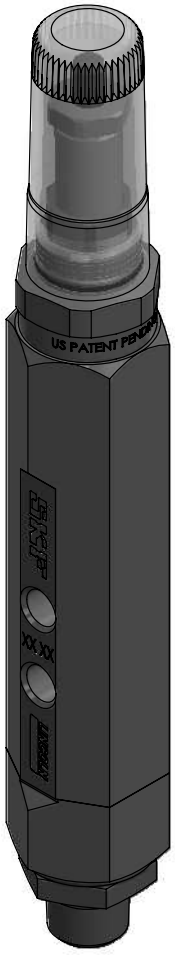
SL-6 injector

Models 85880-1,-2,-3,-4,-5,-6, 85881 and 85882, series “A”



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Contents

* Indicates change.

SKF	Declaration of Incorporation*	DOCUMENT NUMBER 422076.DoI

Manufacturer name/address:
Lincoln Industrial Corporation
5148 N. Hanley Road
St. Louis, MO 63134 U.S.A.
TEL: +1 (314) 679-4200 FAX: +1 (314) 679-4367

Authorized to compile the technical file:
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DoI

This Declaration of Incorporation is issued under sole responsibility of the manufacturer. Lincoln Industrial Corporation hereby declares that the partly completed machinery stated below:

Name: SL-6
Model number(s):
85880-1, 85880-2, 85880-3, 85880-4, 85880-5, 85880-6, 85881, 85882
Description:Grease injectors (series "A")
Year of CE: 2023

in its intended use, is in conformity with the relevant union harmonization legislation:

Machinery Directive 2006/42/EC

and conforms to the following harmonized standards:

EN ISO 4413: 2010
Hydraulic fluid power - general rules and safety requirements for systems and their components

EN ISO 12100: 2010
Safety of machinery. General principles for design. Risk assessment and risk reduction.

The following EHSR (Essential Health and Safety Requirements) have been applied:

1.1.2a – 1.1.2b – 1.1.2c – 1.1.3 – 1.1.5 – 1.3.2 – 1.3.3 – 1.3.4 – 1.3.6 - 1.3.7 – 1.5.3 – 1.5.4 – 1.5.13 -1.7-1.7.1 – 1.7.1.1 – 1.7.3 – 1.7.4

The manufacturer maintains a technical file summary sheet containing test reports and product documentation:

Technical file summary sheet number:
RA422076

The partly completed machinery shown above should not be put into service until the final machinery into which it is to be incorporated has been declared in conformity with the provisions of the directive, where appropriate.

I, the undersigned of Lincoln Industrial Corporation, do hereby declare that the equipment specified above, in its intended use, conforms to the requirements of the above EC Directive(s).

Robert Collins
Technical Compliance Manager
St. Louis, MO, U.S.A.
2023/02/23

* Indicates change.

SKF	U.K. Declaration of Incorporation*	DOCUMENT NUMBER UK422076CA

Manufacturer name/address:
Lincoln Industrial Corporation
5148 N. Hanley Road
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TEL: +1 (314) 679-4200 FAX: +1 (314) 679-4367

Authorized to compile the technical file:
SKF (U.K.) Limited
2 Canada Close
Banbury, Oxfordshire, OX16 2RT, GBR

EMAIL: robert.collins@skf.com WEBSITE: www.skf.com

This U.K. Declaration of Incorporation is issued under sole responsibility of the manufacturer. Lincoln Industrial Corporation hereby declares that the partly completed machinery stated below:

Name: SL-6
Model number(s):
85880-1, 85880-2, 85880-3, 85880-4, 85880-5, 85880-6, 85881, 85882
Description: Grease injectors (series "A")
Year of CE: 2023

in its intended use, is in conformity with the relevant union harmonization legislation:

Supply of Machinery (Safety) Regulations 2008 (S.I. 2008:1597)

along with the following Directive(s) that were also applied with the above legislation:

EN ISO 4413: 2010
Hydraulic fluid power - general rules and safety requirements for systems and their components

EN ISO 12100: 2010
Safety of machinery. General principles for design. Risk assessment and risk reduction.

The following EHSR (Essential Health and Safety Requirements) have been applied:

1.1.2a – 1.1.2b – 1.1.2c – 1.1.3 – 1.1.5 – 1.3.2 – 1.3.3 – 1.3.4 – 1.3.6 - 1.3.7 – 1.5.3 – 1.5.4 – 1.5.13 -1.7-1.7.1 – 1.7.1.1 – 1.7.3 – 1.7.4

The manufacturer maintains a technical file summary sheet containing test reports and product documentation:

Technical file summary sheet number:
RA422076

The partly completed machinery shown above should not be put into service until the final machinery into which it is to be incorporated has been declared in conformity with the provisions of the directive, where appropriate.

I, the undersigned of Lincoln Industrial Corporation, hereby declare that the equipment specified above, in its intended use, conforms with the Essential Health and Safety Requirements of U.K. legislation Supply of Machinery (Safety) Regulations 2008 No. 1597 Annex I, Declaration of Incorporation by the time of placing it on the market.

Robert Collins
Technical Compliance Manager
St. Louis, MO, U.S.A.
2023/02/23

* Indicates change.

Safety*

The assembly must be installed, maintained and repaired exclusively by persons familiar with the instructions.

Always disconnect power source (electricity, air or hydraulic) from the equipment when it is not being used.

This equipment generates high pressure. Extreme caution should be used when operating this equipment as material leaks from loose or ruptured components can inject fluid through the skin and into the body. If any fluid appears to penetrate the skin, seek attention from a doctor immediately. Do not treat injury as a simple cut. Tell attending doctor exactly what type of fluid was injected.

Any other use not in accordance with instructions will result in loss of claim for warranty or liability.

- Do not misuse, over-pressurize, modify parts, use incompatible chemicals, fluids, or use worn and/or damaged parts.
- Do not exceed the stated maximum working pressure of the equipment or of the lowest rated component in your system.
- Always read and follow the manufacturer's recommendations regarding fluid compatibility, and the use of protective clothing and equipment.
- Failure to comply may result in personal injury and/or damage to equipment.

Explanation of signal words for safety

NOTE

Emphasizes useful hints and recommendations as well as information to prevent property damage and ensure efficient trouble-free operation.

⚠ CAUTION

Indicates a dangerous situation that can lead to light personal injury if precautionary measures are ignored.

⚠ WARNING

Indicates a dangerous situation that could lead to death or serious injury if precautionary measures are ignored.

⚠ DANGER

Indicates a dangerous situation that will lead to death or serious injury if precautionary measures are ignored.

⚠ WARNING

Do not operate equipment without reading and fully understanding safety warnings and instructions.

Failure to follow warnings and instructions may result in serious injury.

⚠ CAUTION

Use extreme caution when operating equipment as equipment generates very high grease pressure.

⚠ CAUTION

Do not operate equipment without wearing personal protective gear.

Wear eye protection. Protective equipment such as dust mask, non-skid safety shoes, hard hat, or hearing protection used for appropriate conditions will reduce personal injuries.

Failure to comply may result in light personal injury.

⚠ WARNING

Do not allow any body part to be trapped by equipment.

Body parts can be crushed by subassemblies during operation.

Failure to comply may result in death or serious physical injury.

⚠ WARNING

Do not allow fluid to leak onto floor when operating equipment. If spill occurs, clean any fluid on floor before continuing operation.

Failure to comply may result in death or serious personal injury.

⚠ WARNING

Do not use this equipment to supply, transport, or store hazardous substances and mixtures in accordance with annex I part 2-5 of the CLP regulation (EG 1272/2008) or HCS 29 CFR 1910.1200 marked with GHS01, GHS06 and GHS08 hazard pictograms shown:

* Indicates change.

Description

Single and manifold type injectors are built to dispense fluid lubricants and greases that do not exceed a Lincoln ventmeter viscosity of 600 psi *(41 bar)*.

Injectors can be mounted in any position and used in circuits with SL-1, SL-V, SLV-XL, SL-11, SL-32 and/or SL33 injectors.

Spectrum sleeves may be changed out and exchanged for other sleeves if output adjustments are needed or reverted back to an adjustable injector by removing the sleeve (**29**) and reinstalling the lock nut (**4**).

NOTE

Do not install injector near heat source above 180 °F *(82 °C)*.

A nominal value is obtained by pre-setting injector output using the new Spectrum Sleeve pre-set output system.

The system consists of a selection of color coded anodized aluminum sleeves that give a clear indication of injector output settings, allowing for easy system installation, nominal value adjustment, and system maintenance.

See **Injector adjustment sleeves, page 9** for the color coded sleeve and the associated output settings for each color.

Pre-set output system

With Spectrum sleeves installed on injectors the lube system may be primed, purged, and operated in the same manner as an SL-6 injector. There are no special procedures for using injectors with the sleeves, other than all injectors using the sleeves are pre-set for output.

Specifications

Minimum operating pressure	1 850 psi *(128 bar)*
Maximum operating pressure	6 000 psi *(413 bar)*
Recommended operating pressure	2 500 psi *(172 bar)*
Maximum vent (recharge) pressure	1 000 psi *(69 bar)*
Temperature range	–40 to 180 °F *(–40 to 80 °C)*
Lubricant output (adjustable)	0.015 to 0.305 in^3 *(2.5 to 50 mm^3)*

Fig. 1

Manifold injector dimensions

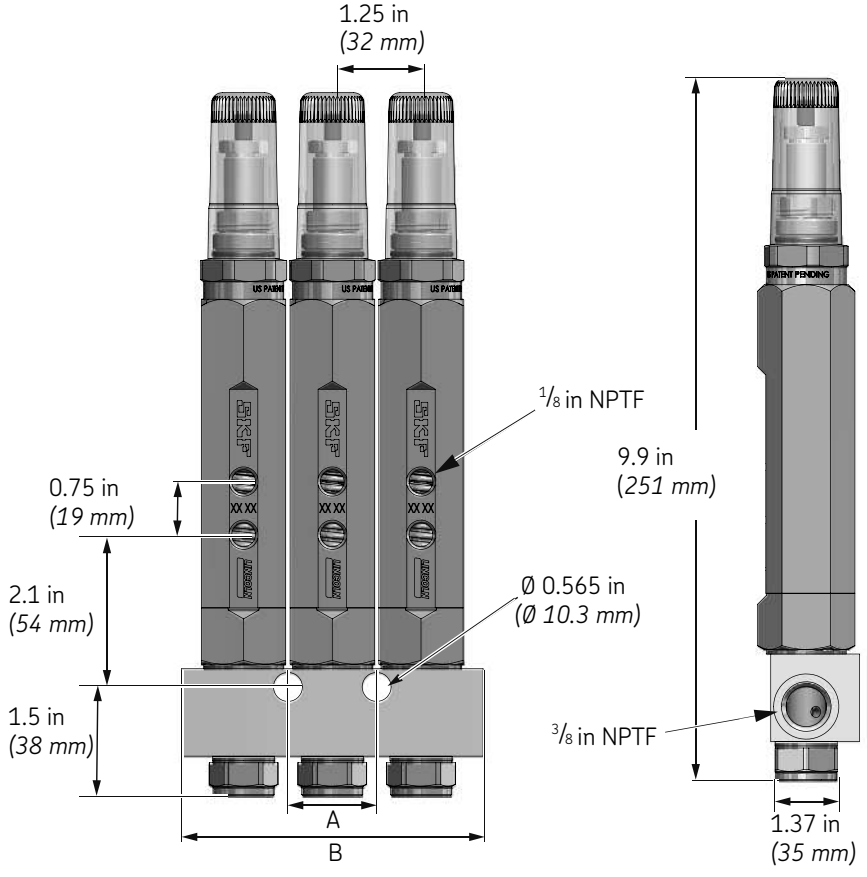
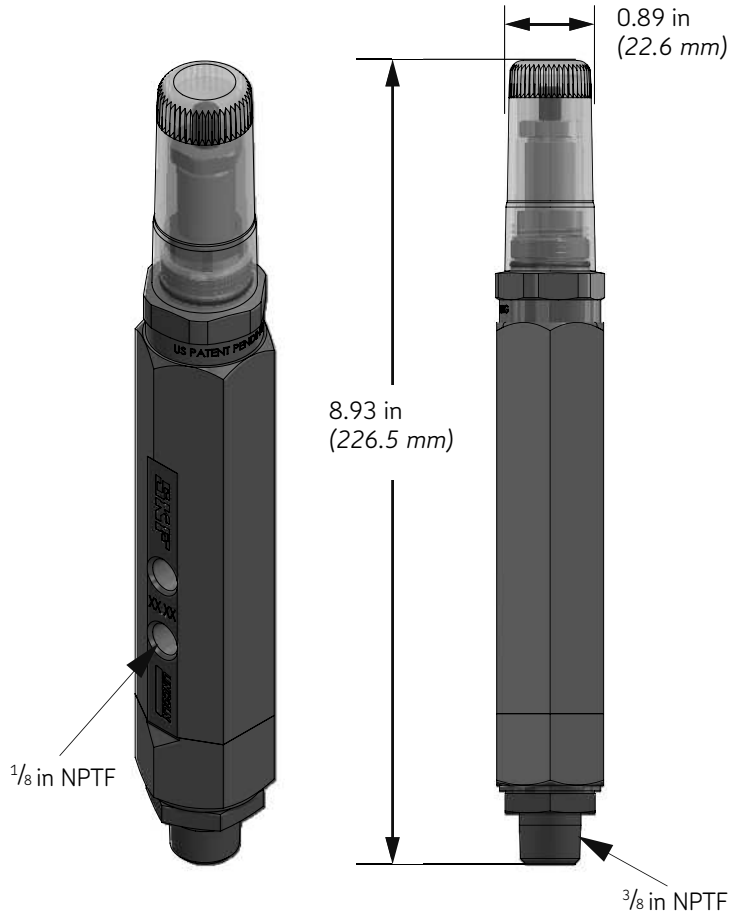


Fig. 2

Single injector dimensions



Manifold injectors

Injector	Model	Type	Dimension A	Dimension B	Dimension C
SL-6					
	85880-1	Single injector manifold	1)	2.5 in *(63.5 mm)*	9.9 in *(315.6 mm)*
	85880-2	Two injector manifold	1)	3 in *(76.2 mm)*	
	85880-3	Three injector manifold	1 1/4 in *(31.8 mm)*	4.25 in *(108 mm)*	
	85880-4	Four injector manifold	2 1/2 in *(63.5 mm)*	5.50 in *(140 mm)*	
	85880-5	Five injector manifold	3 3/4 in *(95.3 mm)*	6.75 in *(171 mm)*	
	85880-6	Six injector manifold	5 in *(127 mm)*	8 in *(203 mm)*	
	85881	Replacement injector	N/A	N/A	

1) Single mounting holes

Single injector

Injector	Model	Type	Dimension D
SL-6	85882	Single unit injector	8.93 in *(226.5 mm)*

Fig. 3

Stage 1

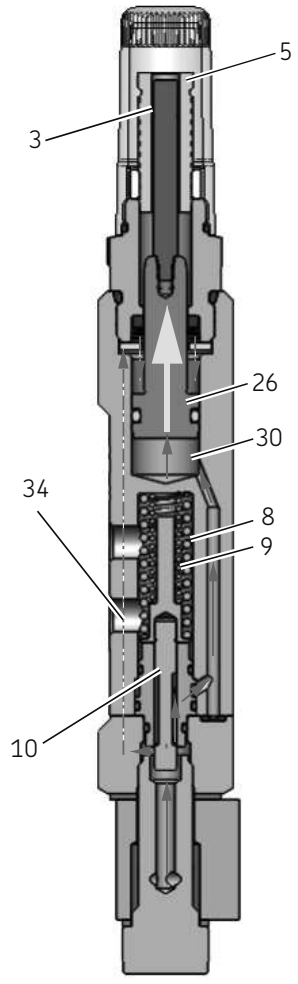
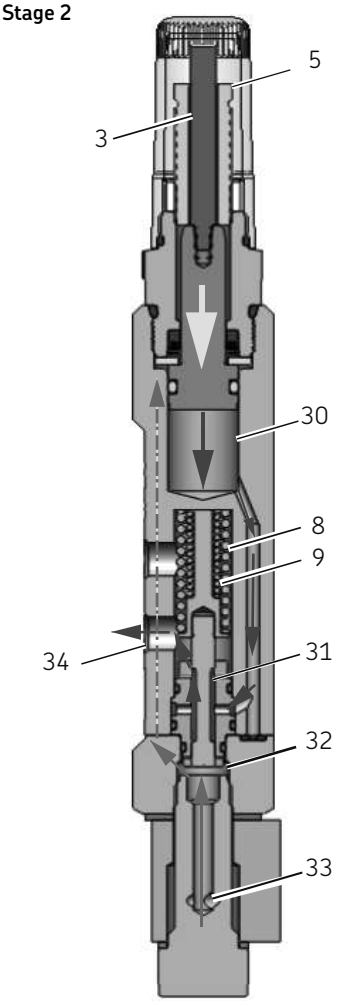


Fig. 4

Stage 2



Item	Description
3	Indicator pin
5	Adjustment screw
8	Spring
9	Spring
10	Bushing and plunger assembly
26	Measuring piston
30	Measuring chamber
31	Passage 2
32	Passage 1
33	Manifold
34	Lube point

Operation

Stage 1

Vented ready for next cycle

Lubricant is directed through slide valve (*bushing and plunger*) (**10**) to both sides of measuring piston (*plunger*) (**26**).

Pressure of incoming lubricant causes measuring piston (*plunger*) (**26**) to move upward against adjustment screw (**5**) and fills measuring chamber (**30**).

Stage 2

Injector charged with lubricant

Increasing pressure causes slide valve (bushing and plunger assembly) (**10)** to move against force of springs (**8, 9**) closing passage one (**32**) and opening passage two (**31**) to lube point (**34**).

Lubricant travels from manifold lubricant supply (**33**) to top side of measuring piston (**26**), through a hidden port, and moves measuring piston (**26**).

Lubricant in measuring chamber (**30**) will be forced to move through passage two (**31**) of slide valve (*bushing and plunger*) (**10**) out to lube point (**34**), as indicated with purple arrows.

Indicator pin (**3**) will move down into adjustment screw (**5**).

Fig. 5

Stage 3

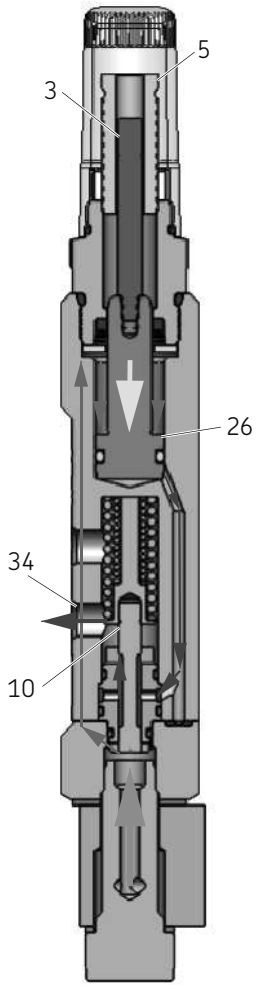
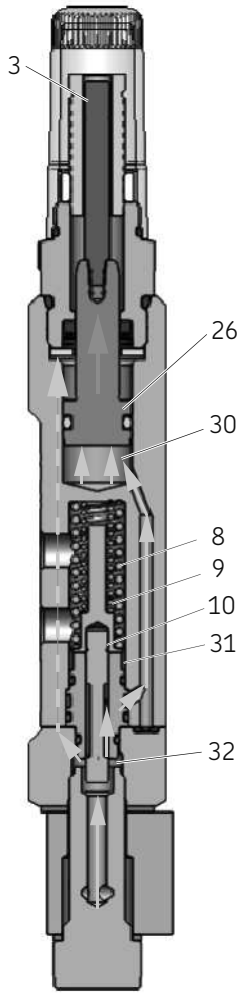


Fig. 6

Stage 4



Item	Description
3	Indicator pin
5	Adjustment screw
8	Spring
9	Spring
10	Bushing and plunger assembly
26	Measuring piston
30	Measuring chamber
31	Passage two
32	Passage one
33	Manifold
34	Lube point

Stage 3

Lubricant dispensed

Measuring piston (**26**) will dispense lubricant until stopped at bottom of bore.

Adjust volume of lubricant dispensed by limiting travel of measuring piston (**26**) with adjustment screw (**5**).

Measuring piston (**26**), indicator pin (**3**) and slide valve (*bushing and plunger*) (**10**) will all remain in position until lubricant pressure in supply line vents.

Stage 4

Venting

As pressure line vents to 1 000 psi (*69 bar*), slide valve (*bushing and plunger*) (**10**) moves down closing passage two (**31**) and opening passage one (**32**).

As pressure equalizes across both sides of measuring piston (**26**) through slide valve (*bushing and plunger*) (**10**) measuring piston (**26**) will move up, absorbing grease pressure from supply line, assisting in venting process.

Measuring chamber (**30**) will be partially filled by this action.

NOTE

On next lube cycle, measuring chamber (**30**) fills to capacity, pressure rises and moves indicator pin (**3**) to top

When vented, indicator pin (**3**) may or may not return to top position due to lubricant viscosity, temperature, or pressure conditions.

Adjust SL-6 injectors

1 Remove protective cap (**7**).

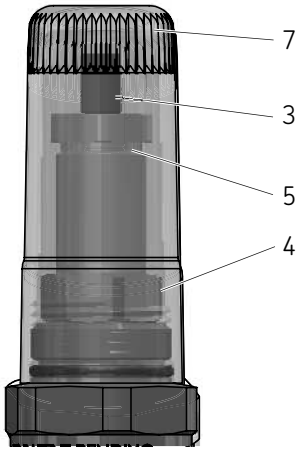
NOTE
It may be necessary to loosen cap over fitting assembly in alternate outlet port to expel any trapped grease or oil in measuring chamber.

2 Turn lock nut (**4**) counter-clockwise.
3 Turn locknut (**4**) one extra turn counter-clockwise.
4 While holding lock nut (**4**) turn adjustment screw (**5**) clockwise until finger tight.

NOTE
Output will be 0.015 in^3 (*2.46 mm^3*).
Each full turn counter-clockwise adds 0.015 in^3 (*2.46 mm^3*) to minimum setting.

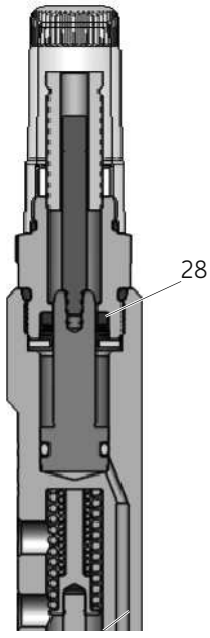
5 Turn adjustment screw (**5**) counter-clockwise to achieve required output.
6 Tighten lock nut (**4**) to torque of 90 to 110 in-lbf. *(10 to 12 4 Nm)*.
7 Purge air from injector through fitting assembly in alternate outlet port.
8 Install protective cap (**7**) finger tight.

Fig. 7



Item	Description
3	Indicator pin
4	Lock nut
5	Adjustment screw
7	Protective cap
28	Deep loaded u-cup seal

Fig. 8



NOTE
Replace deep loaded u-cup seal (**28**) when grease is seen at red indicator (**3**).

Spectrum sleeve installation

NOTE
85901-series of spectrum sleeves are not interchangeable with the 85785-series of spectrum sleeves as used with the SL-V and SLV-XL injectors.

1 Remove protective cap (**7**).
2 Remove adjusting screw (**5**).
3 Remove locknut (**5**) from adjusting screw (**4**).

Fig. 9

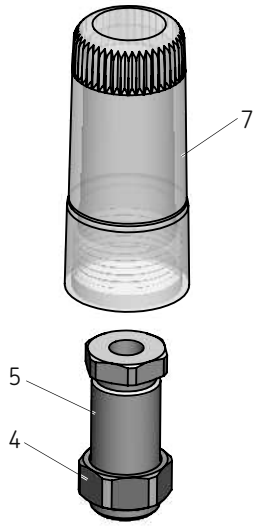
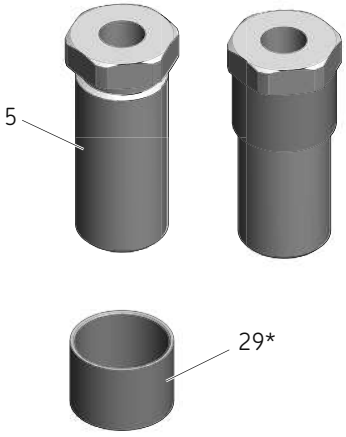


Fig. 10



4 Slide sleeve (**29**) over threads of adjusting screw (**5**).

5 Install adjusting screw (**5**) with sleeve (**29**) installed, into injector (**24**).
6 Turn adjusting screw (**5**) down until sleeve (**29**) is secured between adjusting screw (**5**) head and injector body (**24**).
7 Tighten adjusting screw (**5**) to 90-110 in-lbf (*10-12.4 Nm*)
8 Install protective cap (**7**) finger tight.

Fig. 11

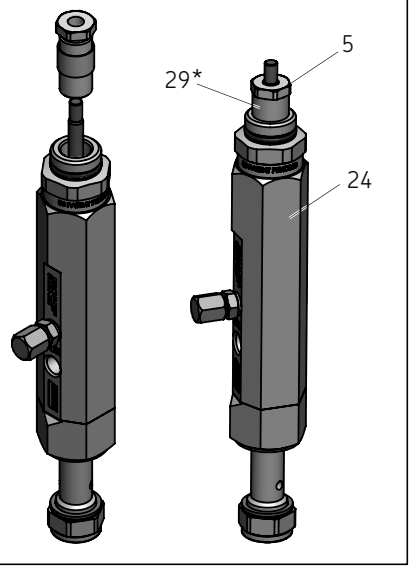
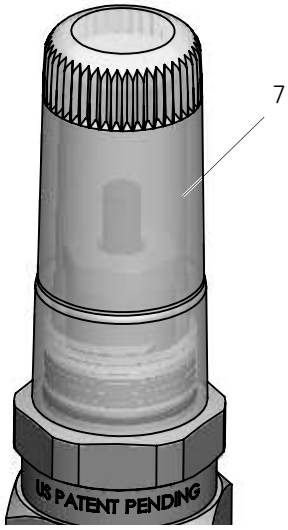


Fig. 12

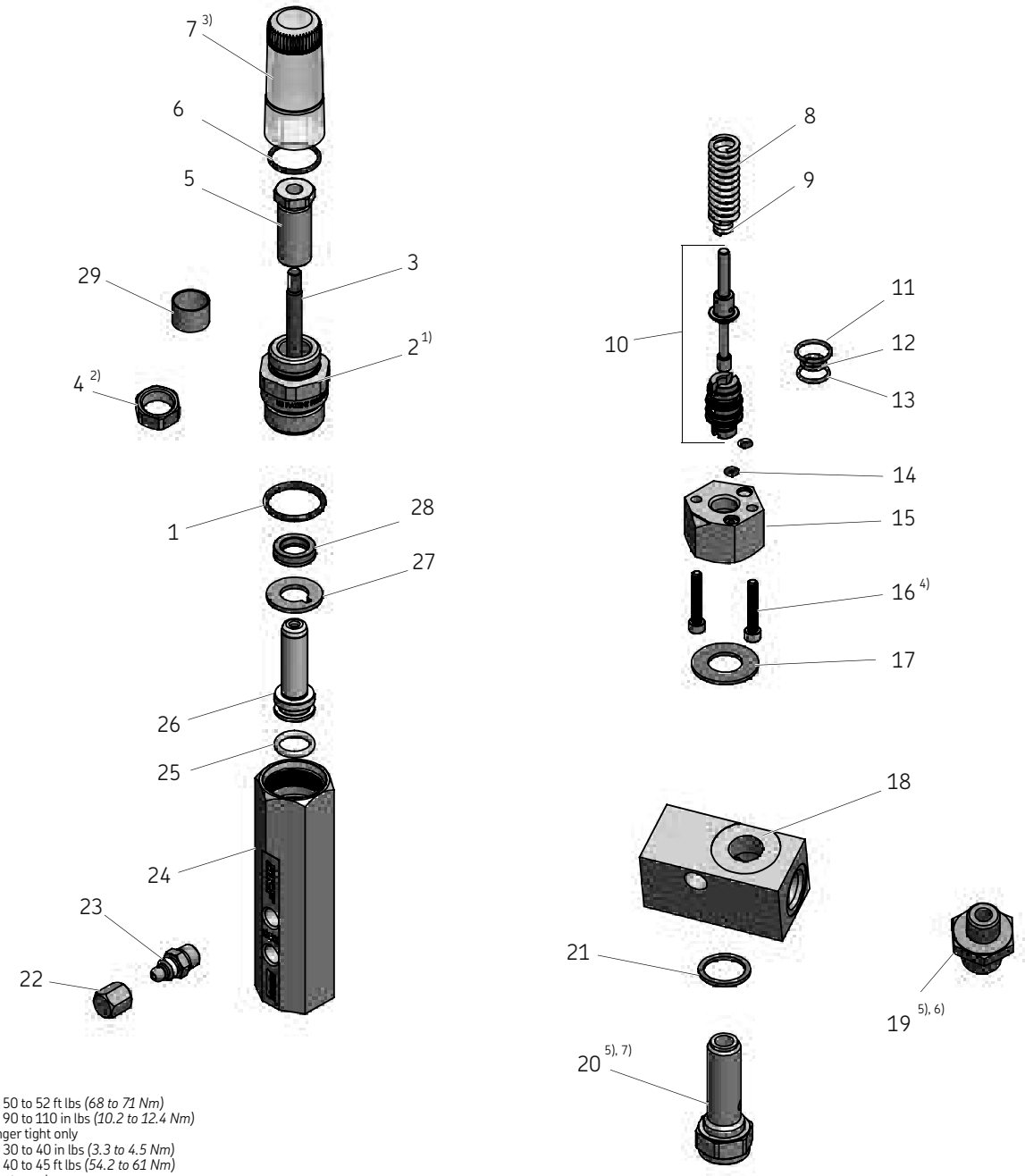


Injector adjustment sleeves

Part number	Output	Ratio from minimum output	Ratio from maximum output	Sleeve color
None	0.015 in³ *(2.5 mm³)*	1	0.050	None
85901-1	0.030 in³ *(5.0 mm³)*	2	0.100	Red
85901-2	0.045 in³ *(7.5 mm³)*	3	0.150	Silver
85901-3	0.060 in³ *(10 mm³)*	4	0.200	Gold
85901-4	0.075 in³ *(12.5 mm³)*	5	0.250	Green
85901-5	0.112 in³ *(87 mm³)*	7.5	0.375	Black
85901-6	0.150 in³ *(25 mm³)*	10	0.500	Purple
85901-7	0.188 in³ *(31.2 mm³)*	12.5	0.625	Blue
85901-8	0.225 in³ *(37.5 mm³)*	15	0.750	Orange
85901-9	0.262 in³ *(43.7 mm³)*	17.5	0.875	Brown
85901-10	0.300 in³ *(50 mm³)*	20	1.000	Yellow

Fig. IPB 1

Illustrated parts breakdown



1) Torque to 50 to 52 ft lbs *(68 to 71 Nm)*
2) Torque to 90 to 110 in lbs *(10.2 to 12.4 Nm)*
3) Torque finger tight only
4) Torque to 30 to 40 in lbs *(3.3 to 4.5 Nm)*
5) Torque to 40 to 45 ft lbs *(54.2 to 61 Nm)*
6) Single injector only
7) Manifold injector

NOTE*

Adapter bolt (**20**) must be used when mounting injector to manifold, as indicated by round shoulder on end of hex, as shown.

* Indicates change.

Service parts

Item	Description	Part number	Quantity
1	O-ring Ø 0.872 in *(2.21 mm)*	272792 [1]	1
2	Piston stop plug SL-6	279694	1
3	Indicator pin	279692	1
4	Lock nut, 9/16-24 UNEF	279684	1
5	Adjustment screw	279691	1
6	O-ring Ø 0.734 in *(1.86 mm)*	34432 [2]	1
7	Protective cap-SL-6	279902 [2]	1
8	Spring 1.9 in x Ø 0.520 in *(4.8 mm x Ø 1.32 mm)*	272800	1
9	Spring 1.3 in *(3.3 mm)* Ø 0.320 in *(0.81 mm)*	272801	1
10	Bushing and plunger assembly kit	279877 [1]	
11	O-ring Ø 0.431 in *(11 mm)*	277906 [1]	
12	O-ring Ø 0.496 in *(12,6 mm)*	279732 [1]	
13	O-ring Ø 0.306 in *(7.8 mm)*	276848 [1]	1
14	O-ring Ø 0.120 in *(3 mm)*	34417 [1]	2
15	Injector body, lower SL-6	279676	1
16	Socket head cap screw 8-32 UNC x 1 in *(25.4 mm)*	279963 [1]	2
17	Adapter gasket Ø 1.130 x 0.065 in *(28.7 x 1.7 mm)*	31064 [1]	1
18	Single injector manifold	12658	1
	Two injector manifold	11962	1
	Three injector manifold	11963	1
	Four injector manifold	11964	1
	Five injector manifold	11965	1
	Six injector manifold	246965	1
19	Adapter (single injector)	273098	1
20	Adapter bolt 2.255 x Ø 0.985 in *(57 x Ø 25 mm)*	272795	1
21	Housing gasket Ø 0.880 in *(22.3 mm)*	31057 [1]	1
22	Fitting cap 0.505 in *(12.8 mm)*	90471	
23	Body shell 0.941 in *(23,9 mm)*		1
24	Injector body, SL-6-XL		1
25	O-ring Ø 0.494 in *(12,5 mm)*	272791 [1]	1
26	Plunger 1.91 in x Ø 0.684 *(48.5 x Ø 17.4 mm)*	279689	1
27	Retaining washer	279685	1
28	Deep loaded u-cup	279901 [1]	1
29	Spectrum sleeve (Red)	85901-1	10
	Spectrum sleeve (Silver)	85901-2	10
	Spectrum sleeve (Gold)	85901-3	10
	Spectrum sleeve (Green)	85901-4	10
	Spectrum sleeve (Black)	85901-5	10
	Spectrum sleeve (Purple)	85901-6	10
	Spectrum sleeve (Blue)	85901-7	10
	Spectrum sleeve (Orange)	85901-8	10
	Spectrum sleeve (Brown)	85901-9	10
	Spectrum sleeve (Yellow)	85901-10	10

[1] Injector repair kit 279877.
[2] Cap replacement kit 279878.

Warranty

The instructions do not contain any information on the warranty. This can be found in the General Conditions of Sales, available at: www.lincolnindustrial.com/technicalservice or www.skf.com/lubrication.

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March 2023 · Form 422076 Version 3