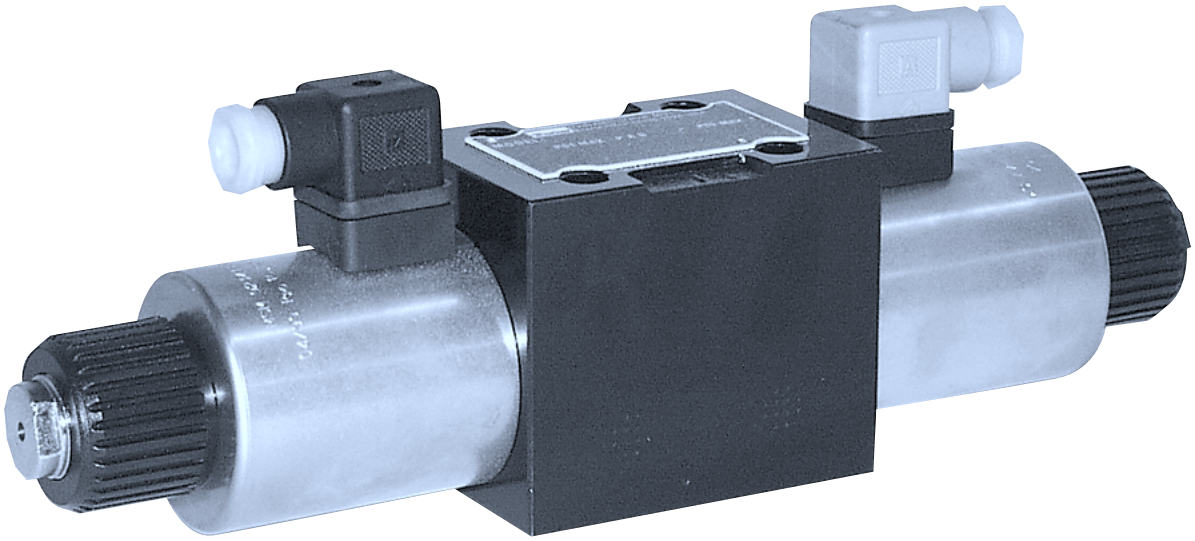
Parker Hydraulics

Bulletin 2542-M3/USA
Service Bulletin

Series D3DW, D Style

Effective: January 1, 2000



⚠ WARNING

FAILURE OR IMPROPER SELECTION OR IMPROPER USE OF THE PRODUCTS AND/OR SYSTEMS DESCRIBED HEREIN OR RELATED ITEMS CAN CAUSE DEATH, PERSONAL INJURY AND PROPERTY DAMAGE.

This document and other information from Parker Hannifin Corporation, its subsidiaries and authorized distributors provide product and/or system options for further investigation by users having technical expertise. It is important that you analyze all aspects of your application and review the information concerning the product or system in the current product catalog. Due to the variety of operating conditions and applications for these products or systems, the user, through its own analysis and testing, is solely responsible for making the final selection of the products and systems and assuring that all performance, safety and warning requirements of the application are met.

The products described herein, including without limitation, product features, specifications, designs, availability and pricing, are subject to change by Parker Hannifin Corporation and its subsidiaries at any time without notice.

Offer of Sale

The items described in this document are hereby offered for sale by Parker Hannifin Corporation, its subsidiaries or its authorized distributors. This offer and its acceptance are governed by the provisions stated in the "Offer of Sale".

2542-M3.p65, dd, am

D	3	D	W		D			
Directional Control Valve	Basic Valve	Body	Actuator	Spool	Style	Seal	Solenoid Voltage	Connector Package

Basic Valve

NFPA D05
CETOP 5
NG 10

Actuator

Wet armature solenoid

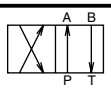
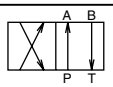
Body

5-Chamber Body

Seal

Code	Description
N	Nitrile
V	Fluorocarbon

Spool

Code	Symbol
20*	
30**	

* 20 spool has closed crossover.
** 30 spool has open crossover.

Solenoid Voltage

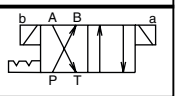
Code	Description
K	12 VDC
J	24 VDC
D	120 VDC
Z	250 VDC

Connector Package

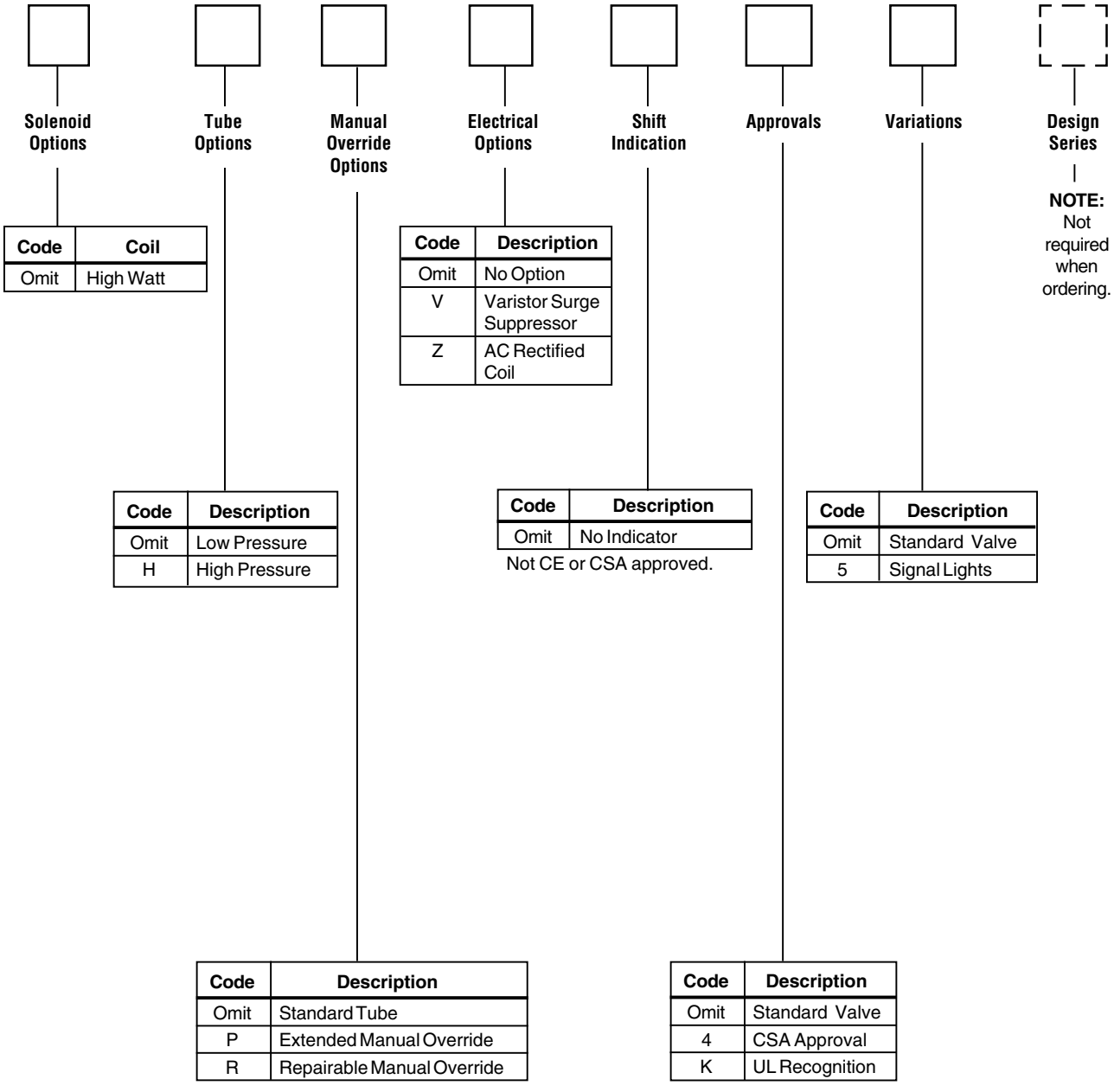
Code	Description
P	Hirschmann w/Plug
W*	Hirschmann w/o Plug
S	Double Spade

* Not available with signal lights.

Style

Code	Description	
D †	Double solenoid, 2 position, detent	

† Only spools 20 & 30.



Code	Coil
Omit	High Watt

Code	Description
Omit	No Option
V	Varistor Surge Suppressor
Z	AC Rectified Coil

NOTE: Not required when ordering.

Code	Description
Omit	Low Pressure
H	High Pressure

Code	Description
Omit	No Indicator

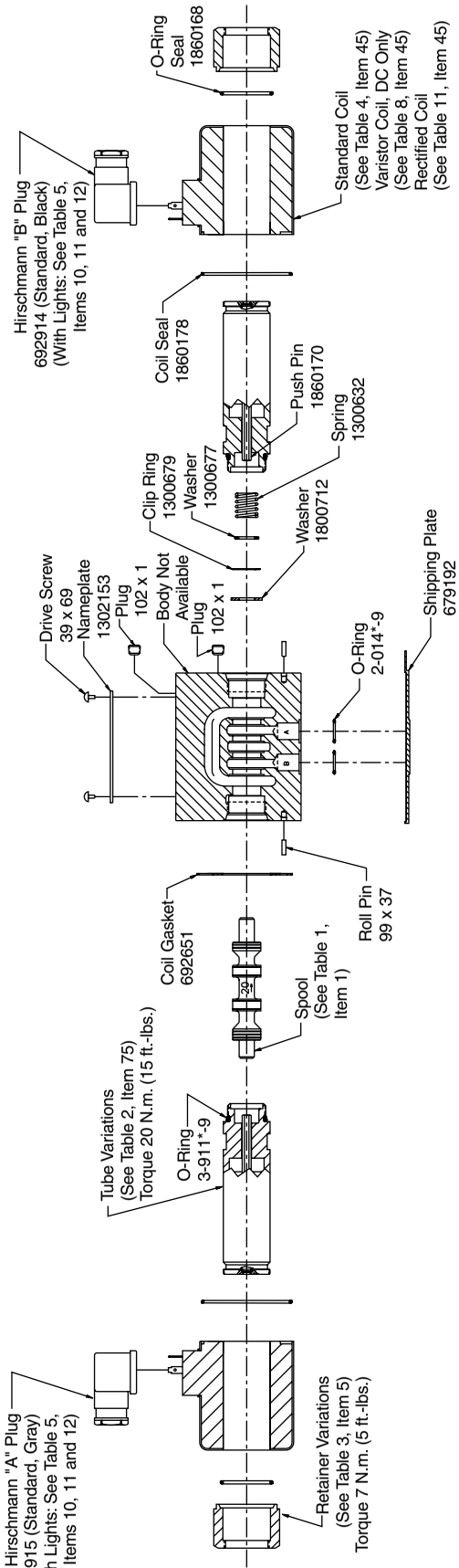
Not CE or CSA approved.

Code	Description
Omit	Standard Valve
5	Signal Lights

Code	Description
Omit	Standard Tube
P	Extended Manual Override
R	Repairable Manual Override

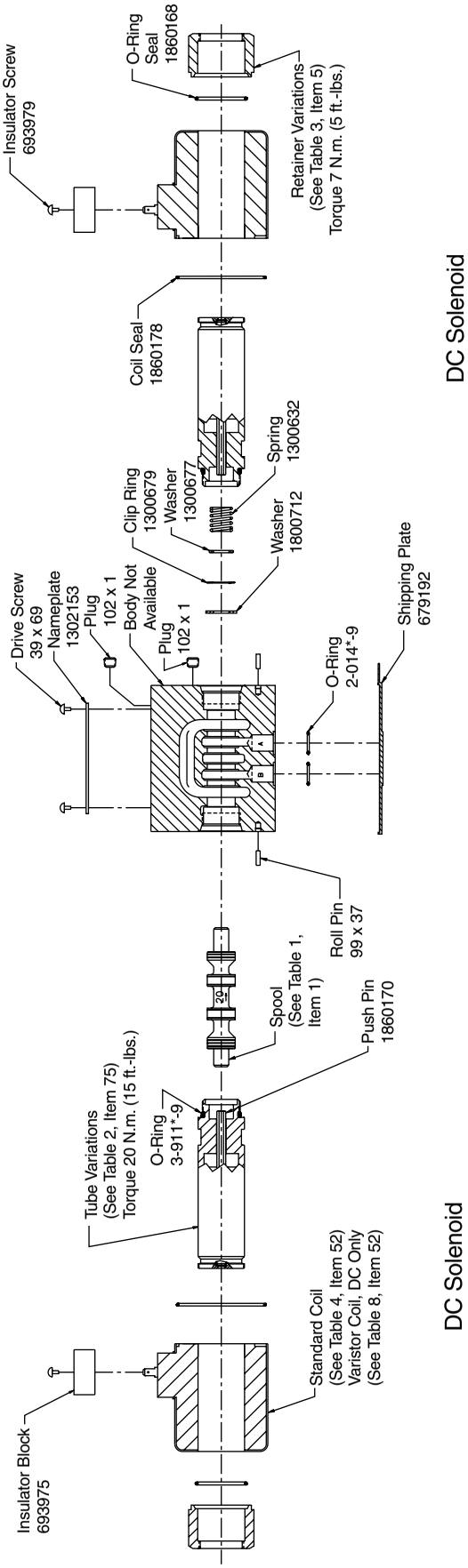
Code	Description
Omit	Standard Valve
4	CSA Approval
K	UL Recognition

Valve Weight:
Double Solenoid: 7.3 kg (16.0 lbs)
Standard Bolt Kit:
BK98



NOTES:
1) * Indicates Seal Compound: N-Nitrile, V-Fluorocarbon.

2542-M3.p65, dd, am



NOTES:
1) * Indicates Seal Compound: N-Nitrile, V-Fluorocarbon.

2542-M3.p65, dd, am

Table 1 (Spools)

CODE	ITEM	PART NUMBER	QTY	DESCRIPTION
20	1	1300620	1	#20 SPOOL
26	1	1302049	1	#26 SPOOL
30	1	1300630	1	#30 SPOOL

NOTES:

1. ARROW POINTS TOWARD "A" PORT END OF BODY.
2. 26 SPOOL AVAILABLE IN RECTIFIED AC OR HIGH WATT DC ONLY.

Table 2 (Tube Variations)

CODE	ITEM	PART NUMBER	QTY	DESCRIPTION
OMIT or F	75	1860163	2	TUBE 1500 PSI
H	75	1860151	2	TUBE 3000 PSI
P or FP	75	1860165	2	EXTENDED TUBE 1500 PSI
R or FR	75	1860166	2	REPAIRABLE TUBE 1500 PSI

Table 3 (Retainer Variations)

CODE	ITEM	PART NUMBER	QTY	DESCRIPTION
ALL EXCEPT R,S,P & T	5	1860167	2	STANDARD RETAINER
P or FP HP or FHP	5	1860171	2	EXTENDED OVERRIDE RETAINER
		697161		EXTENDED OVERRIDE BOOT
ALL R ALL S	5	1860167	2	REPAIRABLE OVERRIDE RETAINER
ALL T	5	1860182	2	TAMPERPROOF RETAINER

Table 4 (Standard Coils)

			SOL CONNECTION	P/W (HIRSCHMANN)	S (DUAL SPADE)
			ITEM	45	52
CODE	DESCRIPTION	QTY	PART NUMBER	PART NUMBER	
K*	12 VDC, 36 WATT	2	1860152-K	1860160-K	
K*F	12 VDC, 18 WATT (LOW WATT)	2	1860153-K	1860161-K	
J*	24 VDC, 36 WATT	2	1860152-J	1860160-J	
J*F	24 VDC, 18 WATT (LOW WATT)	2	1860153-J	1860161-J	
D*	120 VDC	2	1860152-D	1860160-D	
Z*	250 VDC	2	1860152-Z	1860160-Z	

2542-M3.p65, dd, am

Table 5 (Signal Lights)

CODE	ITEM	PART NUMBER	QTY	DESCRIPTION
ALL PLUGS (*P*5)	10	A697047	A/R	LABEL – "A" SOLENOID
	11	A697048	A/R	LABEL – "B" SOLENOID
KP*5	12	B694935	2	PLUG WITH LIGHT, 12V
JP*5		B694935	2	PLUG WITH LIGHT, 24V
DP*5		B694936	2	PLUG WITH LIGHT, 100–120V

Table 8 (Varistor Coils, DC Only)

	SOL CONNECTION		P/W (HIRSCHMANN)	S (DUAL SPADE)
	ITEM		45	52
CODE	DESCRIPTION	QTY	PART NUMBER	PART NUMBER
K*	12 VDC	2	1860155–K	1860162–K
J*	24 VDC	2	1860155–J	1860162–J
D*	120 VDC	2	1860155–D	1860162–D
Z*	250 VDC	2	1860155–Z	1860162–Z

Table 9 (Explosion Proof Coils)

	SOL CONNECTION		D (CENELEC)	U (UL & CSA)
	ITEM		7	7
CODE	DESCRIPTION	QTY	PART NUMBER	PART NUMBER
KE	12 VDC	2	1302310–K	132308–K
JE	24 VDC	2	1302310–J	132308–J
DE	120 VDC	2	1302310–D	132308–D
ZE	250 VDC	2	1302310–Z	132308–Z

Table 11 (Rectified Coils)

	SOL CONNECTION		P/W (HIRSCHMANN)
	ITEM		45
CODE	DESCRIPTION	QTY	PART NUMBER
Y*	120/110, 32 WATT	2	1860154–Y
T*	240/220, 32 WATT	2	1860154–T

Solenoid Ratings**

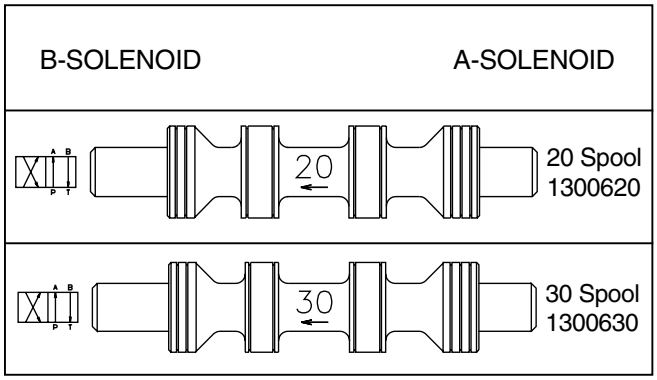
Insulation	Class H
Allowable Deviation from rated voltage	-10% to +15%
Armature	Wet pin type

** DC Solenoids available with optional molded metal oxide varistor (MOV) for surge suppression.
Leadwire length 6" from coil face.

D3W Solenoid Electrical Characteristics

Solenoid Code	Nominal Volts	In Rush Amps	Holding Amps	Nominal Watts (Ref)
K	12 VDC	—	3.00	36
J	24 VDC	—	1.50	36
D	120 VDC	—	0.30	36
Z	250 VDC	—	0.14	36

Spools



Note: Spool 20 is closed crossover.
Spool 30 is open crossover.

2542-M3.p65, dd, am

Warning

Before any circuit connection is broken, be sure to turn off all power and relieve system pressure. Lower all vertical loads and cylinders, lock any load which could produce pressure and discharge any accumulators. Plug and cap all lines and openings to prevent contamination from entering the system.

Cleaning and Inspection

1. Proper cleaning is a critical part of preventive maintenance in the use of directional control valves. All parts should be cleaned with a solvent that is compatible with the system fluid. Compressed air may also work well when cleaning orifices and passage ways, but proper filtration must be employed to remove water and contamination.

   NOTE: Always make sure all parts have been cleaned before reassembling.

2. Inspection
   a. Inspect all passage ways for obstructions.
   b. Inspect all washers, push pins, plungers and pole faces for signs of wear and/or mushrooming. Inspect all springs for signs of distortion. Replace parts as necessary.
   c. Look for nicks and burrs on the spool and bore lands. Nicks in these areas indicate likely contamination of the system fluid.
3. If there are no signs of nicks or burrs on the spool and bore, check the spool movement as follows:
   a. Lubricate the spool and bore with clean system fluid.
   b. Insert the spool back into the body and slowly move the spool back and forth. The spool should move freely. If there is any sticking between the spool and the bore, remove the spool and repeat 2a, 2c and 3a.
   c. The spool movement can also be checked by placing the valve body on end and inserting the spool. Gravity will pull the spool to the other end if there is no sticking.
   d. After several attempts have been made without resolution, replace the valve.

Troubleshooting

Problem: Valve spool fails to move

	Cause	Recommendation
Mechanical	Recommended flow exceeded	Check maximum flow rate for appropriate spool by spool function.
	Recommended pressure exceeded	Check maximum pressure rating for valve.
	Improper installation connections	Check installation drawings.
	Contamination in system	Disasemble, inspect, clean and flush.
	Improper assembly	Check proper assembly. Refer to drawing for appropriate model.
	Valve has silted	Disassemble and clean valve.
Electrical	Power off	Turn power on.
	Improper voltage	Check voltage requirements for valve model.
	Faulty connection	Check connections.
	Faulty coil	Check coil resistance.

Problem: Valve produces undesirable response

	Cause	Recommendation
Mechanical	Recommended flow exceeded	Check maximum flow rate for appropriate spool by spool function.
	Recommended pressure exceeded	Check maximum pressure rating for valve.
	Improper installation connections	Check installation drawings.
	Contamination in system	Disassemble, inspect, clean and flush.
	Improper assembly	Check proper assembly. Refer to drawing for appropriate model.
	Improper fluid	Check fluid recommendations.
	Recommended temperature exceeded (indicated by fluid discoloration or spool tarnishing)	Check maximum temperature recommendations.
	Incorrect orifice size (soft shift only)	Check orifice size for desired response time.
Electrical	Improper voltage	Check voltage requirements for valve model.
	Faulty connection	Check connections.
	Faulty coil	Check coil resistance.

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