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Régulateurs hydrauliques Hydrochecks B171

Parker

ENGINEERING YOUR SUCCESS.

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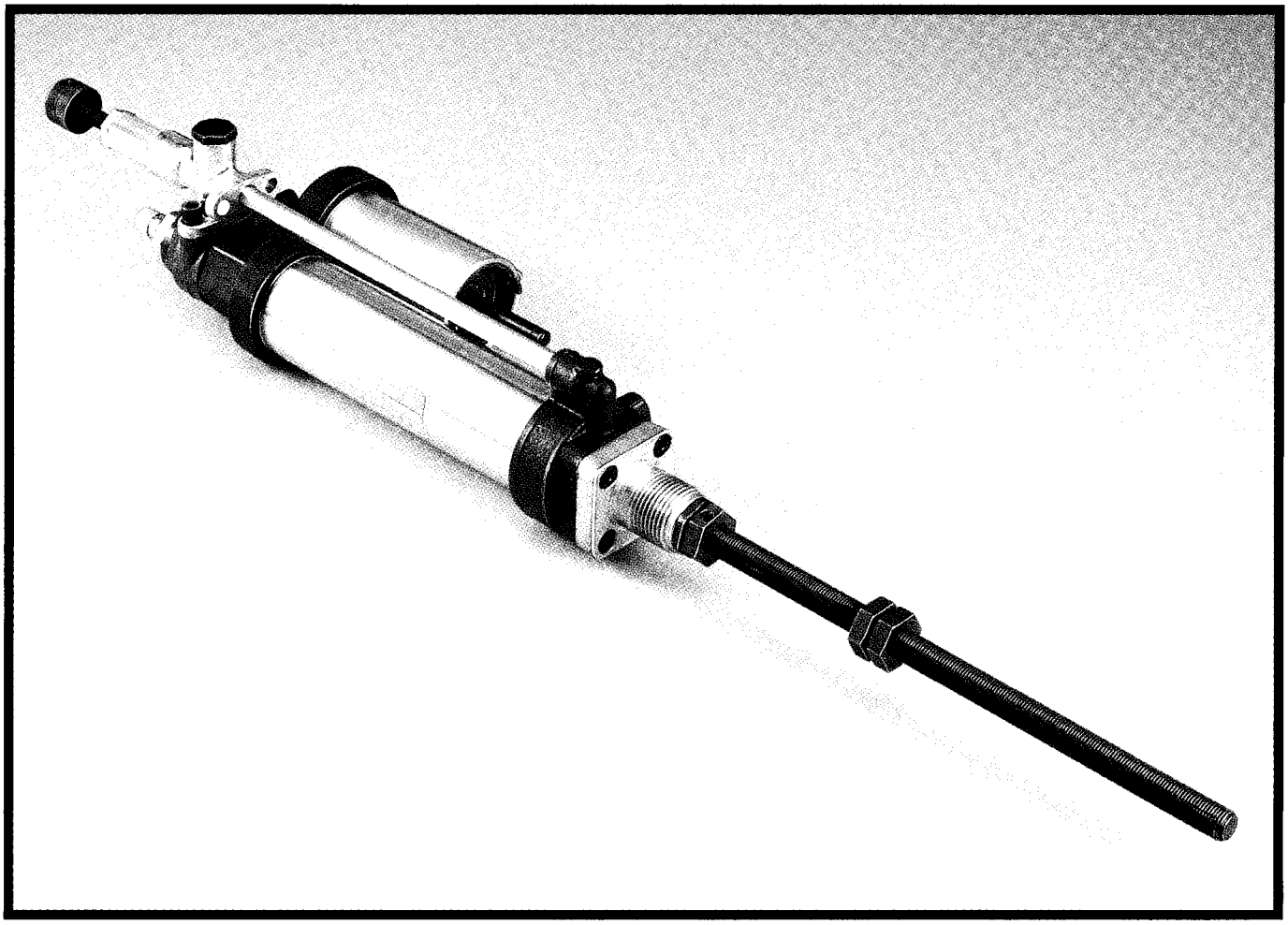
A



HYDRO-CHECK®

Self Contained Hydraulic Units for Precision Control of Machine or Air Movement

- B171-1 Series
- B171-2 Series
- B171-3 Series

For Cylinder Division Plant Locations – See Section B.

How to Order Standard Hydro-Checks

SERIES B171-1 HYDRO-CHECK: Series number (B171-1) is followed by code numbers for type of mounting, valve arrangement, and stroke length. Complete the code number (1□□1) by replacing the two blocks with two digits for the valve selected from the Valve Option Table. For example: Model B171-11011 is nose mounted, standard control valve and 2" stroke length. Model B171-13013 is pivot mounted, standard control valve, and 6" stroke length.

MOUNTING STYLE	2" STROKE	4" STROKE	6" STROKE	9" STROKE
NOSE	1□□1	1□□2	1□□3	1□□4
PIVOT	3□□1	3□□2	3□□3	3□□4

MOUNTING STYLE	12" STROKE	15" STROKE	18" STROKE
NOSE	1□□5	1□□6	1□□7
PIVOT	3□□5	3□□6	3□□7

□□ VALVE OPTIONS

01	Standard Valve, Forward-Acting
02	Standard Valve, Reverse-Acting

SERIES B171-2 HYDRO-CHECK: Series number (B171-2) is followed by code number for type of mounting, valve arrangement, and stroke length. Complete the code number (1□□1) by replacing the two blocks with two digits for the valve selected from the Valve Option Table. For example: Model B171-21011 is nose mounted, standard control valve and 2" stroke length. Model B171-22013 is foot mounted, standard control valve, and 6" stroke length.

SPECIFY SOLENOID VOLTAGE AND HERTZ after the model number of all units with Skip Check or Stop Check Valve arrangements. Coils for 12, 115, 230 or 460 Volt 60 Hertz are standard.

MOUNTING STYLE	2" STROKE	4" STROKE	6" STROKE	9" STROKE
NOSE	1□□1	1□□2	1□□3	1□□4
FOOT	2□□1	2□□2	2□□3	2□□4
PIVOT	3□□1	3□□2	3□□3	3□□4
FEED	4□□1	4□□2	4□□3	4□□4

MOUNTING STYLE	12" STROKE	15" STROKE	18" STROKE
NOSE	1□□5	1□□6	1□□7
FOOT	2□□5	2□□6	2□□7
PIVOT	3□□5	3□□6	3□□7
FEED	4□□5	4□□6	4□□7

□□ VALVE OPTIONS

01	Standard Valve, Forward-Acting
02	Standard Valve, Reverse-Acting
05	Skip Valve, Forward-Acting
06	Skip Valve, Reverse-Acting
09	Stop Valve, Forward-Acting
10	Stop Valve, Reverse-Acting
11	Stop & Skip Valve, Forward-Acting
12	Stop & Skip Valve, Reverse-Acting
13	Precision Valve, Forward-Acting
14	Precision Valve, Reverse-Acting
15	Precision Valve with Skip, Forward-Acting
16	Precision Valve with Skip, Reverse-Acting
17	Precision Valve with Stop, Forward-Acting
18	Precision Valve with Stop, Reverse-Acting
19	Precision Valve with Stop & Skip, Forward-Acting
20	Precision Valve with Stop & Skip, Reverse-Acting

NOTE: Caution should be used when specifying reverse acting or double acting Hydro-Checks. Long stroke reverse acting Hydro-Check piston rods may be subject to buckling if excessive load is applied in some applications. Check with your Schrader Bellows Sales Representative for maximum recommended reverse acting Hydro-Check stroke lengths.

SERIES B171-3 HYDRO-CHECK: Series number (B171-3) is followed by code number for type of mounting, valve arrangement, and stroke length. Complete the code number (1□□1) by replacing the two blocks with two digits for the valve selected from the VALVE OPTION TABLE. For example: Model B171-31011 is nose mounted, standard control valve on advance and retract stroke, and 2" stroke length. Model B171-32013 is foot mounted, standard control valve on advance and retract stroke, and 6" stroke length. **SPECIFY SOLENOID VOLTAGE AND HERTZ.**

MOUNTING STYLE	2" STROKE	4" STROKE	6" STROKE	9" STROKE
NOSE	1□□1	1□□2	1□□3	1□□4
FOOT	2□□1	2□□2	2□□3	2□□4
PIVOT	3□□1	3□□2	3□□3	3□□4
FEED	4□□1	4□□2	4□□3	4□□4

MOUNTING STYLE	12" STROKE	15" STROKE	18" STROKE
NOSE	1□□5	1□□6	1□□7
FOOT	2□□5	2□□6	2□□7
PIVOT	3□□5	3□□6	3□□7
FEED	4□□5	4□□6	4□□7

□□ VALVE OPTIONS

	ADVANCE STROKE	RETRACT STROKE
01	Standard Valve	Standard Valve
03	Skip Valve	Standard Valve
05	Stop Valve	Standard Valve
06	Stop/Skip	Standard Valve
13	Standard Valve	Skip Valve
15	Skip Valve	Skip Valve
17	Stop Valve	Skip Valve
18	Stop/Skip	Skip Valve
25	Standard Valve	Stop Valve
27	Skip Valve	Stop Valve
29	Stop Valve	Stop Valve
30	Stop/Skip	Stop/Valve
31	Standard Valve	Stop/Skip
33	Skip Valve	Stop Skip
35	Stop Valve	Stop/Skip
36	Stop/Skip	Stop/Skip
37	Precision Valve	Precision Valve
38	Precision Valve with Skip	Precision Valve
39	Precision Valve with Stop	Precision Valve
40	Precision Valve w/Stop/Skip	Precision Valve
41	Precision Valve	Precision Valve with Skip
42	Precision Valve with Skip	Precision Valve with Skip
43	Precision Valve with Stop	Precision Valve with Skip
44	Precision Valve w/Stop/Skip	Precision Valve with Skip
45	Precision Valve	Precision Valve with Stop
46	Precision Valve with Skip	Precision Valve with Stop
47	Precision Valve with Stop	Precision Valve with Stop
48	Precision Valve w/Stop/Skip	Precision Valve with Stop
49	Precision Valve	Precision Valve w/Stop/Skip
50	Precision Valve with Skip	Precision Valve w/Stop/Skip
51	Precision Valve with Stop	Precision Valve w/Stop/Skip
52	Precision Valve w/Stop/Skip	Precision Valve w/Stop/Skip
53	Hi-Speed Valve	Hi-Speed Valve
55	Hi-Speed Valve with Stop	Hi-Speed Valve
61	Hi-Speed Valve	Hi-Speed Valve with Stop
63	Hi-Speed Valve with Stop	Hi-Speed Valve with Stop

⚠ 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.

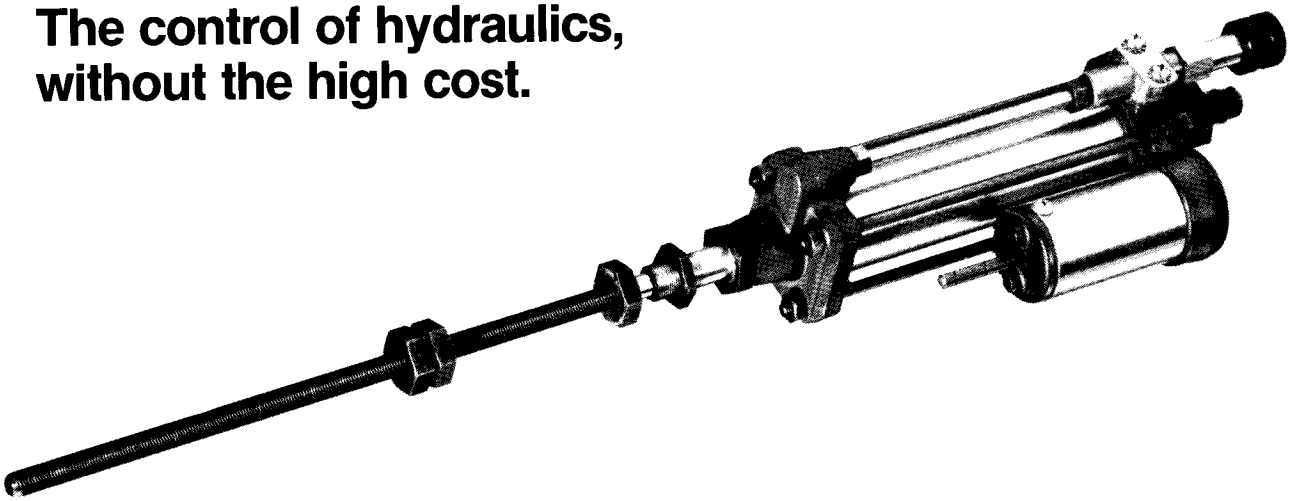
This document and other information from Schrader Bellows its related companies and authorized distributors provide product and/or system options for further investigation by users having technical expertise. It is important that you analyze all aspects of your application, including concerning the product 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 assuring that all performance, safety and warning requirements are met.

The products described herein, including without limitation, product features, specifications, designs, availability and pricing, are subject to change by Schrader Bellows and its related companies at any time without notice.

For additional information – call your local Schrader Bellows Distributor.

Schrader Bellows®

The Schrader Bellows HYDRO-CHECK®. The control of hydraulics, without the high cost.



A

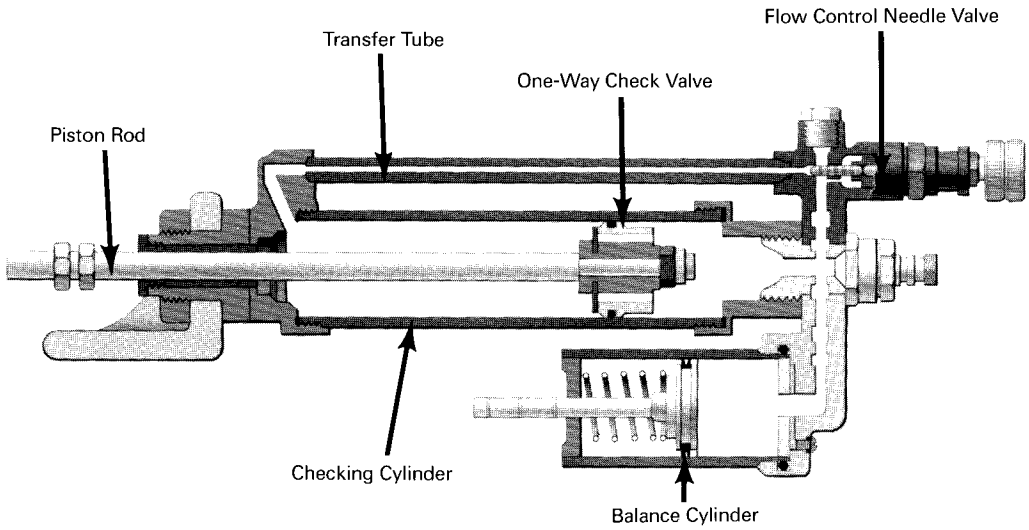
The Hydro-Check is a self-contained hydraulic resistance unit that is used to add hydraulic accuracy and smoothness to the fast resilient action of pneumatic devices. It is a popular accessory to the Bellows Air Motor, Production Machine Components, and other Schrader Bellows Air Cylinders.

The Hydro-Check puts precision control into pneumatic cylinders, linear actuators, work feed and drill feed systems, without the cost and complexity of hydraulic pumps, valves and reservoirs.

Hydro-Checks may be used with Schrader Bellows cylinders in both integral and nonintegral configurations. Integral Hydro-Checks can be either inline or parallel mounted.

Index

For Cylinder Division Plant Locations – See Section B.



The Hydro-Check consists of an oil filled cylinder, a piston rod, an adjustable needle valve and a balance cylinder. The balance cylinder compensates for oil displaced or required during stroke of unit.

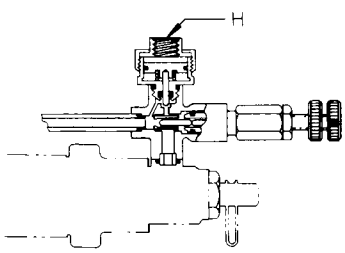
When a load is applied to the piston rod, hydraulic fluid is forced through the transfer tube and the needle valve into the opposite end of the unit.

The needle valve controls the rate of flow of fluid through this closed-loop circuit. Thus, the action of the attached air cylinder piston is completely controlled. Chatter and flutter are eliminated. And the Hydro-Check compensates for any variation in the power stroke.

Hydro-Checks may be specified to check the action on advance or retract strokes or both strokes. On the return stroke of a single-acting model, a one-way valve built into the piston permits the oil to flow freely through it, thus not restricting quick return.

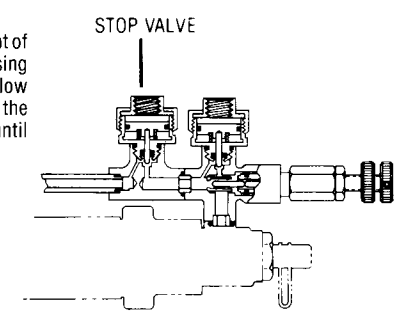
SKIP CHECKING

The Skip Valve mounts on the needle valve body. With Skip Valve open, fluid by-passes the needle valve and no checking action occurs. Applying air pressure to port (H) closes the Skip Valve and normal checking action occurs.



STOP CHECKING

The Stop Valve mounts in front of the needle valve body. Closing the Stop Valve interrupts the flow of hydraulic oil and stops the piston rod of the air cylinder until the Stop Valve is released.



ADJUSTABLE RAPID TRAVERSE

The basic Hydro-Check, without the use of additional controls, may be installed to permit rapid traverse over any portion of the checking stroke. The point at which checking action begins may be changed quickly and easily. The illustrations below show how such installations are made.

FIG. 1 - The Hydro-Check is mounted to a frame or other non-moving member of the machine to be controlled. An actuating bracket, drilled or slotted to clear Hydro-Check piston rod, is mounted between moving machine element and Hydro-Check piston rod, as shown.
FULLY RETRACTED POSITION actuating bracket against nut (L).

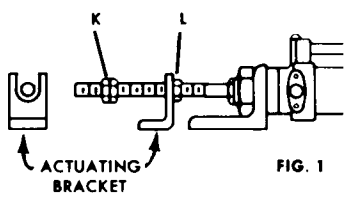


FIG. 1

FIG. 2 - Advancing from position shown in Fig. 1, actuating bracket does not cause Hydro-Check piston rod to move until it contacts forward piston rod nuts (K). Length of rapid traverse adjusts as desired by moving these nuts forward or back.

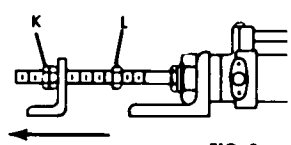


FIG. 2

FIG. 3 - FULLY ADVANCED POSITION - Hydro-Check has controlled the machine element's action from the instant the actuating bracket began to advance the piston rod, by engaging nuts (K), until forward movement ends.

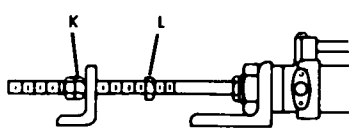


FIG. 3

FIG. 4 - RETRACT STROKE - No checking action occurs on single acting units. Retracting actuating bracket engages nut (L), returning piston rod to fully retracted position of Fig. 1.

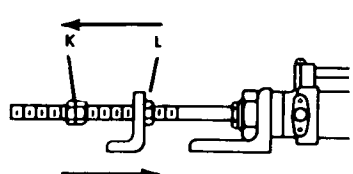


FIG. 4

NOTE: In many cases it is desirable to connect Hydro-Check piston rod directly to controlled machine element. In such cases, checking action occurs throughout the advance stroke. Addition of a **Skip Valve** permits full control of rapid traverse.

The statement we use in our literature, that the "B171-1" Hydro-Check is rated for a maximum load of 1,200 lbs. and the "B171-2" is rated at 3,000 lbs....while very true...is only part of the story.

The 1,200 and 3,000 figures deal with thrust load, based on PRESSURE and AREA, but do not take into consideration length of checking STROKE or number of CYCLES per minute which determine volumetric displacement (energy absorbed) and its accompanying heat build-up. **Do not use your Hydro-Check in ambient temp. over 120° (50° C).**

All four of the above-mentioned factors are applied in this PLAN formula which we offer here for your consideration in estimating the capacity of the Hydro-Check.

U.S. UNITS

P = Air line pressure in psi.
L = Length of actual checking stroke in inches
A = Piston area of the powering cylinder in in^2
N = Number of complete cycles per minute

METRIC UNITS

P = Air line pressure in bar
L = Length of actual checking stroke in cms
A = Piston area of the powering cylinder in cms^2
N = Number of complete cycles per minute

When you multiply, pressure times length of stroke, times the area, times the number of cycles...the final product should not exceed:

30,000 for Standard, 1.3/8" bore, Series B171-1
60,000 for Heavy Duty, 1.5/8" bore, Series B171-2 and B171-3

32,500 for Standard, 1.3/8" bore, Series B171-1
65,000 for Heavy Duty, 1.5/8" bore, Series B171-2 and B171-3

While the PLAN formula is accurate and dependable there are certain factors that must be considered, for example:

PLAN formula does not take into consideration any work load, consequently the Hydro-Check is resisting the total thrust (P x A) of the cylinder. You must think in terms of NET load imposed on the Hydro-Check which is the thrust that remains when you deduct the actual work load being lifted, or moved, by the cylinder. Thus a borderline answer might actually be well within the limit of the Hydro-Check when you deduct the work load from the thrust of the cylinder.

The work load also includes bearing and seal friction plus machine way friction or binding.

To obtain optimum Hydro-Check performance and maximum service life, always use lowest practical air pressure. This insures the most effective adjustment range for the Hydro-Check while minimizing heat build-up.

For future reference, using the word PLAN makes it easy to remember the formula without referring to printed matter.

HYDRO-CHECK FEED RATES IN INCHES AND MILLIMETERS PER MINUTE

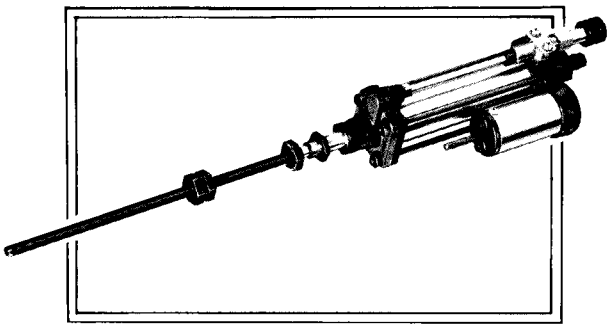
SERIES			B171-1		B171-2 WITH STANDARD VALVE			B171-2 WITH STOP VALVE			B171-2 WITH PRECISION REGULATOR [1] WITH & WITHOUT STOP			B171-2 WITH HI-SPEED VALVE [2]	
ROD PULL LBS./N			CONTROL		SKIP	CONTROL		SKIP	CONTROL		SKIP	CONTROL		CONTROL	
		IN/MIN. MM/MIN.	MIN.	MAX.		MIN.	MAX.		MIN.	MAX.		MIN.	MAX.	MIN.	MAX.
lbs.	100	in min.	3	300	360	1.5	290	166	1.5	160	–	–	–	120	750
N	445	mm min.	76	7620	9140	38	7370	4220	38	4060				3050	19000
lbs.	300	in min.	5	400	460	2	375	230	2	220	60	1.0	60	120	780
N	1300	mm min.	127	10200	11700	50	9520	5840	50	5590	1520	25.4	1520	3050	19800
lbs.	500	in min.	8	460	520	2.5	425	280	2.5	260	63	1.0	63	120	830
N	2220	mm min.	203	11700	13200	63	10800	7110	63	6600	1600	25.4	1600	3050	21100
lbs.	750	in min.	12	520	575	3.75	470	320	3.75	315	65	1.0	65	120	860
N	3340	mm min.	304	13200	14600	95	11900	8130	95	8000	1650	25.4	1650	3050	21800
lbs.	1000	in min.	15	570	620	5	500	360	5	330	67	1.0	67	120	890
N	4450	mm min.	381	14500	15700	127	12700	9140	127	8380	1700	25.4	1700	3050	22600
lbs.	1500	in min.	–	–	690	7.5	540	420	7.5	390	69	1.0	69	120	930
N	6670	mm min.	–	–	17500	190	13700	10700	190	9910	1750	25.4	1750	3050	23600
lbs.	2000	in min.	–		750	10	595	460	10	430	72	1.0	72	120	950
N	8900	mm min.	–		19000	254	15100	11700	254	10900	1830	25.4	1830	3050	24100
lbs.	2500	in min.	–	–	790	13	615	500	13	460	76	1.0	76	120	965
N	11100	mm min.	–	–	20100	330	15600	12700	330	11700	1930	25.4	1930	3050	24500

SERIES			B171-3 WITH STANDARD VALVE			B171-3 WITH PRECISION REGULATOR [1] WITH & WITHOUT STOP			B171-3 WITH HI-SPEED VALVE	
ROD PULL LBS./N			SKIP	CONTROL		SKIP	CONTROL		CONTROL	
		IN/MIN. MM/MIN.		MIN.	MAX.		MIN.	MAX.	MIN.	MAX.
lbs.	1000	in/min.	550	1.5	400	100	1.0	70	120	630
N	4450	mm/min.	14000	38	10200	2540	25.4	1790	3050	16000
lbs.	2000	in/min.	550	3.5	450	105	1.0	75	120	710
N	8900	mm/min.	14000	88.9	11400	2670	25.4	1900	3050	18000
lbs.	2500	in/min.	550	13	500	110	1.0	80	120	950
N	11100	mm/min.	14000	330	12700	2790	25.4	2030	3050	24100

NOTES:
1. Minimum Rod Pull 175 lbs.
2. Available on Special Order Only.

Series B171-1

Standard Duty Units for Checking Loads Up To 1200 Lbs.

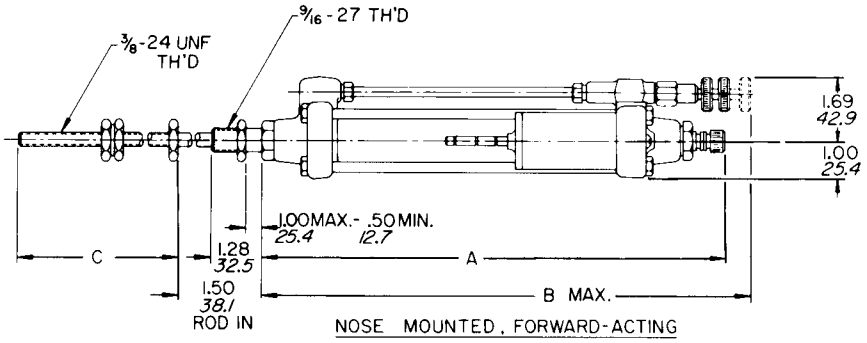


SINGLE ACTING HYDRO-CHECKS

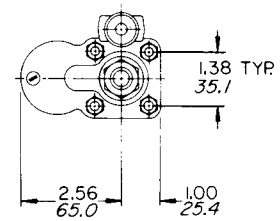
The Series B171-1 Hydro-Check is offered in two basic configurations (Forward and Reverse acting). This high quality hydraulic resistance device is designed for checking loads up to 1200 lbs. (5340 N).

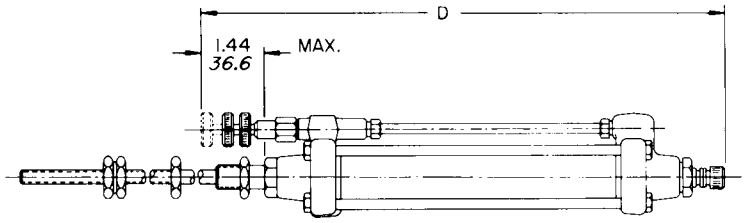
Nose and pivot mounted units are available with either forward or reverse acting checking action. The nose mounted unit is designed to adapt directly to the Series B121-11 or B121-12 Drill Feed. The rod nuts are to be used to regulate pick-up of checking action on the feed or when the Hydro-Check is used as a component of any other type of machine. Pivot mounted units can be readily adapted where the machine member to be controlled does not move in a straight line.

This unit can be ordered with remote valving if required.



NOSE MOUNTED, FORWARD-ACTING

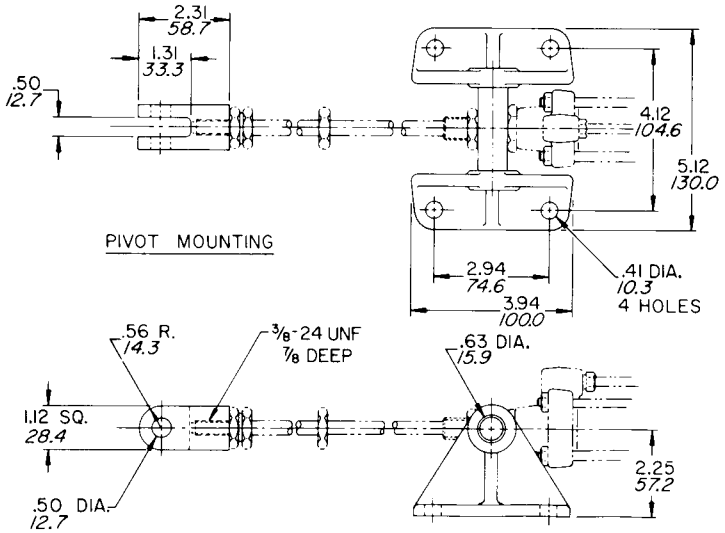




NOSE MOUNTED, REVERSE-ACTING

inch
millimetre

STROKE		2"	4"	6"	9"	12"	15"	18"
A	inch	7.88	9.88	11.88	14.88	17.88	20.88	23.88
	mm	*200.2*	*251.0*	*301.8*	*378.0*	*454.2*	*530.4*	*606.6*
B	inch	8.50	10.50	12.50	15.50	18.50	21.50	24.50
	mm	*215.9*	*266.7*	*317.5*	*393.7*	*469.9*	*546.1*	*622.3*
C	inch	10.00	10.00	10.00	10.00	12.00	15.00	18.00
	mm	*254.0*	*254.0*	*254.0*	*254.0*	*304.8*	*381.0*	*457.2*
D	inch	9.31	11.31	13.31	16.31	19.31	22.31	25.31
	mm	*236.5*	*287.3*	*338.1*	*414.3*	*490.5*	*566.7*	*642.9*



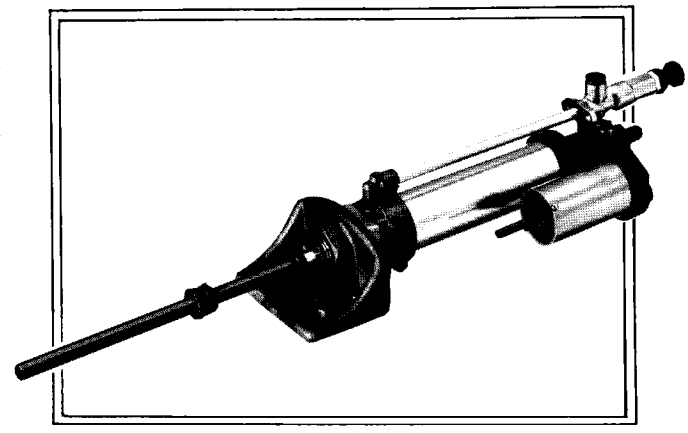
PIVOT MOUNTING

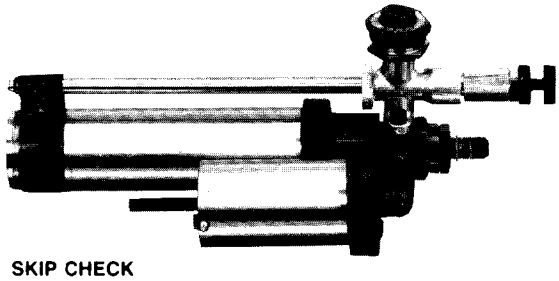
A

Series B171-2

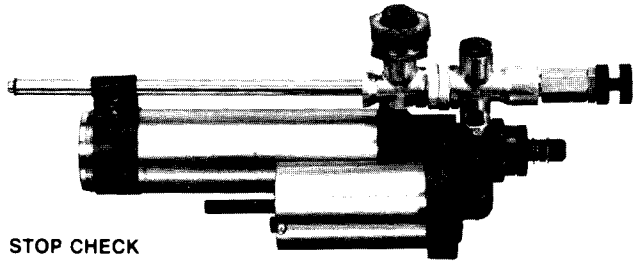
Heavy Duty Units for Checking Loads Up to 3000 Lbs.

The Series B171-2 Hydro-Check offers a selection of models ranging from single-acting units, through Stop and Skip Check models, to the Precision Hydro-Check described on page 8. All models included in the B171-2 Series are heavy duty units for use with checking loads up to 3,000 lbs. (13300 N). Most units can be equipped with heavy duty foot bracket and rear support bracket to permit secure installation with minimum time and effort. The foot bracket is easily removed for mounting by loosening the nut on the threaded piston nose guide.

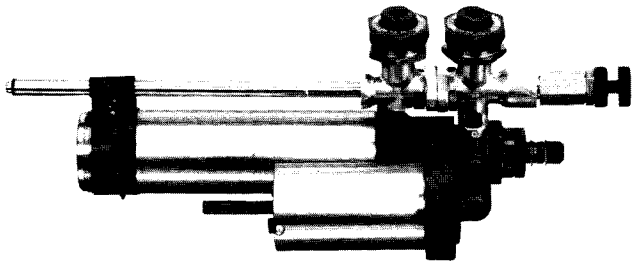




SKIP CHECK



STOP CHECK



STOP and SKIP CHECK

SKIP AND STOP CHECK MODELS OFFER UNLIMITED FLEXIBILITY

B171-2 Series Hydro-Checks are available in standard models which include Skip Valve, Stop Valve, or a combination of both. An air cylinder equipped with any one of these unique hydraulic control devices is converted into a highly flexible, precision unit capable of almost unlimited application. Skip and Stop Valves offer a choice of pneumatic or electrical control.

When electrical control is desired, Skip and Stop Valves are factory-equipped with a Schrader Bellows B445-1001 3-way Pilot Valve integrally mounted. These Valves are available in four standard operating voltages: 110, 220, 440, or 12v. (Specify voltage desired.) *Other voltages on special order.*

SKIP-CHECKING

In many operations intermittent checking action may be highly desirable — for example, certain drilling jobs may require controlled feeding only at entry and break-through points. The application and release of air pressure on the Skip Valve permits checking action to be used intermittently at whatever points desired.

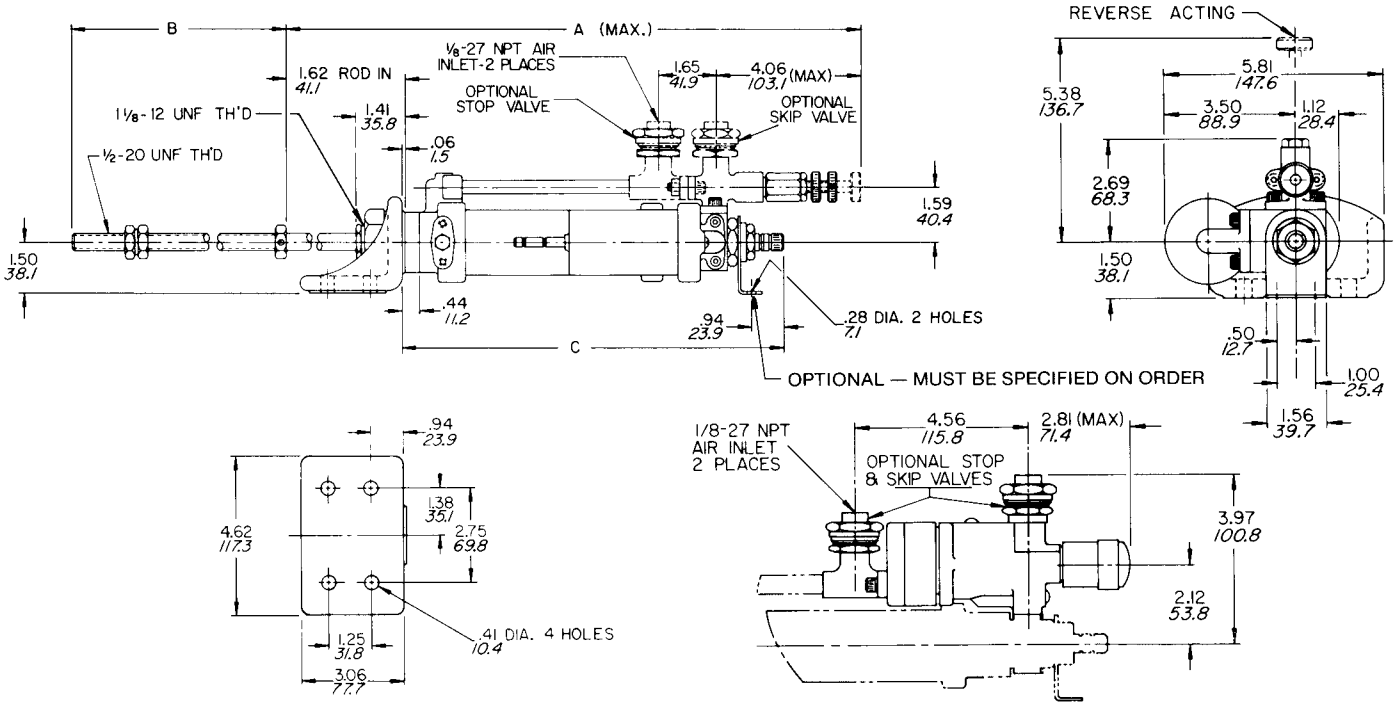
STOP-CHECKING

Stop-Check Hydro-Checks permit the air cylinder piston rod and the Hydro-Check piston rod to be stopped at any point in their travel, dwell for any desired time interval, then continue. As many stops may be made as desired. When air pressure is directed into the Stop Valve, piston rod movement stops and remains until air pressure is released.

STOP-CHECK SKIP-CHECK MODELS

Hydro-Checks combining Stop and Skip Valves offer almost unlimited flexibility. With these models, piston rod movement may be stopped at any number of points desired and checking action can be applied to any number of segments of the stroke. When used in combination, each valve functions in exactly the same manner as when used separately.

Series B171-2

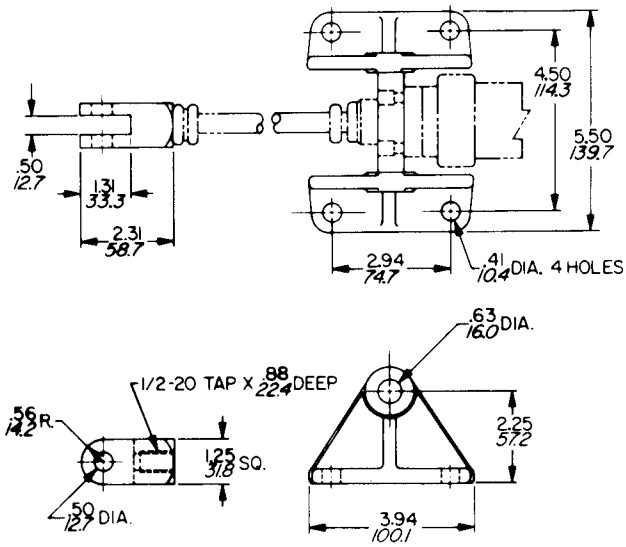


STROKE		2"	4"	6"	9"	12"	15"	18"
A	inch	11.78	13.78	15.78	18.78	21.78	24.78	27.78
	mm	*299.2*	*350.0*	*400.8*	*477.0*	*553.2*	*629.4*	*705.6*
B	inch	10.00	10.00	10.00	10.00	12.00	15.00	18.00
	mm	*254.0*	*254.0*	*254.0*	*254.0*	*304.8*	*381.0*	*457.2*
C	inch	8.19	10.19	12.19	15.19	18.19	21.19	24.19
	mm	*208.0*	*258.8*	*309.6*	*385.6*	*462.0*	*538.2*	*614.4*

← inch
millimetre →

Series B171-3

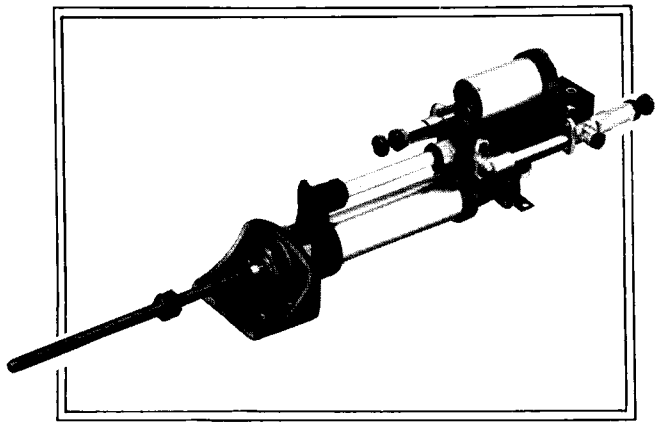
Pivot Mounting Bracket Dimensions



← inch
millimetre →

Series B171-3

Heavy Duty Units for Checking Loads Up To 3000 Lbs. Forward Or Reverse.



DOUBLE-ACTING HYDRO-CHECKS

The B171-3 designates a series of Schrader Bellows Hydro-Checks used to provide control in applications which require checking action on both advance and retract of piston rod. They are heavy duty units for checking loads up to a maximum of 3,000 lbs. (13300 N). They can be operated in any position and can be mounted tandem or parallel to the force they control.

A standard B171-3 Hydro-Check has the same standard valve options as the Series B171-2 plus a standard Hi-Speed Valve option

B171-3 Hydro-Checks with special valving arrangements to meet particular application requirements are available on order...please consult your Schrader Bellows Sales Representative for model designations and ordering information.

B171-2 and B171-3

Hydro-Checks with Precision Control Valves

Convert any air cylinder into a precision device for timing...sequencing... and tool feeding operations where feed rate is no more than 50" (1300mm) or less than 1" (25.4mm) per minute.

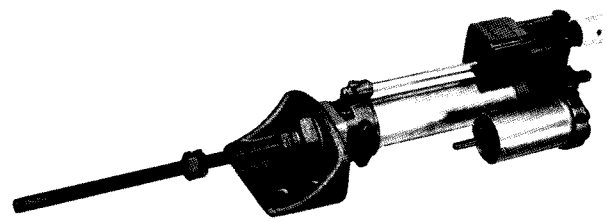
Series B171-2 and B171-3 Precision Hydro-Checks are heavy-duty units for checking loads up to maximum of 3,000 pounds (13300 N).

Schrader Bellows Precision Control Valves were developed for use in applications where extreme accuracy of movement is required. On a Precision Hydro-Check* the regulator valve assembly of the Standard Model is replaced by the Precision Control Valve assembly. The Precision Control Valve not only provides feed rate adjustment but will maintain the pre-set feed rate.

The Precision Control Valve differs from the ordinary Hydro-Check control valve in that it incorporates automatic flow and thermal compensation devices and a sintered metal filter. Slight variations in piston rod load and in air pressure will cause virtually no change in feed rate selected for a particular operation.

Tools under Precision Control are fed at the exact same rate when started as at the shift's end.

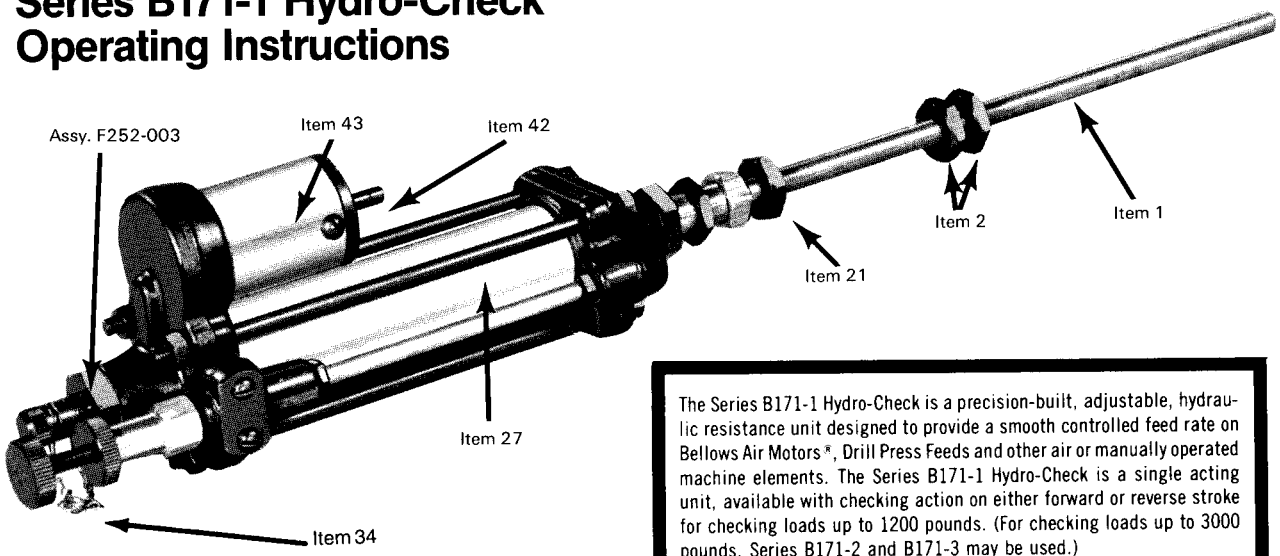
An integral sintered metal filter (40-micron) in the valve functions as an extra safeguard to eliminate any foreign matter that might be present in oil added to the Hydro-Check under operating conditions.



Precision Control Hydro-Checks may include optional features, such as Stop and Skip Valves described on page 6. Precision Control valves are offered as standard options on Series B171-2 and B171-3 Hydro-Checks with both Stop and Skip Valve control. If required Series B171-1 Hydro-Checks can be equipped with remote mounted Precision Control Valves. Manifold mounted Precision Control Valves can also be ordered as separate components for use as Hydraulic System Flow Control Valves.

Precision Control Valve Assemblies are also available separately for mounting on any Series B171-2 or B171-3 Hydro-Check now in use. When ordering such components specify stroke length of the Hydro-Check being converted since a new transfer tube is supplied with each Precision Control Valve used on Series B171-2 Hydro-Check.

Series B171-1 Hydro-Check Operating Instructions



The Series B171-1 Hydro-Check is a precision-built, adjustable, hydraulic resistance unit designed to provide a smooth controlled feed rate on Bellows Air Motors®, Drill Press Feeds and other air or manually operated machine elements. The Series B171-1 Hydro-Check is a single acting unit, available with checking action on either forward or reverse stroke for checking loads up to 1200 pounds. (For checking loads up to 3000 pounds, Series B171-2 and B171-3 may be used.)

A

OPERATING PRINCIPLE: The Hydro-Check consists basically, of a checking cylinder (Item 27), checking piston rod (Item 1), adjustable needle valve (Item 34), and a balance cylinder (Item 43).

The checking piston rod may be directly attached or linked to a moving machine part. As the piston rod is pulled out, oil in the checking cylinder is forced, by the moving piston, through the transfer tube, through the needle valve, into the rear end of the checking cylinder. On the return or non-checking stroke, the hydraulic oil returns through the piston valve and the unit is ready for another checking stroke.

The balance cylinder assembly (Item 43) automatically compensates for the volumetric displacement of the checking piston rod. An indicator rod (Item 42), attached to the balance cylinder piston, indicates the amount of oil in the Hydro-Check. Three grooves on the indicator rod show when and how much oil should be added to maintain correct hydraulic volume. Make-up oil is added through filling valve (Assy. F252-003) with a model B161-003 oil fill gun.

MOUNTING: The Hydro-Check can be operated in any position provided it is mounted directly in-line or parallel to the force it is to control. If unit is mounted parallel, the force or power supply should be guided by ways or guide rods to prevent side strain on the Hydro-Check piston rod. The in-line type of mounting is the most desirable type to use on any application. Series B171-1 Hydro-Checks are available with a threaded piston rod guide and lock nut for nose mounting or pivot brackets and rod clevis for pivot mounting.

CHECKING STROKE ADJUSTMENT: The mechanical linkage to the element being controlled, moving between two piston rod lock nuts, actuates the Hydro-Check. The point at which checking action begins is determined by position of the second lock nut (Item 2) on threaded piston rod. Thus, any portion of the full stroke length may be used for checking. The forward piston rod lock nut is used to lock the second in position. The actuating element engages the first lock nut on return stroke to retract the piston rod.

The first or innermost piston rod lock nut (Item 21) must be kept at back end of piston rod thread to prevent Hydro-Check piston from bottoming against rear cylinder head. This nut is locked in position with a socket head set screw.

CAUTION: Before applying checking load, be sure stroke of Hydro-Check is long enough to prevent power source from bottoming Hydro-Check piston against front head and possibly damaging Hydro-Check.

ADJUSTMENT OF CHECKING RATE: Checking Speed is controlled by turning the knurled needle valve knob (Item 34). Rate is reduced as the knob is turned clockwise and increased as it is turned counter clockwise.

OIL LEVEL: Amount of oil in Hydro-Check is indicated by position of balance cylinder indicator rod (Item 42). The position is determined by grooves on the rod. Proper oil level is indicated when, with threaded piston rod extended, the second indicator groove is flush with balance cylinder head. When threaded piston rod is retracted, the third innermost groove should be flush with cylinder head. Oil should be added when groove nearest end of indicator rod becomes flush with face of balance cylinder head, when threaded piston rod is fully extended.

NOTE: Use our F442 hydraulic oil only. If circumstances require temporary use of another type of oil, drain and thoroughly flush the Hydro-Check system. Then refill with substitute oil.

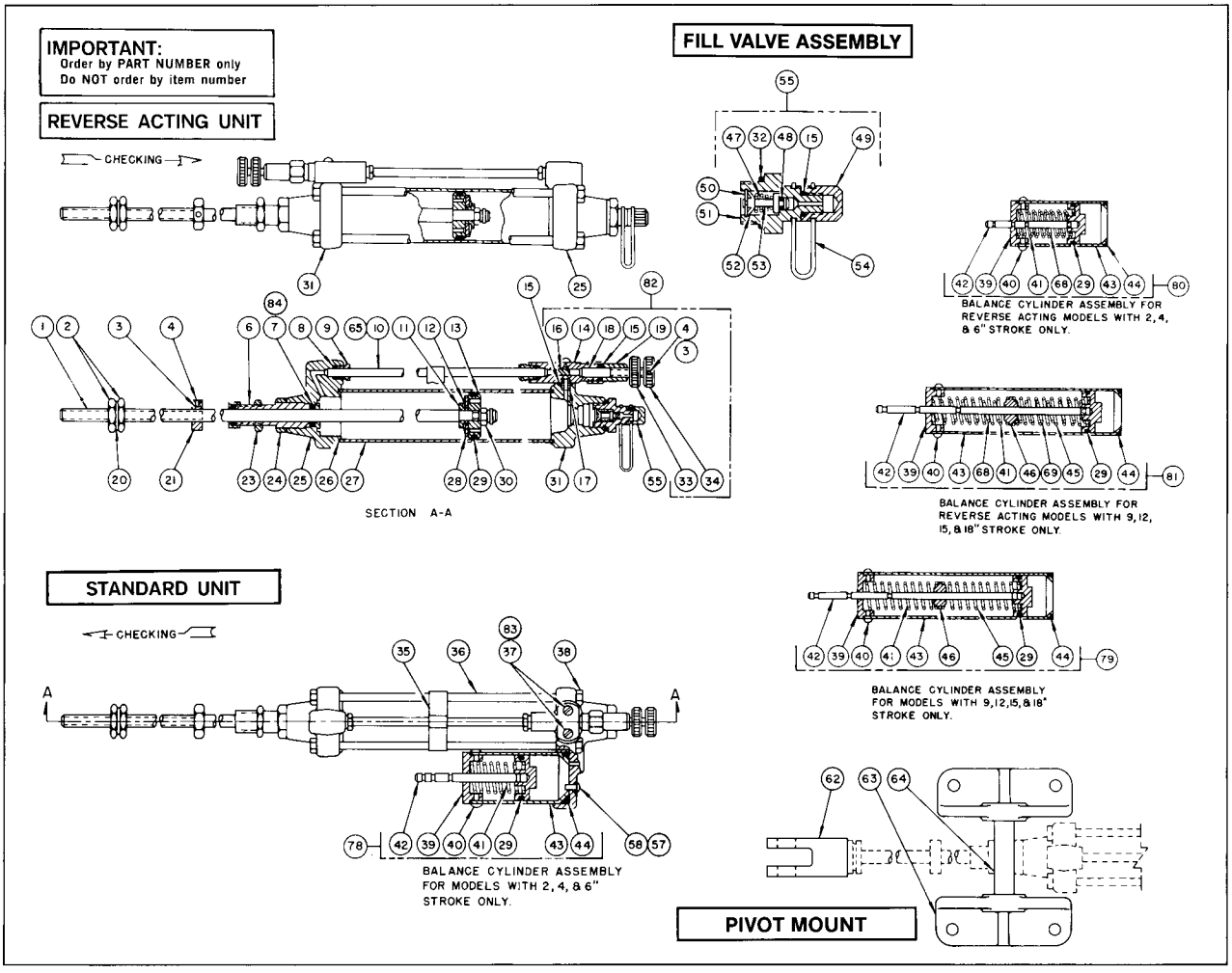
DISMANTLING AND REASSEMBLING: Always use care in dismantling and reassembling Hydro-Check to be sure cylinders, piston seals and piston rod seals are not damaged. Replace any damaged packings before reassembling.

SERVICE KIT: A convenient means of stocking parts subject to replacement through normal operation. Order Kit Number B732-471.

ADDING OIL: Before replacing filler valve, the main cylinder should be filled with our F442 hydraulic oil, as follows:

1. Stand Hydro-Check upright with piston rod pointed downward and fully extended.
2. Slowly pour oil into cylinder until level with filler valve opening.
3. Move piston rod in and out slightly ($1/16$" to $1/8$") to release any air trapped under piston assembly.
4. Allow Hydro-Check to stand in upright position for a short while to allow air to escape.
5. Replace filler valve.
6. Use B161-003 oil gun to bring Hydro-Check to proper level, indicated by grooves on indicator rod. Air must be bled from oil gun before filling Hydro-Check. Stand Oil Gun with nozzle pointing up. Cause oil to flow from nozzle until it runs clear of air bubbles.
7. Follow Air Bleeding procedure to remove all traces of trapped air.

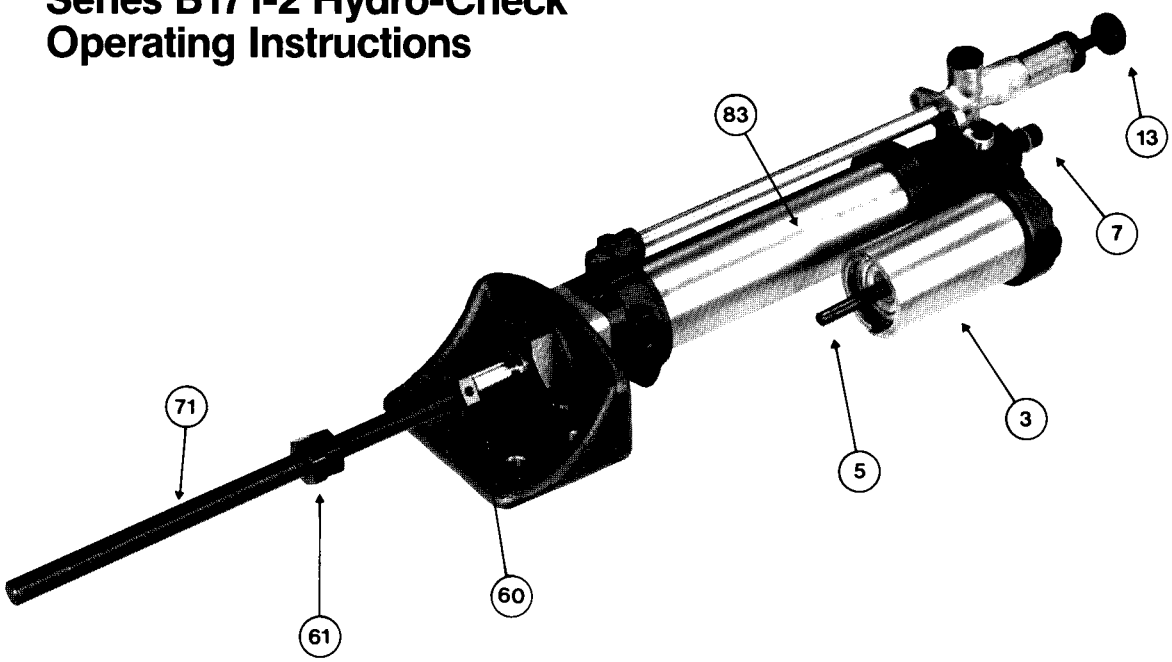
Series B171-1 Hydro Check®
Parts List and Parts Drawing



PARTS LIST

Item No.	Description	Part No.
1	Piston Rod (Specify Stroke)	B833-057
2	Piston Rod Nut (2 Req'd.)	B663-023
3	Thread Protector	B733-010
4	Set Screw	H122-02
6	Piston Rod Gland	B193-033
7	"O" Ring	H134-25
8	Transfer Tube Seal (4 Req'd.)	B893-018
9	Transfer Tube Gland	B483-013
10	Transfer Tube (Specify Stroke)	F163-010
11	Valve Plate Retainer	B803-026
12	Valve Spring	F023-046
13	Piston	B713-044
14	Control Valve Body	B123-005
15	"O" Ring	H134-18
16	Control Valve Pin	B693-025
17	Bushing Seal	B193-032
18	Control Valve Stem	F033-020
19	Control Valve Gland	B483-012
20	Washer	F193-014
21	Piston Rod Nut	B663-021
23	Mounting Nut	B663-020
24	Gland Nut	B663-024
25	Front Cylinder Head	B513-160
26	Cylinder Gasket (2 Req'd.)	B453-033
27	Main Cylinder (Specify Stroke)	F153-048
28	Valve Plate	B723-063
29	"O" Ring (2 Req'd.)	H136-06
30	Locking Nut	H063-22
31	Rear Cylinder Head	B513-159
32	"O" Ring	H135-12
33	Control Valve Knob	B573-007
34	Control Valve Knob	B573-006
35	Transfer Tube Support (Used on 15" Stroke or longer Units)	F073-007
36	Tie Rods (4 Req'd.) (Specify Stroke)	B843-049
37	Machine Screw (2 Req'd.)	H112-05
38	Nut (8 Req'd.)	H060-05
39	Balance Cylinder Head	B513-161
40	Machine Screw (2 Req'd.)	H112-06
41	Balance Cyl. Spring (All Strokes)	F023-048
42	Indicator Rod & Piston Assembly 2, 4 & 6" Str. Units (Specify 6" Stroke) 9, 12, 15 & 18" Stroke (Specify 18" Str.)	B592-007 B592-007
43	Balance Cylinder 2, 4 & 6" Stroke Units (Specify 6" Stroke) 9, 12, 15 & 18" Stroke (Specify 18" Str.)	F153-049 F153-049 H136-32
44	"O" Ring	
45	Balance Cylinder Spring For 9", 12", 15" & 18" Stroke Units	F023-047 B493-056
46	Spring Guide	F023-044
47	Filling Valve Spring	H134-06
48	"O" Ring	B343-001
49	Valve Cover	H090-79
50	Retaining Ring	B123-002
51	Valve Body	B803-025
52	Valve Retainer	F183-003
53	Valve Stem	F043-016
54	Valve Strap	F252-003
55	Filling Valve Assembly	H134-12
57	"O" Ring	H106-06
58	Machine Screw	B273-057
62	Rod Clevis	B623-004
63	Pivot Lug (2 Req'd.)	B183-213
64	Pivot Bracket	F163-009
•65	Transfer Tube (Filler Only) (Specify Str.)	F023-049
68	Spring (Reverse-Acting Only) (All Strokes)	
69	Spring (Reverse-Acting Only) (9, 12, 15 & 18" Stroke Units)	F023-050
78	Balance Cyl. Assem. Forward-Acting 2, 4, & 6" Stroke (Specify 6" Stroke)	B262-003
79	Balance Cyl. Assem. Forward-Acting 9, 12, 15 & 18" Stroke (Specify 18" Str.)	B262-003
80	Balance Cyl. Assem. Reverse-Acting 2, 4 & 6" Stroke (Specify 6" Stroke)	B262-004
81	Balance Cyl. Assem. Reverse-Acting 9, 12, 15 & 18" Stroke (Specify 18" Str.)	B262-004
82	Throttle Valve Assembly (Basic)	F082-2047
83	Lock Washer	H174-02
84	Back-up Ring (Reverse Acting Only)	H143-113
• =	OBSOLETE	

Series B171-2 Hydro-Check® Operating Instructions



The Series B171-2 Hydro-Check is a precision-built, adjustable, hydraulic resistance unit designed to provide a smooth controlled feed rate on a Bellows Air Motor®, Drill Press feeds and other air or manually operated machine elements. The Series B171-2 Hydro-Check is a single-acting unit, available with checking action on either forward or reverse stroke for checking loads up to 3000 pounds. (For checking loads up to 1200 pounds, Series B171-Hydro-Checks may be used. For checking action on both forward and reverse stroke at loads up to 3000 pounds, Series B171-3 Hydro-Checks may be used.)

OPERATING PRINCIPLE

The Hydro-Check consists basically, of a checking cylinder (Item 83), checking piston rod (Item 71), adjustable needle valve (Item 13), and a balance cylinder (Item 3).

The checking piston rod may be directly attached or linked to a moving part. As the piston rod is pulled out, oil in the checking cylinder is forced, by the moving piston, through the transfer tube, through the needle valve, into the rear end of the checking cylinder. On the return or non-checking stroke, the hydraulic oil returns through the piston valve and the unit is ready for another checking stroke.

The balance cylinder assembly (Item 3), automatically compensates for the volumetric displacement of the checking piston rod. An indicator rod (Item 5), attached to the balance cylinder piston, indicates the amount of oil in the Hydro-Check. Three grooves on the indicator rod show when and how much oil should be added to maintain correct hydraulic volume. Make-up oil is added through filling valve (Item 7).

MOUNTING

The Hydro-Check can be operated in any position provided it is mounted directly in-line or parallel to the force it is to control. If unit is mounted parallel, the force or power supply should be guided by ways or guide rods to prevent side strain on the Hydro-Check piston rod. The in-line type of mounting is the most desirable type to use on any application. Series B171-2 Hydro-Checks are available with a threaded piston rod guide and mounting nut for nose mounting, foot bracket for foot mounting, pivot brackets and rod clevis for pivot mounting, or feed brackets for mounting on our Drill Press Feeds.

CHECKING STROKE ADJUSTMENT

The mechanical linkage to the element being controlled, moving between two piston rod lock nuts, actuates the Hydro-Check. The point at which checking action begins is determined by position of the second lock nut (Item 61) on threaded piston rod. Thus, any portion of the full stroke length may be used for checking. The forward piston rod lock nut is used to lock the second in position. The actuating element engages the first lock nut (Item 60) on return stroke to retract the piston rod.

IRREGULAR CHECKING ACTION

The presence of air in Hydro-Check will cause irregular checking action. Air can be detected by a spongy feel when pressing on balance cylinder rod, or by sound of air passing through needle valve when in operation. Follow Air Bleeding procedure to remove all traces of trapped air.

The first or innermost piston rod lock nut (Item 60) must be kept at back end of piston rod thread to prevent Hydro-Check piston from bottoming against rear cylinder head. This nut is locked in position with a socket head set screw.

CAUTION: BEFORE APPLYING CHECKING LOAD, BE SURE STROKE OF HYDRO-CHECK IS LONG ENOUGH TO PREVENT POWER SOURCE FROM BOTTOMING HYDRO-CHECK PISTON AGAINST FRONT HEAD AND POSSIBLY DAMAGING HYDRO-CHECK.

ADJUSTMENT OF CHECKING RATE

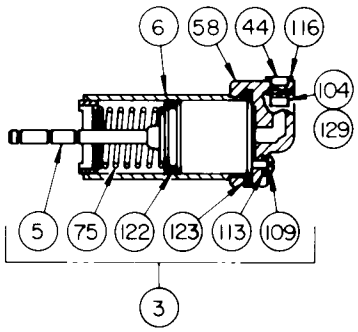
Checking Speed is controlled by turning the knurled needle valve knob (Item 13). Rate is reduced as the knob is turned clockwise and increased as it is turned counter clockwise.

OIL LEVEL

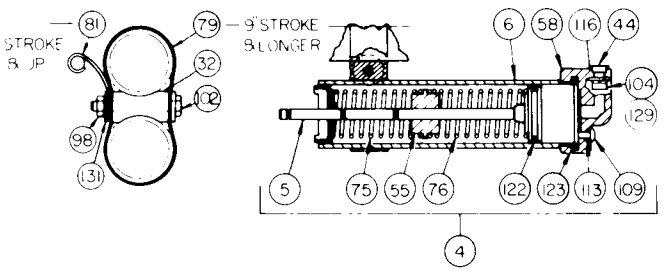
Amount of oil in Hydro-Check is indicated by position of balance cylinder indicator rod (Item 5). The position is determined by grooves on the rod. Proper oil level is indicated when, with threaded piston rod extended, the second indicator groove is flush with balance cylinder head. When threaded piston rod is retracted, the third innermost groove should be flush with cylinder head. Oil should be added when groove nearest end of indicator rod becomes flush with face of balance cylinder head, when threaded piston rod is fully extended.

BLEEDING AIR FROM OIL

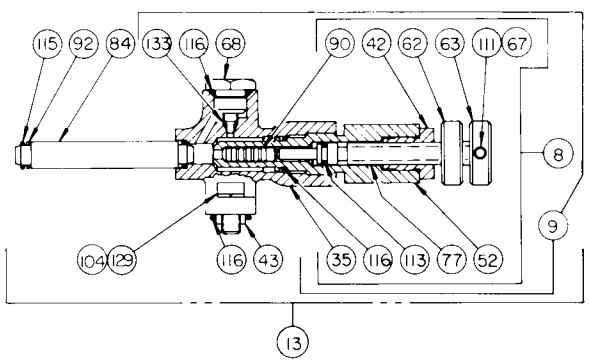
Retract Hydro-Check piston rod and hold retracted. Fill Hydro-Check until oil bleeds from small hole in balance cylinder. (Air must be bled from oil gun before filling Hydro-Check.) Slowly cycle piston rod. Stand Hydro-Check for a period of time with fill valve in highest position. Using a small rod (paper clip), open fill valve and allow air to bleed off. Fill again with bleed hole in balance cylinder in the highest position and with piston rod retracted. Allow a clear stream of oil to flow from small hole in balance cylinder. Using small rod release a quantity of oil from fill valve so Hydro-Check is not over-filled (third innermost groove on indicator rod flush with balance cylinder head with threaded rod retracted.) Hydro-Check is now ready for use.

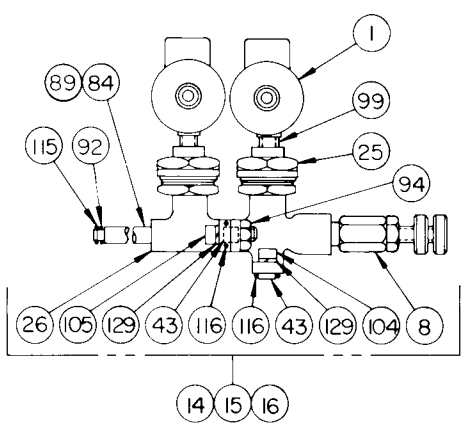


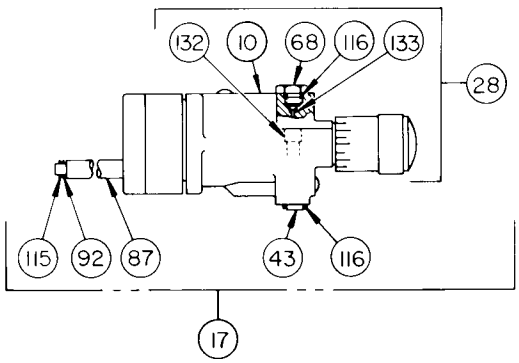
BALANCE CYLINDER ASSEMBLY
FOR HYDRO-CHECKS WITH 2",
4", 8 & 6" STROKES ONLY

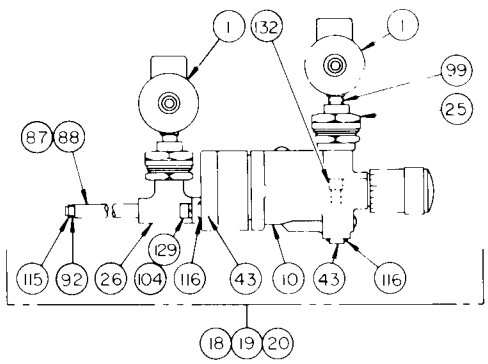


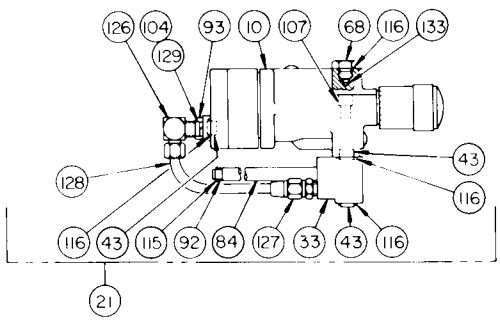
BALANCE CYLINDER ASSEMBLY
FOR HYDRO-CHECKS WITH 9",
12", 15", & 18" STROKES ONLY

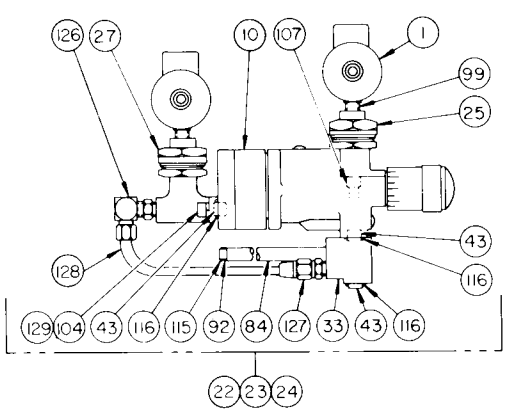






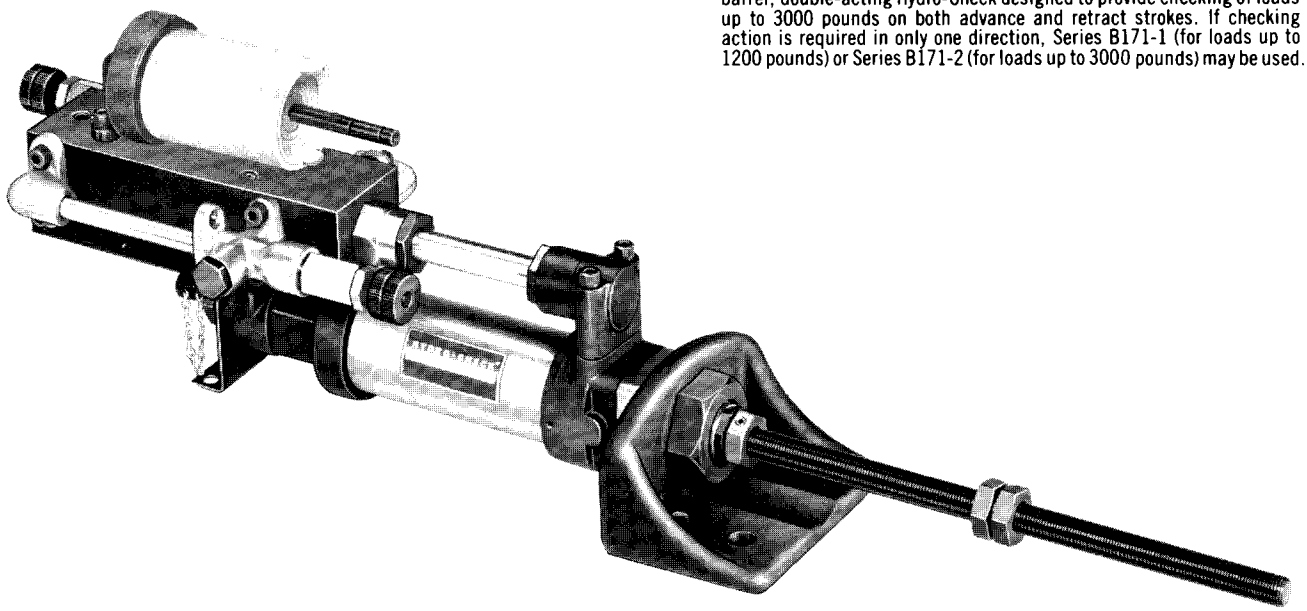






A

The Schrader Bellows Series B171-3 Hydro-Check is a precision-built, adjustable, hydraulic resistance unit designed primarily for use with Bellows Air Motors® and Power Feeds. It is equally useful with other air or mechanically operated machine units to accurately control the speed or feed of machine elements. The Series B171-3 is a heavy-duty, single-barrel, double-acting Hydro-Check designed to provide checking of loads up to 3000 pounds on both advance and retract strokes. If checking action is required in only one direction, Series B171-1 (for loads up to 1200 pounds) or Series B171-2 (for loads up to 3000 pounds) may be used.



OPERATING PRINCIPLE: The Hydro-Check consists basically, of a checking cylinder (Item 92), checking piston rod (Item 59), two adjustable speed control valves (Item 76), and a balance cylinder (Item 22).

The checking piston rod may be directly attached or linked to a moving machine part. As the piston rod is pulled out, oil in the checking cylinder is forced, by the moving piston, through the transfer tube, through the speed control valve, into the rear end of the checking cylinder. On the return stroke, the flow of oil is reversed and directed through the other speed control valve into the front end of the cylinder.

The balance cylinder assembly (Item 22) automatically compensates for the volumetric displacement of the checking piston rod. An indicator rod (Item 44), attached to the balance cylinder piston, indicates the amount of oil in the Hydro-Check. Three grooves on the indicator rod show when and how much oil should be added to maintain correct hydraulic volume. Make-up oil is added through filler valve (Item 104) with our Model B161-003 oil gun.

MOUNTING: The Hydro-Check can be operated in any position provided it is mounted directly in-line or parallel to the force it is to control. If unit is mounted parallel, the force or power supply should be guided by ways or guide rods to prevent side strain on the Hydro-Check piston rod. The in-line type of mounting is the most desirable type to use on any application. Series B171-3 Hydro-Checks are available with a threaded piston rod guide and lock nut for nose mounting, foot bracket for foot mounting, pivot brackets and rod clevis for pivot mounting, or feed brackets for mounting on Drill Press Feeds.

CHECKING STROKE ADJUSTMENT: The mechanical linkage to the element being controlled, moving between two piston rod lock nuts, actuates the Hydro-Check. The point at which checking action begins is determined by position of the second lock nut (Item 47) on threaded piston rod. Thus, any portion of the full stroke length may be used for checking. The forward piston rod lock nut is used to lock the second in position. The actuating element engages the first lock nut (Item 46) on return stroke to retract the piston rod. Adjustments affect both advance and retract strokes identically.

The first or innermost piston rod lock nut (Item 46) must be kept at back end of piston rod thread to prevent Hydro-Check piston from bottoming against rear cylinder head. This nut is locked in position with a socket head set screw.

CAUTION: Before applying checking load, be sure stroke of Hydro-Check is long enough to prevent power source from bottoming Hydro-Check piston against front head and possibly damaging Hydro-Check.

The polished section of the piston rod should be protected from chips and dirt to avoid possible damage to the piston rod seal due to rod scoring.

ADJUSTMENT OF CHECKING RATE: Checking Speed is controlled by turning the knurled needle valve knob (Item 76). Rate is reduced as the knob is turned clockwise and increased as it is turned counter clockwise.

OIL LEVEL: Amount of Oil in Hydro-Check is indicated by position of balance cylinder indicator rod (Item 44). The position is determined by grooves on the rod. Proper oil level is indicated when, with threaded piston rod extended, the second indicator groove is flush with balance cylinder head. When threaded piston rod is retracted, the third innermost groove should be flush with cylinder head. Oil should be added when groove nearest end of indicator rod becomes flush with face of balance cylinder head, when threaded piston rod is fully extended.

NOTE: Use our "F442" hydraulic oil only. If circumstances require temporary use of another type of oil, drain and thoroughly flush the Hydro-Check system. Then refill with substitute oil.

IMPORTANT: ORDER BY PART NUMBER ONLY. DO NOT ORDER BY ITEM NUMBER.

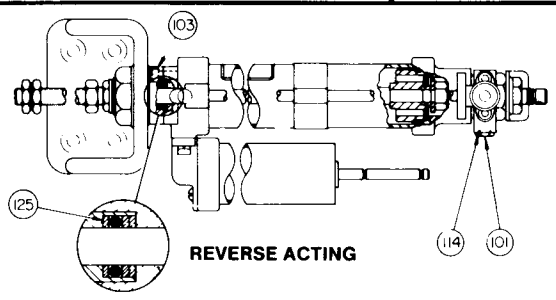
	ITEM NO.	PART NO.	DESCRIPTION
	1	B445-1001	SOLENOID VALVE (SPECIFY VOLTAGE) *
	2	B102-002	CYLINDER ASSY — (STOP ASSY.)
	3	B262-002	BALANCE CYL. ASSY. 2", 4" & 6" UNITS (SPECIFY 6" STROKE)
	4	B262-002	BALANCE CYL. ASSY. 9", 12", 15" & 18" STK. UNITS (SPECIFY 18" STROKE)
	5	B592-005	INDICATOR ROD & PISTON ASSY. 2", 4" & 6" STK. UNITS (SPECIFY 6" STROKE) 9", 12", 15" & 18" STK. UNITS (SPECIFY 18" STROKE)
	6	F142-006	BALANCE CYL. TUBE ASSY. 2", 4" & 6" STK. UNITS (SPECIFY 6" STROKE) 9", 12", 15" & 18" STK. UNITS (SPECIFY 18" STROKE)
	7	F252-003	FILL VALVE ASSY.
	8	F082-2010	STD. VALVE
	9	F082-2011	STD. VALVE (NO TRANSFER TUBE)
	10	F082-2012	PRECISION VALVE
●	13	F082-2015	STD. VALVE
●	14	F082-2017	STD. SKIP
●	15	F082-2069	STD. STOP
●	16	F082-2070	STD. STOP-SKIP
●	17	F082-2021	PRECISION VALVE
●	18	F082-2022	PRECISION SKIP
▲●	19	F082-2023	PRECISION STOP
▲●	20	F082-2024	PRECISION STOP-SKIP
●	21	F082-2025	PRECISION - REVERSE ACTING
●	22	F082-2026	PRECISION SKIP - REVERSE
●	23	F082-2027	PRECISION STOP - REVERSE
●	24	F082-2028	PRECISION STOP - SKIP - REVERSE
	25	F082-2044	STOP OR SKIP SUB-ASSY.
	26	F082-2045	STOP ASSY.
	27	F082-2046	STOP ASSY. - PRECISION REVERSE
	28	F082-2051	PRECISION VALVE
	31	B023-012	PORT ADAPTOR
	32	B113-012	SUPPORT BLOCK
	33	B113-039	ADAPTOR BLOCK
	34	B123-002	BODY
	35	B123-003	BODY
	36	B133-002	SCREW
	37	B183-102	FOOT BRACKET
	38	B183-103	MTG. BRACKET (OPTIONAL)
	39	B183-226	PIVOT
	40	B193-026	BUSHING
	41	B193-027	RETAINER

*Will be replaced by 745030115 Cyclone Valve when stock is depleted.

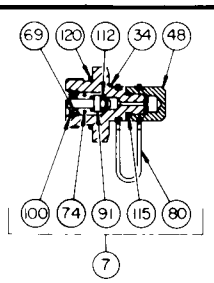
	ITEM NO.	PART NO.	DESCRIPTION
	42	B193-028	SLEEVE BUSHING
	43	B193-029	SEAL BUSHING
	44	B193-030	SEAL BUSHING
	45	B193-031	ROD BUSHING
	46	B233-012	CYLINDER COVER
	47	B273-060	ROD CLEVIS
	48	B343-001	CAP
	49	B423-001	FITTING
	50	B453-023	GASKET
	51	B453-031	WASHER
	52	B483-011	VALVE SLEEVE
	53	B493-038	GLAND
	54	B493-055	GLAND
	55	B493-057	GUIDE
	56	B513-146	FRONT HEAD
	57	B513-157	REAR HEAD
	58	B513-242	REAR HEAD
	59	B623-004	MTG. BRACKET
	60	B663-015	LOCK NUT
	61	B663-016	NUT
	62	B663-018	LOCKING NUT
	63	B663-019	ADJUSTING KNOB
	64	B713-035	PISTON
	65	B713-064	PISTON
	66	B723-047	VALVE PLATE
	67	B733-010	THREAD PROTECTOR
	68	B733-014	PLUG
	69	B803-025	SPRING RETAINER
	70	B803-054	RETAINER
	71	B833-055	PISTON ROD
	72	F023-036	SPRING
	73	F023-038	SPRING
	74	F023-044	SPRING
	75	F023-055	SPRING
	76	F023-056	SPRING
	77	F033-019	VALVE STEM
	78	F043-001	SUPPORT BRKT.
	79	F043-002	SUPPORT STRAP
	80	F043-016	STRAP
	81	F043-018	SUPPORT STRAP
	82	F073-005	SUPPORT
●	83	F153-047	CYL. TUBE
●	84	F163-006	TRANS. TUBE - STD.
■●	85	F163-007	TRANS. TUBE - STOP
■●	86	F163-008	TRANS. TUBE - STD.
●	87	F163-015	TRANS. TUBE - PREC.
●	88	F163-016	TRANS. TUBE - PREC. - STOP
●	89	F163-033	TRANS. TUBE - STOP

	ITEM NO.	PART NO.	DESCRIPTION
	90	F183-002	METERING PIN
	91	F183-003	VALVE STEM
	92	F193-031	WASHER
	93	F283-001	PORT ADAPTOR
	94	H060-01	NUT
	95	H062-34	NUT
	96	H063-29	LOCK NUT
	97	H064-11	NUT
	98	H064-12	NUT
	99	H076-02	CLOSE NIPPLE
	100	H090-79	RETAINING RING
	101	H096-62	SCREW
	102	H096-89	SCREW
	103	H100-41	SCREW
	104	H100-42	SCREW
	105	H100-45	SCREW
	106	H100-46	SCREW
	107	H100-53	SCREW
	108	H104-20	SCREW
	109	H106-06	SCREW
	110	H113-29	SCREW
	111	H122-02	SCREW
	112	H134-06	O-RING
	113	H134-12	O-RING
	114	H134-14	O-RING
	115	H134-16	O-RING
	116	H134-27	O-RING
	117	H134-30	O-RING
	118	H134-33	O-RING
	119	H135-02	O-RING
	120	H135-12	O-RING
	121	H135-24	O-RING
	122	H136-34	O-RING
	123	H137-12	O-RING
	124	H143-24	BACK UP RING
	125	H143-73	BACK UP RING
	126	H167-07	90° MALE ELBOW
	127	H167-41	MALE CONNECTOR
	128	H171-03	COPPER TUBING
	129	H175-64	LOCKWASHER
	130	H178-05	WASHER
	131	H178-09	WASHER
	132	H194-04	SCREW
	133	H221-83	O'RING

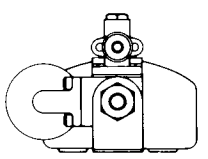
● = SPECIFY STROKE.
▲ = 4" MIN. STROKE.
■ = OBSOLETE REPLACEMENT TUBES, FOR UNITS WITH FILTER.

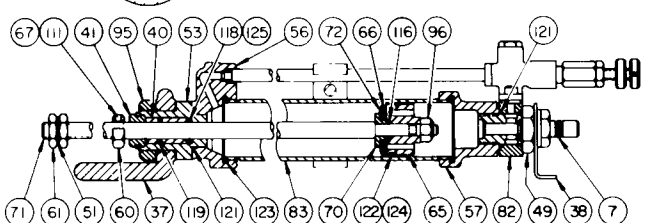


REVERSE ACTING



FILL VALVE ASSEMBLY





FORWARD ACTING

OPTIONAL — MUST BE SPECIFIED ON ORDER

A

PARTS LIST IMPORTANT: Order by PART NUMBER only. DO NOT order by item number.

ITEM NO	PART NO	DESCRIPTION
1	B023-012	Valve Adaptor
2	B102-002	Cylinder Assembly
3	B113-047	Support Block (9" Stroke Units & Longer)
4	B123-002	Body
6	B123-023	Body
7	B123-024	Body
8	B123-025	Body
9	B133-002	Screw
10	B183-102	Foot Bracket
11	B183-103	Mounting Bracket (OPTIONAL)
12	B183-226	Pivot Bracket
13	B193-026	Bushing
14	B193-027	Bushing
15	B193-028	Sleeve Bushing
16	B193-029	Bushing (Seal)
17	B193-030	Bushing
18	B193-031	Bushing
19	B193-067	Bushing
20	B193-068	Bushing
21	B233-012	Cylinder Cover
22		Balance Cylinder Assembly
	B262-005	2, 4 & 6" Stk Units (Specify 6" Stroke)
	B262-005	9, 12, 15 & 18" Stk Units (Specify 18" Stk.)
23	B273-060	Rod Clevis
25	B343-001	Cover
28	B423-001	Fitting
29	B423-009	Fitting
30	B423-010	Elbow
31	B445-1001	Valve (Specify Voltage) *
32	B453-023	Gasket
33	B453-031	Washer
35	B483-021	Gland (Adaptor)
36	B483-022	Gland
37	B483-023	Gland (Transfer Tube)
38	B493-038	Gland (Rod Guide)
39	B493-055	Gland (Feed Mount)
40	B493-085	Guide
41	B513-157	Rear Head
42	B513-242	Rear Head
43	B513-408	Front Head
• 44		Indicator Rod & Piston Assembly
	B592-005	2, 4 & 6" Stk Units (Specify 6" Stk.)
	B592-005	9, 12, 15 & 18" Stk Units (Specify 18" Stk.)
45	B623-004	Pivot Mounting Bracket
46	B663-015	Nut
47	B663-016	Nut
48	B663-018	Nut
49	B663-019	Nut
50	B713-035	Piston & Stem Assembly

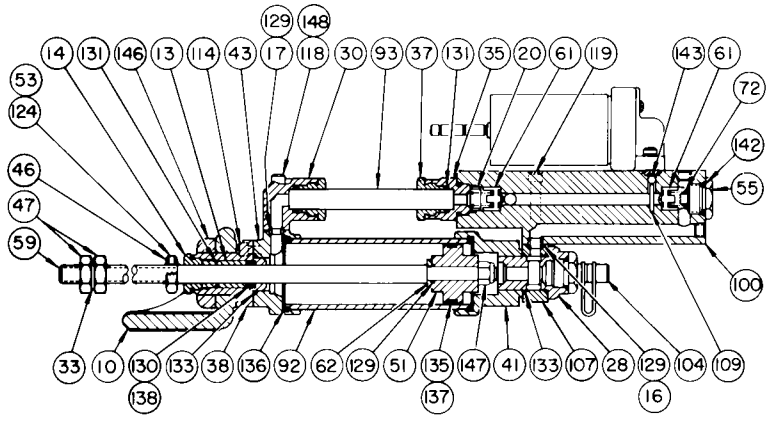
*Will be replaced by 745030115

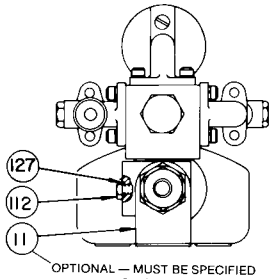
ITEM NO	PART NO	DESCRIPTION
51	B713-103	Piston
52	B713-104	Piston & Stem Assembly
53	B733-010	Thread Protector
54	B733-014	Bypass Plug
55	B733-026	Plug (Check Valve)
56	B743-016	Plunger Seat Assembly
57	B753-002	Body
58	B803-025	Retainer
• 59	B833-055	Piston Rod
60	B893-034	Seal
61	B912-007	Poppet Assembly
62	B993-017	Spacer (Piston)
63	B483-011	Valve Sleeve
64	B123-003	Body
65	B023-036	Sleeve Adaptor
66	F023-038	Spring
67	F023-048	Spring
68	F023-049	Spring
69	F023-055	Spring
70	F023-056	Spring
71	F023-088	Spring
72	F023-120	Spring (Check Valve
73	F033-019	Valve Stem
74	F082-2002	Stop Valve Assembly
75	F082-2006	High Speed Control Valve (Basic)
76	F082-2010	Std. Control Valve (Basic)
77	F082-2012	Precision Control Valve Basic
78	F082-2030	Std. Control Valve
80	F082-2032	Std. Control Valve W Skip
82	F082-2071	Std. Control Valve W Stop
83	F082-2072	Std. Control Valve W Stop & Skip
84	F082-2036	Precision Control Valve
85	F082-2037	Precision Control Valve W Skip
86	F082-2038	Precision Control Valve W Stop
87	F082-2039	Precision Control Valve W Stop & Skip
88	F082-2040	High Speed Control Valve
89	F082-2042	High Speed Control Valve W Stop
90	F082-2044	Skip Valve Assembly
• 91		Balance Cylinder Tube Assembly
	F142-006	2, 4 & 6" Stk Units (Specify 6" Stk.)
	F142-006	9, 12, 15 & 18" Stk Units (Specify 18" Stk.)
• 92	F153-047	Main Cylinder
• 93	F163-024	Transfer Tube
94	F163-025	Transfer Tube (Used on Items 82 & 83)
▲ 95	F163-026	Transfer Tube
96	F163-027	Transfer Tube (Used on Items #84, #85, #86 & #87)
97	F163-028	Transfer Tube (Used on Items #88 & #89)
98	F183-004	Valve Needle
99	F193-031	Washer
100	F233-005	Manifold Block

ITEM NO	PART NO	DESCRIPTION
101	F183-003	Valve Stem
102	F023-044	Spring
103	F043-016	Strap
104	F252-003	Fill Valve Assembly
105	F183-002	Valve Pin
106	F043-015	Support Strap (9" Stk. Units & Longer)
107	F073-005	Support
108	H072-05	Roll Pin
109	H072-66	Roll Pin
110	H076-02	Close Nipple
111	H090-79	Retaining Ring
112	H096-62	Bolt
113	H096-89	Screw (9" Stk. Units & Longer)
114	H100-41	Screw
115	H100-42	Screw
116	H100-45	Screw
117	H100-46	Screw
118	H100-49	Screw
119	H100-50	Screw
120	H104-20	Screw
121	H106-06	Screw
124	H122-02	Screw
125	H134-06	"O" Ring
126	H134-12	"O" Ring
127	H134-14	"O" Ring
128	H134-16	"O" Ring
129	H134-27	"O" Ring
130	H134-33	"O" Ring
131	H135-02	"O" Ring
132	H135-12	"O" Ring
133	H135-24	"O" Ring
135	H136-34	"O" Ring
136	H137-12	"O" Ring
137	H143-24	Back Up Ring
138	H143-73	Back Up Ring
139	H134-30	"O" Ring
140	H194-04	Screw
141	H221-83	"O" Ring
142	H237-04	"O" Ring
143	H002-08	Steel Ball
144	H060-01	Nut
145	H063-15	Nut (9" Stk. Units & Longer)
146	H062-34	Nut
147	H063-29	Locknut
148	H175-64	Washer

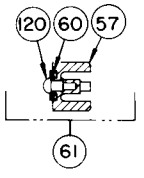
NOTE • SPECIFY STROKE

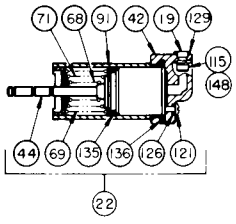
▲ OBSOLETE-REPLACEMENT TUBE FOR UNITS WITH FILTER



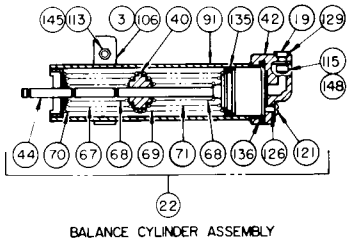


OPTIONAL — MUST BE SPECIFIED ON ORDER

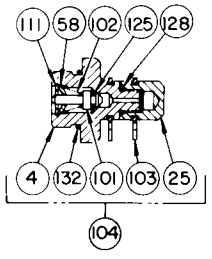




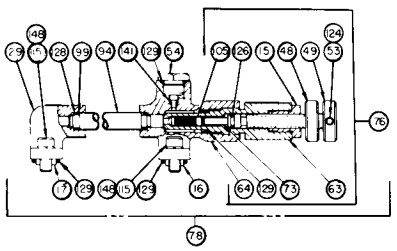
BALANCE CYLINDER ASSEMBLY FOR HYDRO-CHECKS WITH 2", 4" & 6" STROKES ONLY

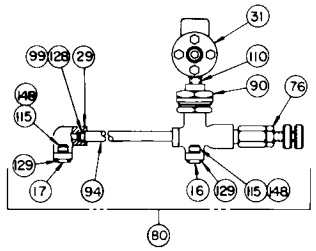


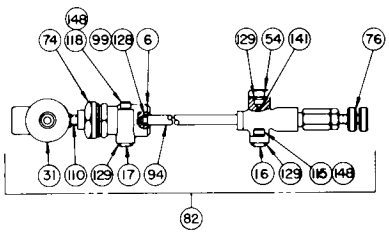
BALANCE CYLINDER ASSEMBLY FOR HYDRO-CHECKS WITH 9", 12", 15" & 18" STROKES ONLY

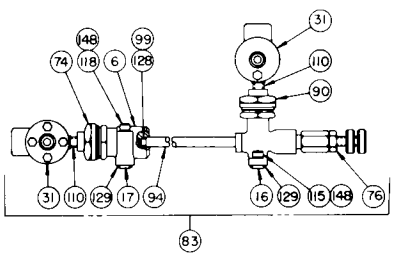


ASSEMBLIES WITH STANDARD CONTROL VALVES

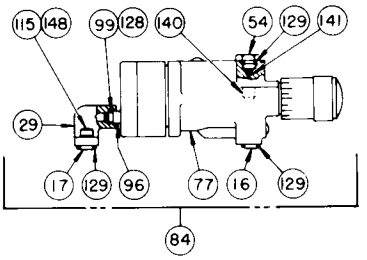


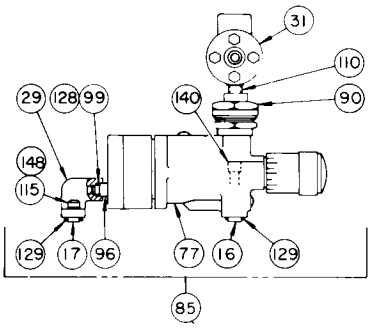


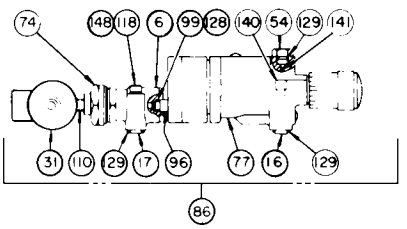


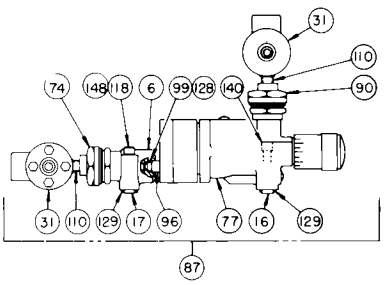


ASSEMBLIES WITH PRECISION CONTROL VALVES

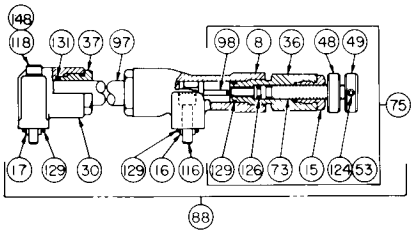


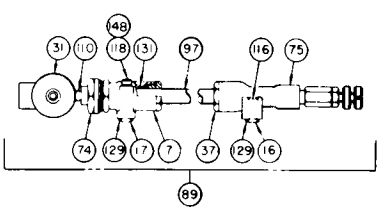




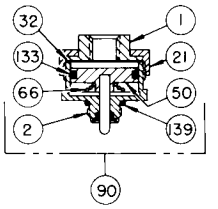


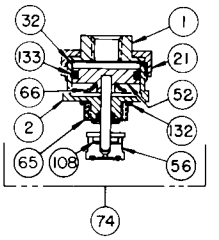
ASSEMBLIES WITH HIGH SPEED CONTROL VALVES

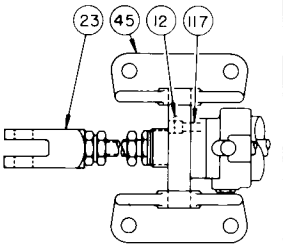


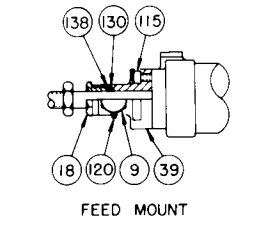


PARTS DRAWINGS









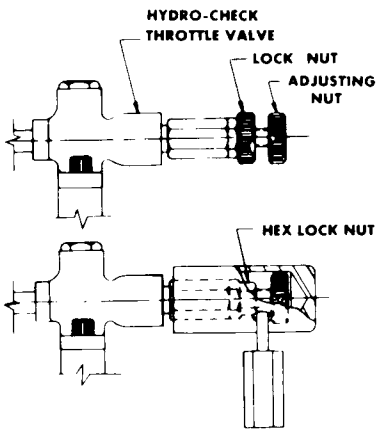
Accessories

THROTTLE SECURITY COVER

Under certain circumstances, it may be desirable to adjust the Hydro-Check and protect the throttle control valve from unsupervised readjustment.

The B182-011 Throttle Security Cover assembly can be used to make the throttle valve setting of Hydro-Check virtually tamper-proof. Once the desired setting of the throttle control valve has been obtained, the B182-011 Throttle Security Cover assembly is installed and no one but a keyholder can remove it to re-adjust the throttle control valve.

The B182-011 Throttle Security Cover assembly is complete with Sleeve-Security Cover, Padlock, two keys, two nuts, and a copy of an installation procedure. This throttle security cover may be used on most Series B171-1, 2 or 3 standard Hydro-Checks and Series F172-1, 2 or 3 Inline Hydro-Checks. Security cover cannot be used on Hydro-Checks equipped with precision control valves.



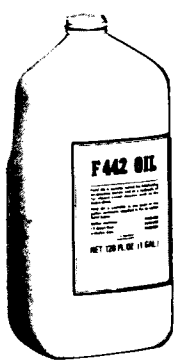
HYDRO-CHECK FILL GUN

During normal operation of a Hydro-Check, some oil may be lost over a period of time through slight leakage at the rod gland and in the balance cylinder. Slight leakage does not indicate breakdown of the seals. The B161-003 Hydro-Check Oil Fill Gun is especially designed for maintaining the proper oil level in Hydro-Checks.

It should be a part of normal maintenance procedures to replace oil lost during normal operation of the Hydro-Check BEFORE the reservoir is COMPLETELY EMPTY. Our F442 oil is especially blended for use in Hydro-Checks and should be used when refilling Hydro-Checks.

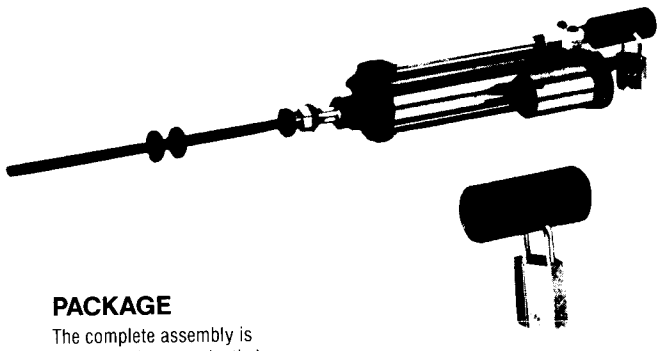
ORDERING:

A complete fill gun assembly B161-003 or hose assembly B012-013 may be ordered. The B161-003 oil gun is a complete, ready to use filling system. The B012-013 adaptor assembly may be adapted to other commercially available fill guns by the use of ⅜ JIC female swivel fitting on adaptor hose for filling Hydro-Checks. Our F442 oil must be ordered separately.



1 gallon - 128 fluid ounces
(3.8 litres)

1 quart - 32 fluid ounces
(0.9 litres)



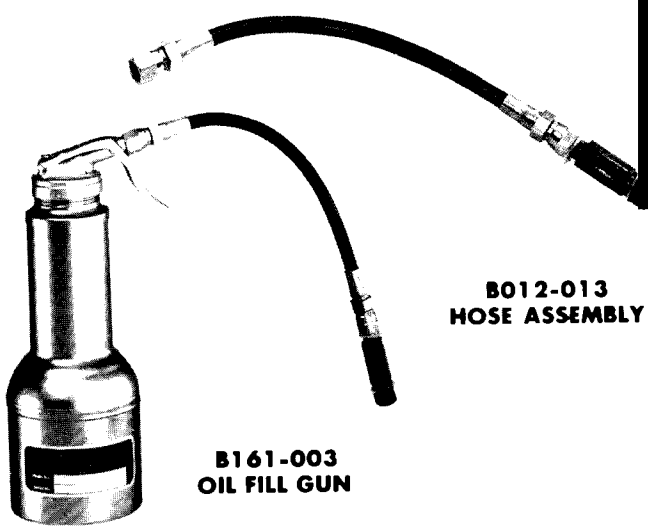
PACKAGE

The complete assembly is shipped in its own plastic bag, and includes our installation procedures.

The photo shows an installed B182-011
All locks are keyed alike unless otherwise specified

INSTALLATION PROCEDURE

To install the Throttle Security Cover assembly, remove the Hydro-Check lock nut and adjusting nut. Replace the knurled lock nut with one of the two hex nuts provided. Replace the adjusting nut, and adjust the Hydro-Check as desired; once adjusted, tighten the lock nut with a wrench taking care to maintain the desired adjustment position. Once this is done, slip the Security Cover Sleeve over the throttle and then slip the padlock shackle through the holes in the Security Cover. Be sure the padlock shackle is between the adjusting nut and the closed end of the Security Cover. Snap the padlock closed and keep the keys in a safe place.



B012-013
HOSE ASSEMBLY

B161-003
OIL FILL GUN

HYDRO-CHECK OIL

F442 oil is equally suited for lubricating air-operated devices and as a hydraulic oil for closed circuit devices such as the Hydro-Check.

F442 oil is available in one quart or one gallon containers, supplied in the quantities listed.

1 gallon	F442-002
12 quart case	F442-003
4 gallon case	F442-005

A

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