes through the hoses (E) at the bottom of the master cylinder.

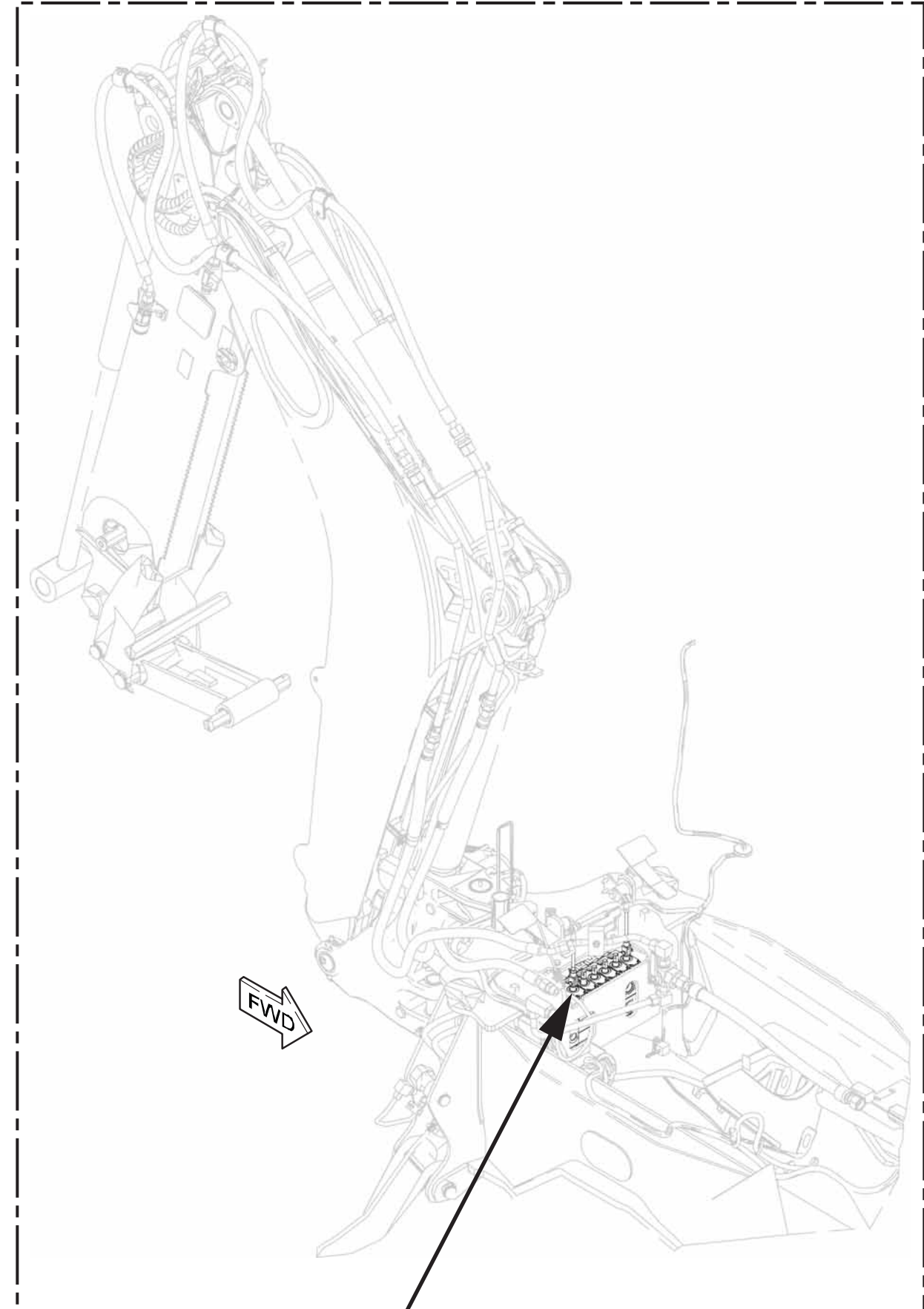
The master cylinders can be removed from the machine from inside the operator's compartment.

### BOOSTED BRAKES

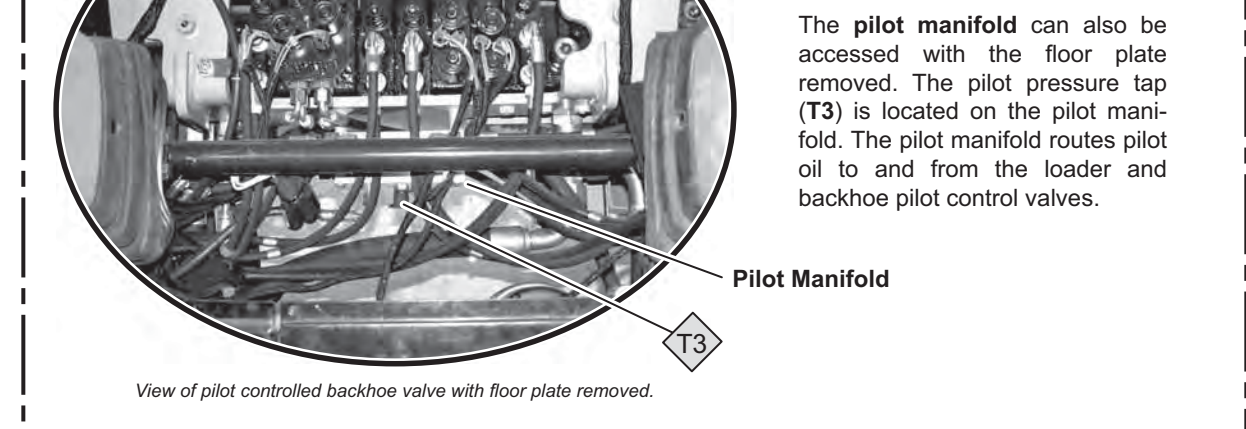


These illustrations show the implement and steering pump out of the machine. The following components are visible: Torque control adjustment (A), Flow compensator adjustment (B), Load sensing pressure tap (T2), Inlet port (C), Case drain port (D), Torque control solenoid (E), Discharge pressure tap (T1), Torque limiter (F), Outlet port (G)

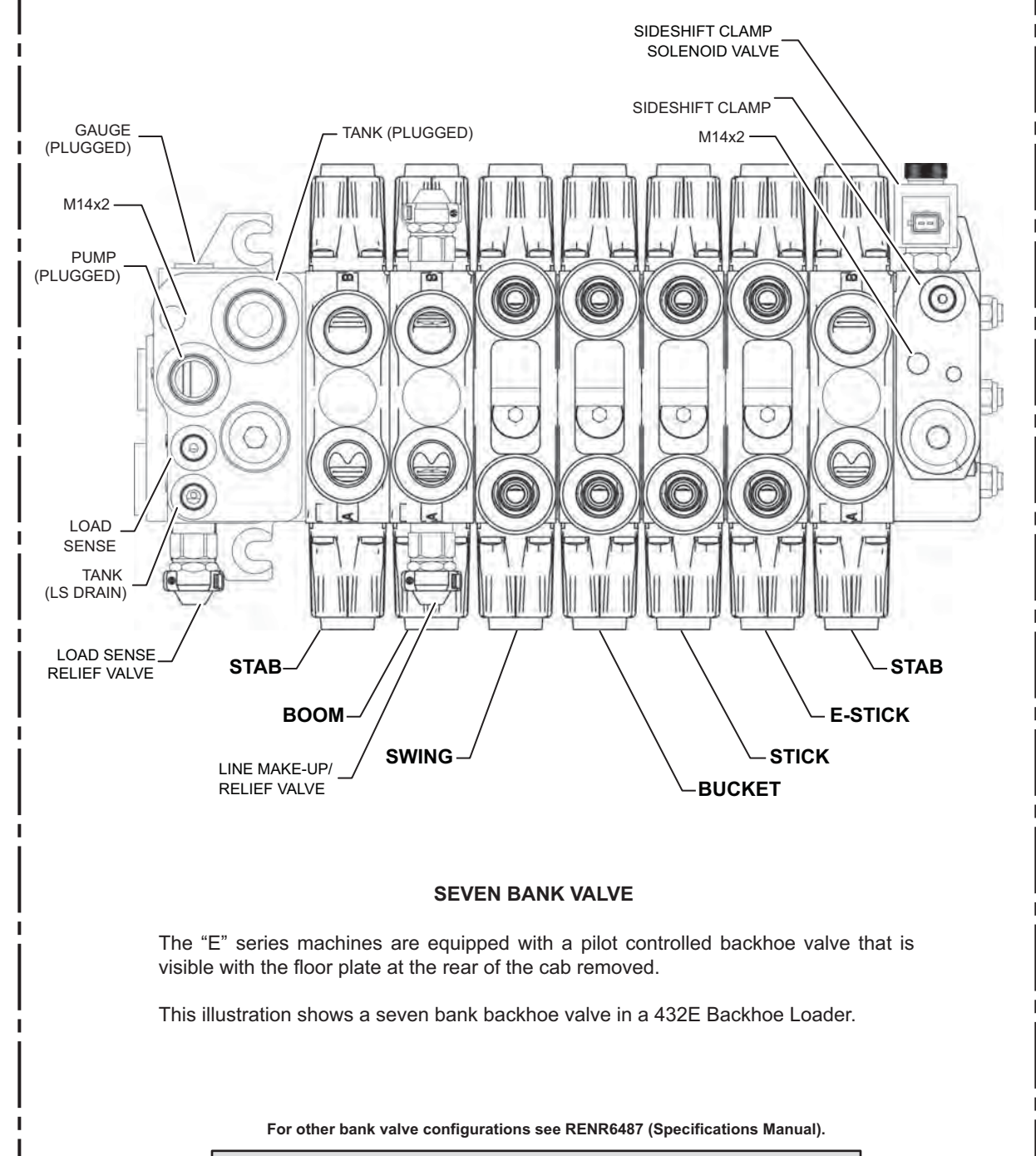
### IMPLEMENT / STEERING PUMP 1



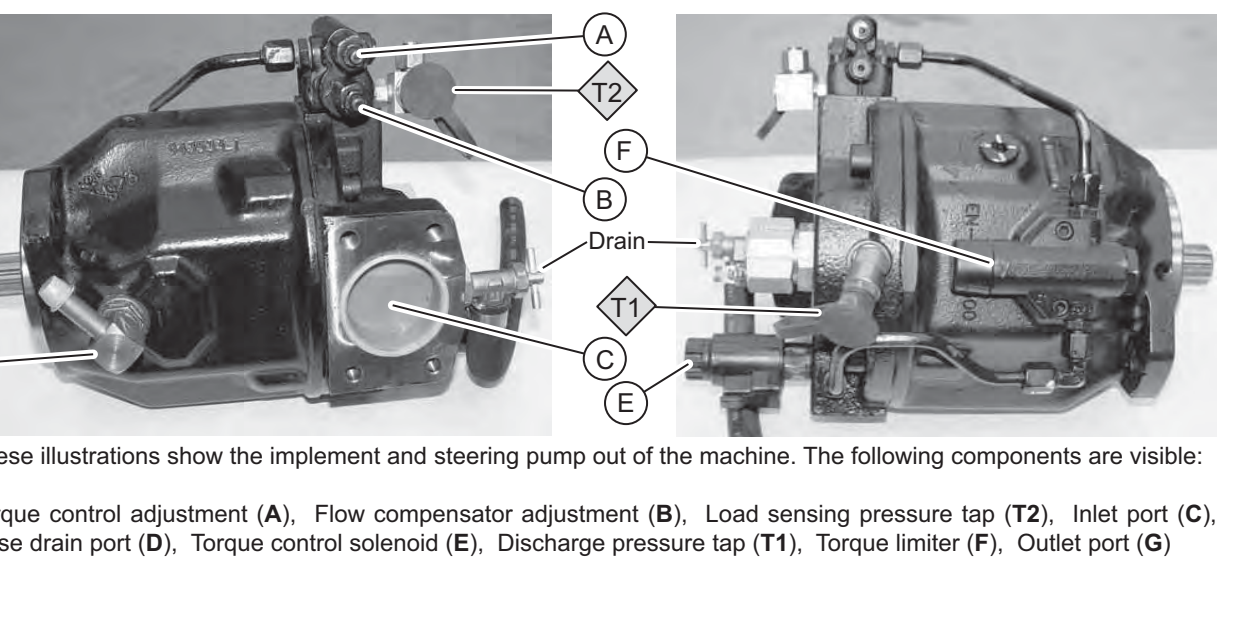
The pilot manifold can also be accessed with the floor plate removed. The pilot pressure tap (T3) is located on the pilot manifold. The pilot manifold routes pilot oil to and from the loader and backhoe pilot control valves.



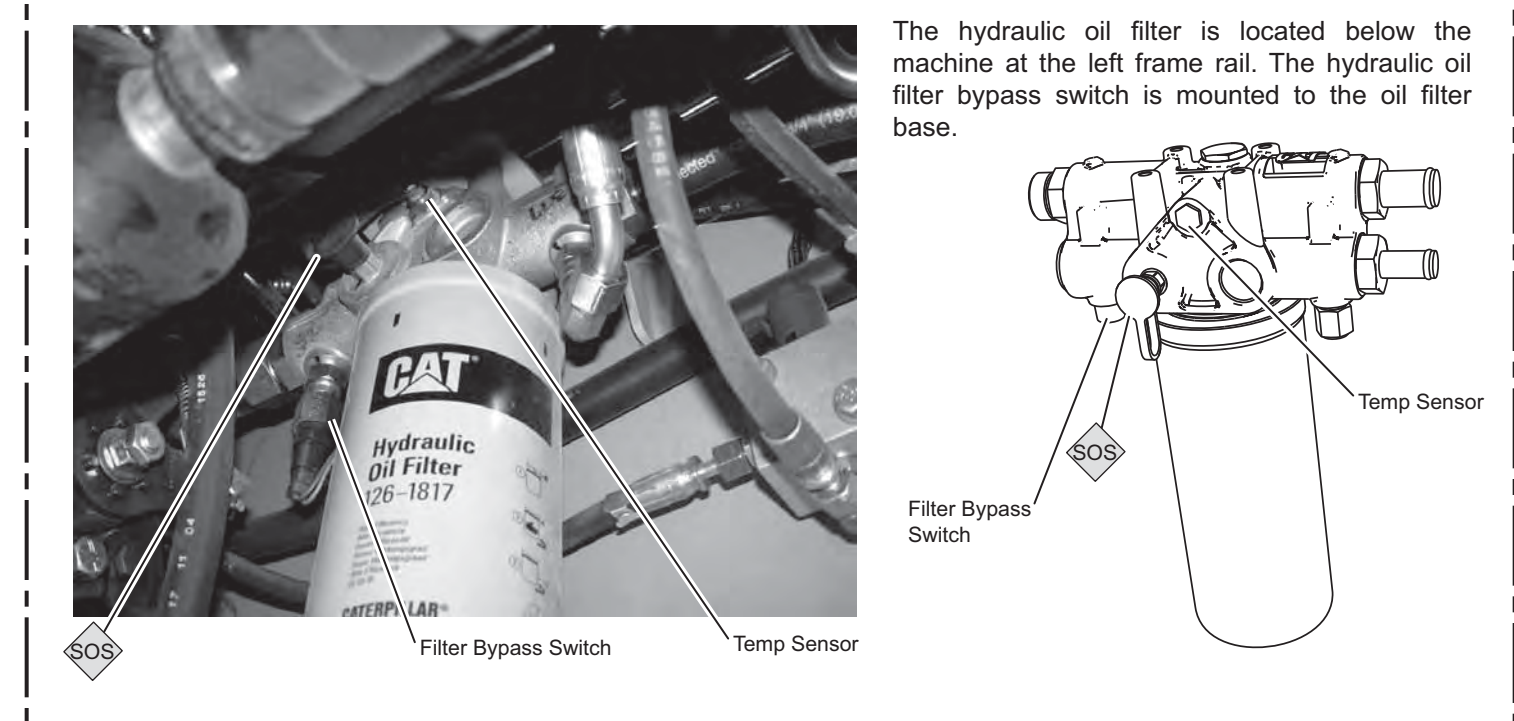
The "E" series machines are equipped with a pilot controlled backhoe valve that is visible with the floor plate at the rear of the cab removed. This illustration shows a seven bank backhoe valve in a 432E Backhoe Loader.



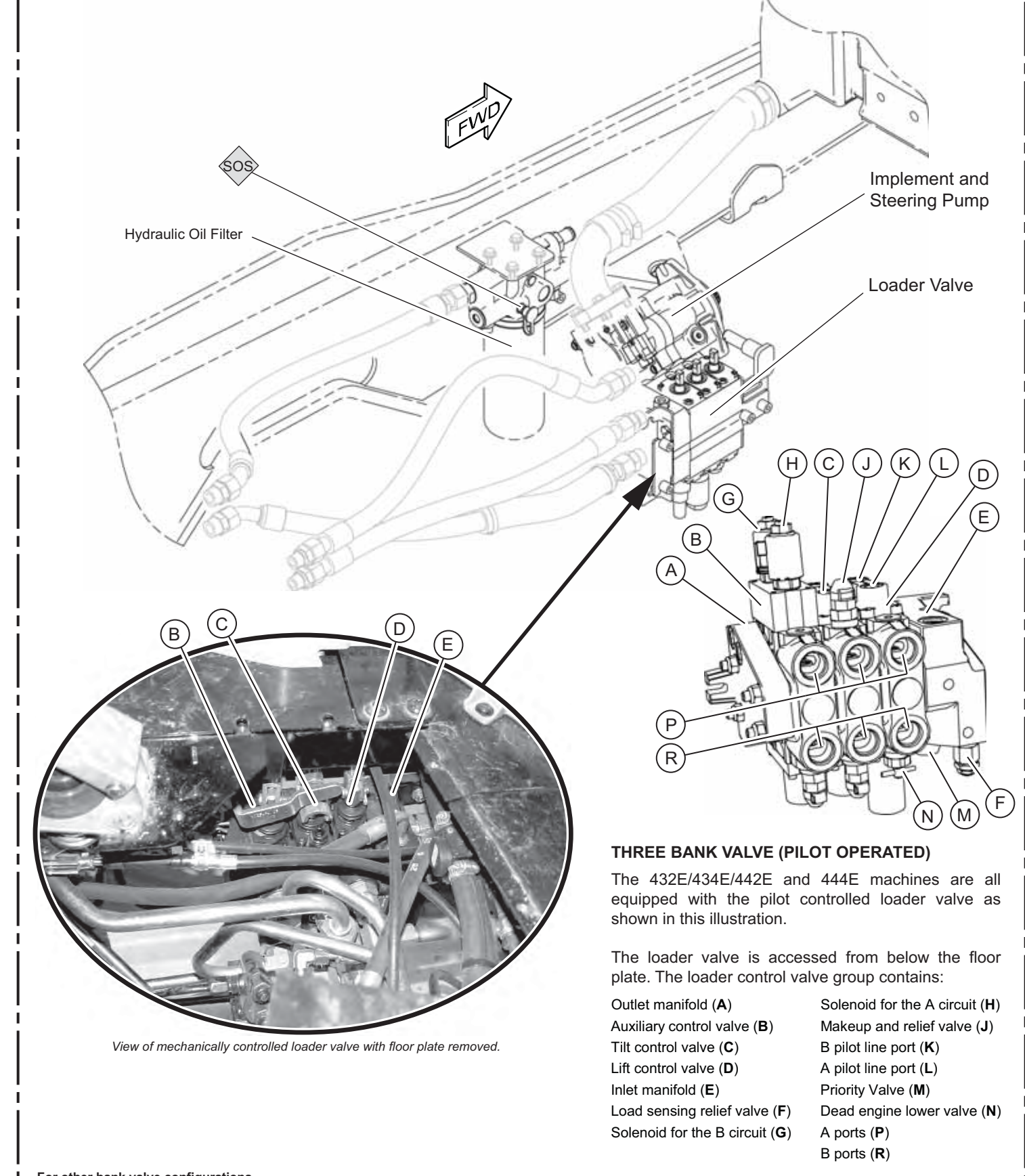
### BACKHOE VALVE 29



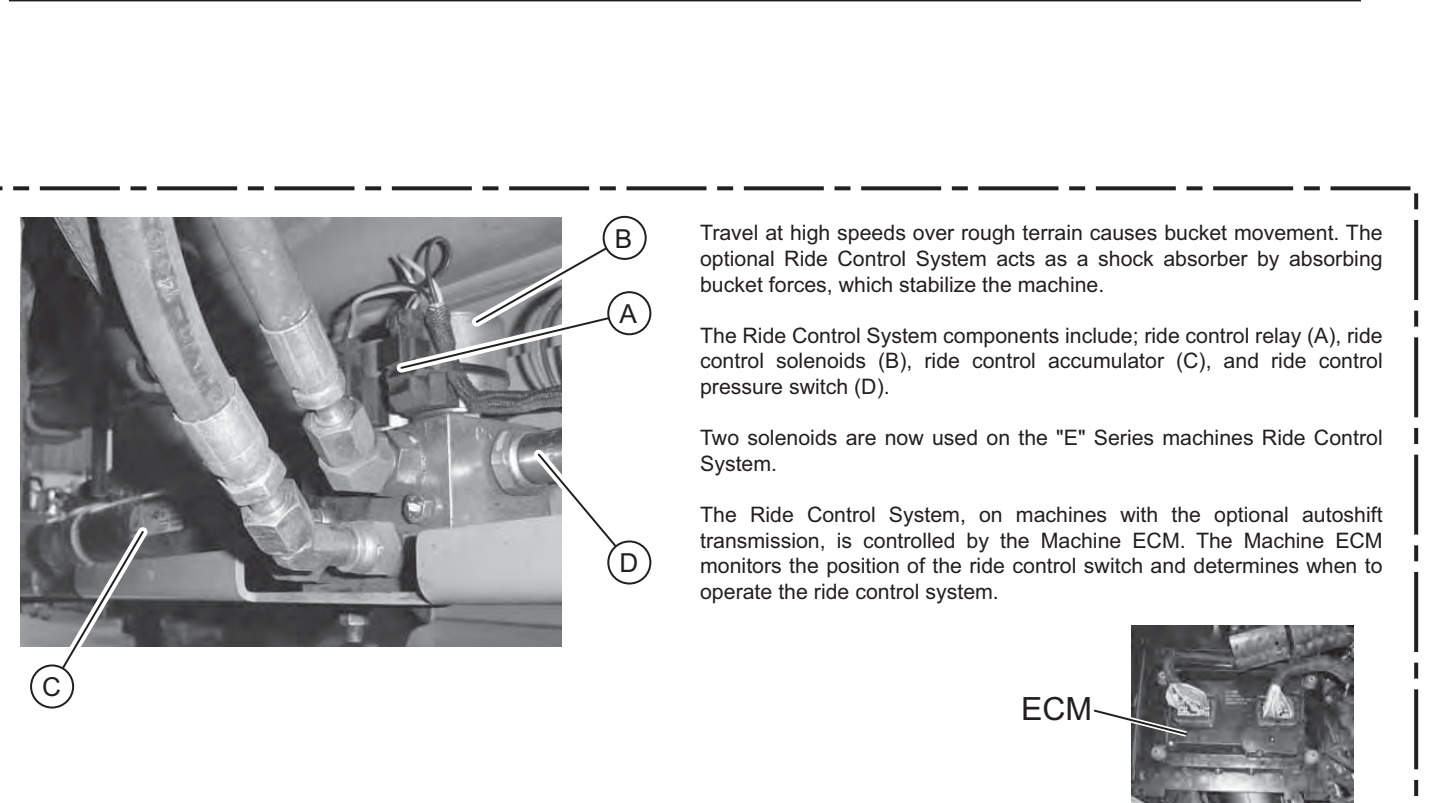
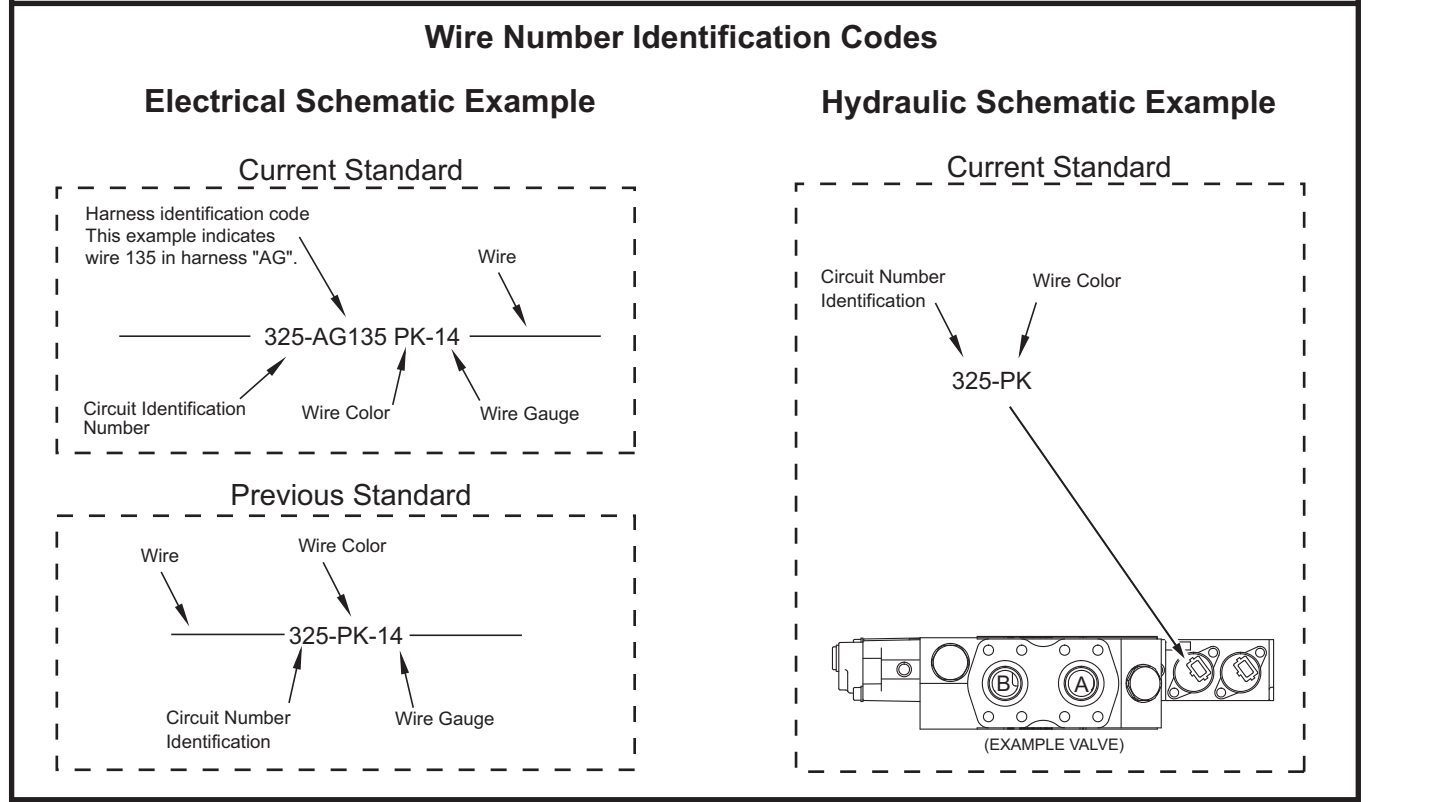
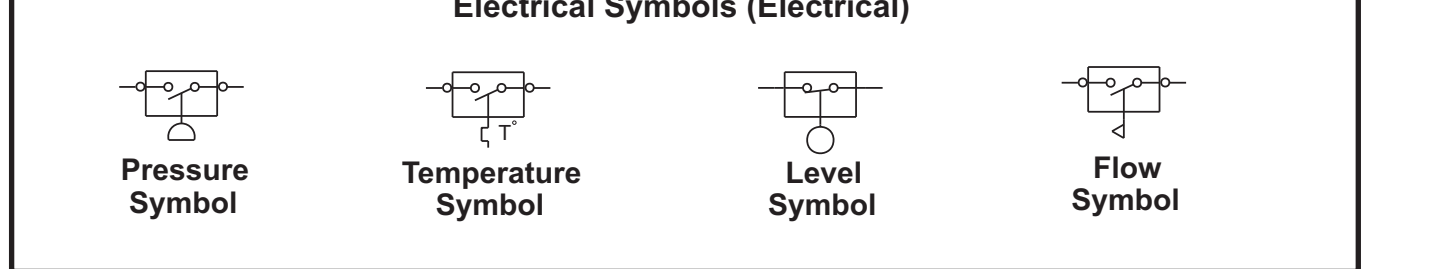
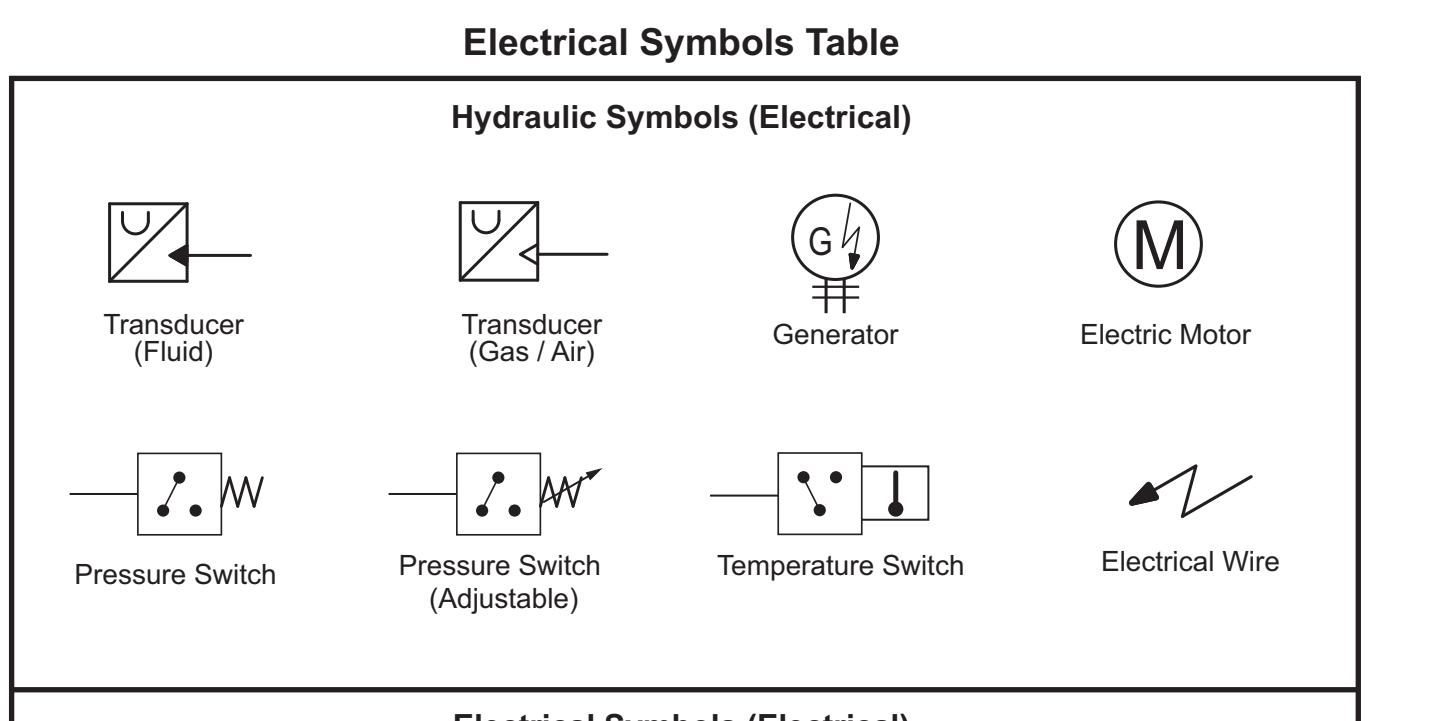
### LOADER VALVE 27/28



### HYDRAULIC OIL FILTER 5

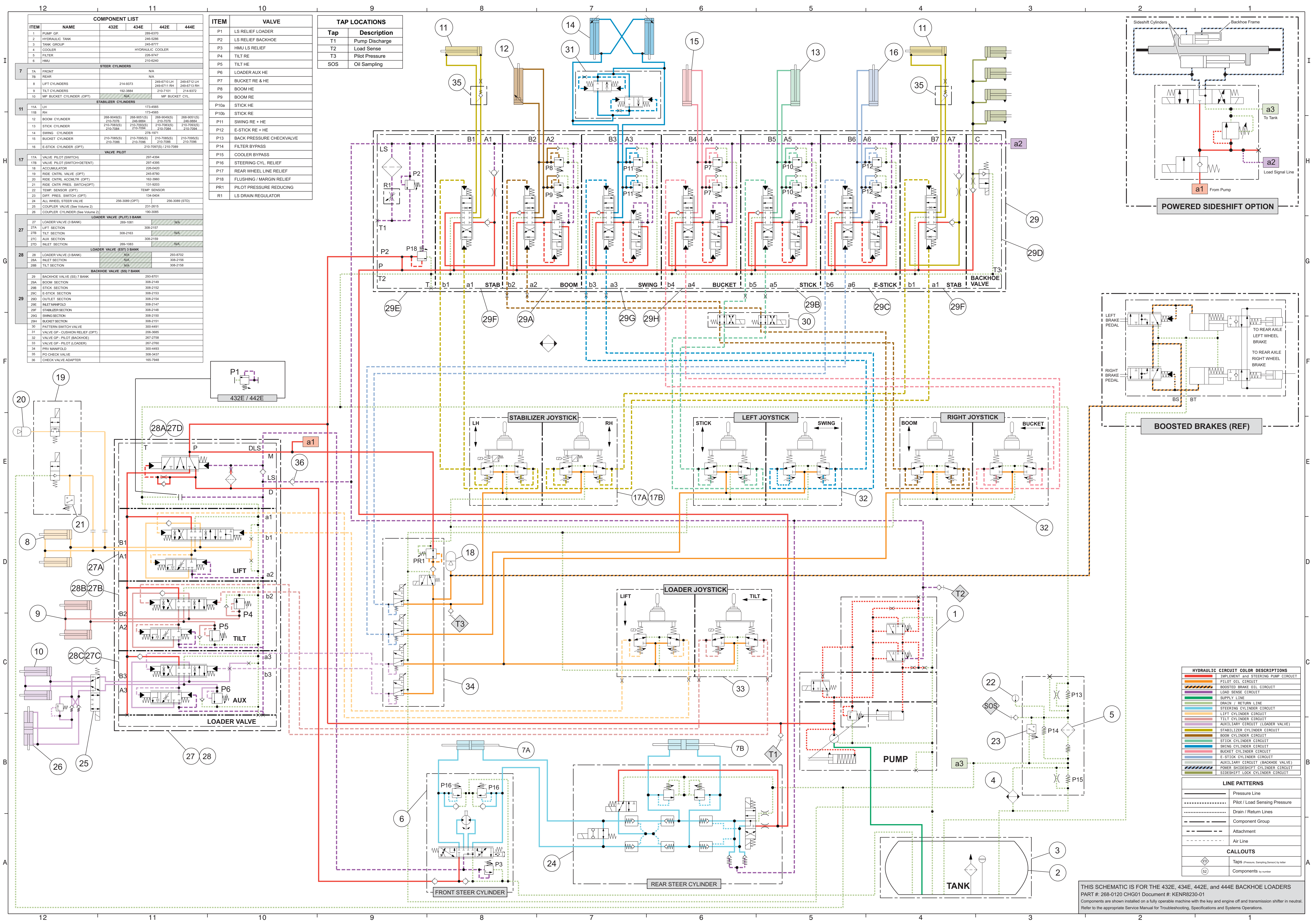


### LOADER VALVE 27/28



### RIDE CONTROL 19/20/21

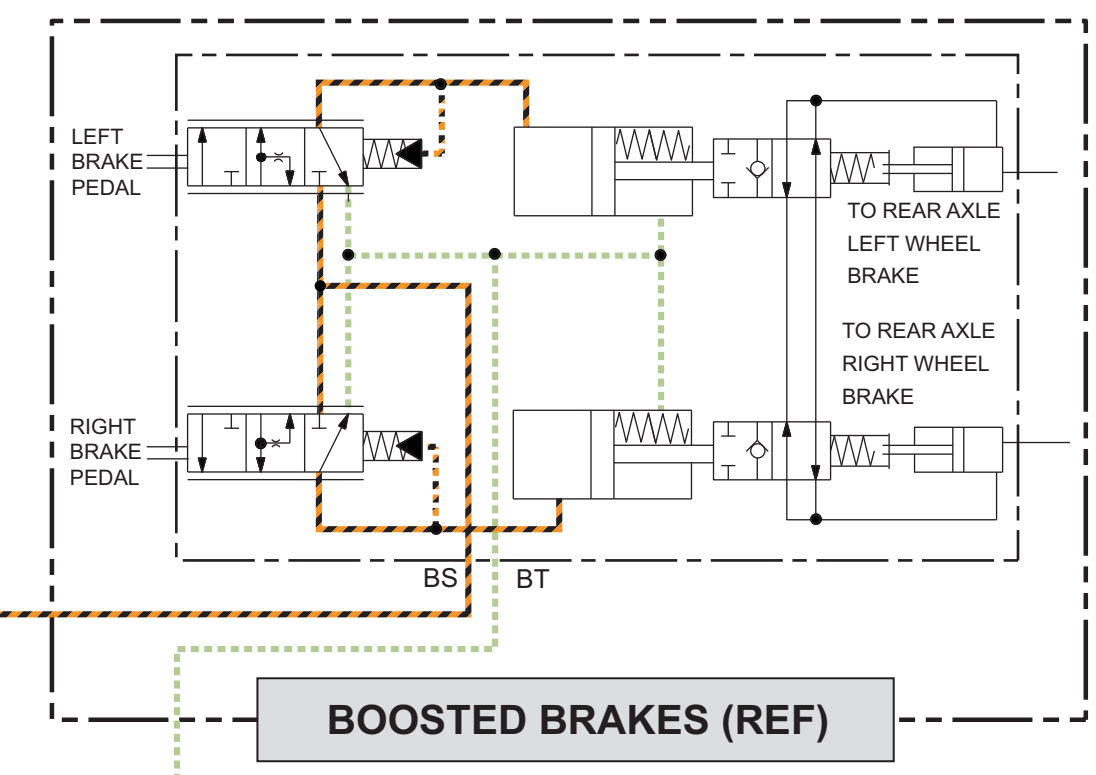
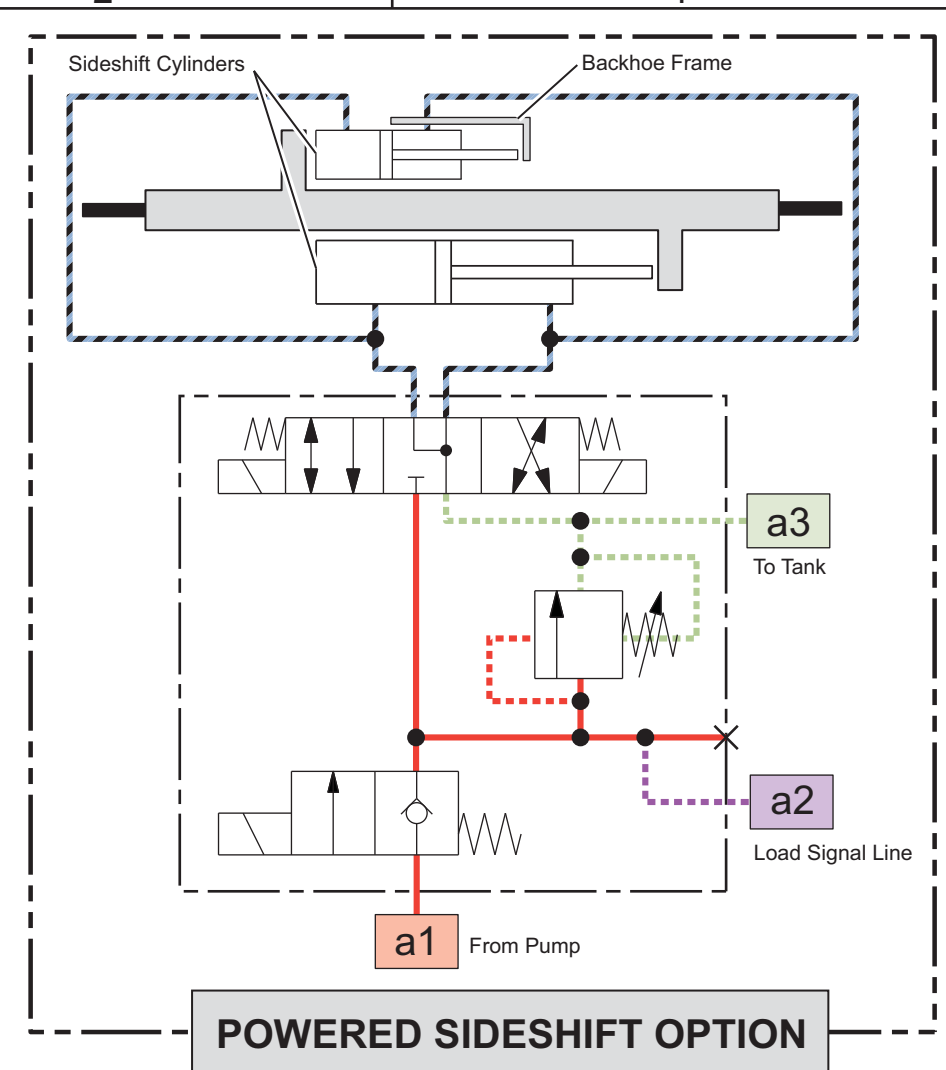




| COMPONENT LIST                   |                                 |                      |  |
|----------------------------------|---------------------------------|----------------------|--|
| ITEM                             | NAME                            | 432E                 | 434E   |
| 1                                | PUMP GP                         | 289-6370             |  |
| 2                                | HYDRAULIC TANK                  | 246-6386             |  |
| 3                                | TANK GROUP                      | 245-8777             |  |
| 4                                | COOLER                          | HYDRAULIC COOLER     |  |
| 5                                | FILTER                          | 228-4947             |  |
| 6                                | HMU                             | 210-6240             |  |
| <b>STEER CYLINDERS</b>           |                                 |                      |  |
| 7A                               | FRONT                           | N/A                  |  |
| 7B                               | REAR                            | N/A                  |  |
| 8                                | LIFT CYLINDERS                  | 214-9373             | 249-6710 LH 249-6712 RH                            |
| 9                                | TILT CYLINDERS                  | 192-3884             | 210-7101 214-6372                                  |
| 10                               | MP BUCKET CYLINDER (OPT)        | N/A                  | MP BUCKET CYL.                                     |
| <b>STABILIZER CYLINDERS</b>      |                                 |                      |  |
| 11A                              | LH                              | 173-4565             |  |
| 11B                              | RH                              | 173-4565             |  |
| 12                               | BOOM CYLINDER                   | 268-9040(S) 210-7076 | 268-9040(S) 210-7076 268-9041(S) 210-7076 246-8896 |
| 13                               | STICK CYLINDER                  | 210-7090(S) 210-7092 | 210-7090(S) 210-7092 210-7090(S) 210-7092          |
| 14                               | SWING CYLINDER                  | 210-7095(S) 210-7096 | 210-7095(S) 210-7096 210-7095(S) 210-7096          |
| 15                               | BUCKET CYLINDER                 | 210-7095(S) 210-7096 | 210-7095(S) 210-7096 210-7095(S) 210-7096          |
| 16                               | E-STICK CYLINDER (OPT)          | 210-7095(S) 210-7096 |  |
| <b>VALVE PILOT</b>               |                                 |                      |  |
| 17A                              | VALVE PILOT (SWITCH)            | 297-4394             |  |
| 17B                              | VALVE PILOT (SWITCH-DETENT)     | 297-4395             |  |
| 18                               | ACCUMULATOR                     | 226-9420             |  |
| 19                               | RIDE CNTRL VALVE (OPT)          | 245-8760             |  |
| 20                               | RIDE CNTRL ACCUMTR (OPT)        | 162-3960             |  |
| 21                               | RIDE CNTRL PRES. SWITCH(OPT)    | 133-5003             |  |
| 22                               | TEMP. SENSOR (OPT)              | TEMP. SENSOR         |  |
| 23                               | DIFF. PRES. SWITCH (OPT)        | 134-0004             |  |
| 24                               | ALL WHEEL STEER VALVE           | N/A                  | 256-3089 (STD)                                     |
| 25                               | COUPLER VALVE (See Volume 2)    | 231-2815             |  |
| 26                               | COUPLER CYLINDER (See Volume 2) | 190-3085             |  |
| <b>LOADER VALVE (PLT) 3 BANK</b> |                                 |                      |  |
| 27A                              | LIFT SECTION                    | 308-2157             | N/A  |
| 27B                              | TILT SECTION                    | 308-2163             | N/A  |
| 27C                              | AUX SECTION                     | 308-2159             | N/A  |
| 27D                              | INLET SECTION                   | 269-1083             | N/A  |
| <b>LOADER VALVE (EST) 3 BANK</b> |                                 |                      |  |
| 28A                              | LIFT SECTION                    | N/A                  | 293-8702   |
| 28B                              | TILT SECTION                    | N/A                  | 308-2156   |
| 28C                              | TILT SECTION                    | N/A                  | 308-2158   |
| <b>BACKHOE VALVE (BS) 7 BANK</b> |                                 |                      |  |
| 29A                              | BACKHOE VALVE (BS) 7 BANK       | 293-8701             |  |
| 29B                              | BOOM SECTION                    | 308-2149             |  |
| 29C                              | STICK SECTION                   | 308-2152             |  |
| 29D                              | E-STICK SECTION                 | 308-2153             |  |
| 29E                              | OUTLET SECTION                  | 308-2154             |  |
| 29F                              | INLET MANIFOLD                  | 308-2147             |  |
| 29G                              | STABILIZER SECTION              | 308-2148             |  |
| 29H                              | BUCKET SECTION                  | 308-2150             |  |
| 29I                              | PATTERN SWITCH VALVE            | 300-4491             |  |
| 30                               | VALVE GP - CUSHION RELIEF (OPT) | 206-8665             |  |
| 31                               | VALVE GP - PILOT (BACKHOE)      | 267-2758             |  |
| 32                               | VALVE GP - PILOT (LOADER)       | 267-2760             |  |
| 33                               | PRV MANIFOLD                    | 300-4493             |  |
| 34                               | PRV CHECK VALVE                 | 300-4497             |  |
| 35                               | CHECK VALVE ADAPTER             | 165-7948             |  |

| ITEM | VALVE                    |
|------|--------------------------|
| P1   | LS RELIEF LOADER         |
| P2   | LS RELIEF BACKHOE        |
| P3   | HMU LS RELIEF            |
| P4   | TILT RE                  |
| P5   | TILT HE                  |
| P6   | LOADER AUX HE            |
| P7   | BUCKET RE + HE           |
| P8   | BOOM HE                  |
| P9   | BOOM RE                  |
| P10a | STICK HE                 |
| P10b | STICK RE                 |
| P11  | SWING RE + HE            |
| P12  | E-STICK RE + HE          |
| P13  | BACK PRESSURE CHECKVALVE |
| P14  | FILTER BYPASS            |
| P15  | COOLER BYPASS            |
| P16  | STEERING CYL. RELIEF     |
| P17  | REAR WHEEL LINE RELIEF   |
| P18  | FLUSHING / MARGIN RELIEF |
| PR1  | PILOT PRESSURE REDUCING  |
| R1   | LS DRAIN REGULATOR       |

| TAP LOCATIONS |                |
|---------------|----------------|
| Tap           | Description    |
| T1            | Pump Discharge |
| T2            | Load Sense     |
| T3            | Pilot Pressure |
| SOS           | Oil Sampling   |



| HYDRAULIC CIRCUIT COLOR DESCRIPTIONS |                                     |
|--------------------------------------|-------------------------------------|
| [Red Line]                           | IMPLEMENT AND STEERING PUMP CIRCUIT |
| [Orange Line]                        | PILOT OIL CIRCUIT                   |
| [Yellow Line]                        | BOOSTED BRAKE OIL CIRCUIT           |
| [Green Line]                         | LOAD SENSE CIRCUIT                  |
| [Blue Line]                          | SUPPLY LINE                         |
| [Light Blue Line]                    | DRAIN / RETURN LINE                 |
| [Light Green Line]                   | STEERING CYLINDER CIRCUIT           |
| [Light Yellow Line]                  | LIFT CYLINDER CIRCUIT               |
| [Light Orange Line]                  | TILT CYLINDER CIRCUIT               |
| [Light Red Line]                     | AUXILIARY CIRCUIT (LOADER VALVE)    |
| [Light Purple Line]                  | STABILIZER CYLINDER CIRCUIT         |
| [Light Blue-Gray Line]               | BOOM CYLINDER CIRCUIT               |
| [Light Green-Gray Line]              | STICK CYLINDER CIRCUIT              |
| [Light Yellow-Gray Line]             | SWING CYLINDER CIRCUIT              |
| [Light Orange-Gray Line]             | BUCKET CYLINDER CIRCUIT             |
| [Light Red-Gray Line]                | E-STICK CYLINDER CIRCUIT            |
| [Light Purple-Gray Line]             | AUXILIARY CIRCUIT (BACKHOE VALVE)   |
| [Light Blue-Gray Line]               | POWER SIDESHIFT CYLINDER CIRCUIT    |
| [Light Green-Gray Line]              | SIDESHIFT LOCK CYLINDER CIRCUIT     |

| LINE PATTERNS               |                               |
|-----------------------------|-------------------------------|
| [Solid Line]                | Pressure Line                 |
| [Dashed Line]               | Pilot / Load Sensing Pressure |
| [Dotted Line]               | Drain / Return Lines          |
| [Long Dash-Short Dash Line] | Component Group               |
| [Short Dash-Long Dash Line] | Attachment                    |
| [Dashed Line with Arrow]    | Air Line                      |

| CALLOUTS  |  |
|-----------|--|
| [Diamond] | Taps (Pressure, Sampling, Control, Filter) |
| [Circle]  | Components by number                       |

THIS SCHEMATIC IS FOR THE 432E, 434E, 442E, and 444E BACKHOE LOADERS  
 PART #: 268-0120 CHG01 Document #: KENR8230-01  
 Components are shown installed on a fully operable machine with the key and engine off and transmission shifter in neutral.  
 Refer to the appropriate Service Manual for Troubleshooting, Specifications and Systems Operations.