



Cleco[®]

A6 Series

Axial Piston Air Motor, Reversible

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Cleco®
Specifications

Model	Maximum Allowable RPM		Stall Torque		Starting Torque		Weight		Gear Ratio	Max. Overhung Load @ Stall*	
	@ Max. hp	Free Speed	ft. lbs.	Nm	ft. lbs.	Nm	lbs.	kg		lbs.	kg
AGR-2203	315	605	64	87.0	48.0	65.0	27	12.2	5.8:1	1000	454

* Note: Assume overhung load located at 2.25" (57.15mm) from face of motor.



Maintenance Guidelines

Air Supply:

Connect the motor to an airline with a maximum sustained pressure of 6.2 bar (90 psig). Do not use damaged, frayed or deteriorated hoses. A hose rupture can cause serious injury. Refer to the following chart for minimum airline requirements.

Model	Min. Hose I.D.	Air Inlet
A2 Series	3/8"	3/8" NPTF
B4 Series	3/8"	3/8" NPTF
A6 Series	3/8"	3/8" NPTF
A8 Series	1/2"	1/2" NPTF

General Maintenance:

Provide proper and continuous lubrication to the motor.

Place a few drops of air tool oil into the air inlet of the motor before attaching the airline.

Before attaching to the motor, blow out the air hose to assure a clean air supply.

Be sure the air filter and airline lubricator are clean.

Use moisture separators to remove water from the airline.

Do not use solvent on bearings or any parts made of a synthetic material.

Bearings are a press fit. Do not remove unless replacement is necessary.

Lubrication:

Fill the airline lubricator with Cleco 500021 light air tool oil, available in one-quart (540397) or one-gallon (533485) quantities. Adjust the lubricator to dispense eight to ten drops of oil per minute.

A high film strength oil is also available in a quantity of one-gallon (536333). Note: This oil cannot be used in Atomist type lubricators, use only with Economist or serv-oil type lubricators.

Lubricate the gearing with Cleco A123771 grease, available in a 16 oz. container.

“DO NOT SUBSTITUTE LUBRICANTS”

The proper grades of oil and grease are essential to the efficient operation of these air motors. Heavy oil will not flow through a lubricator at a satisfactory rate to insure proper lubrication of the motor. Greases that are too stiff will channel and fail to lubricate properly and greases that are too thin will blow out of the motor. Improper lubrication or inadequate lubricants can cause extensive motor damage.

Grease fittings are located on the Motor Housing and Gear Housing, for each stage of gearing. The following quantities of A123771 grease are provided during factory assembly and these same amounts must be provided whenever this air motor is disassembled.

Model	Motor	Gearing (each)
A2 series	2 oz.	2 oz.
B4 series	3 oz.	2 oz.
A6 series	6 oz.	2 oz.
A8 series	12 oz.	4 oz.

During normal operation, the motor will lose a small amount of grease through the exhaust making it necessary to add grease at regular intervals. After each 50 hours of operation add the following amounts of A123771 grease to the Motor Housing.

Model	Motor Housing
A2 series	1.0 oz.
B4 series	1.5 oz.
A6 series	2.0 oz.
A8 series	2.0 oz.

CAUTION: Excessive grease in the Motor Housing will cause a loss in motor performance. Not enough grease can cause premature motor failure.

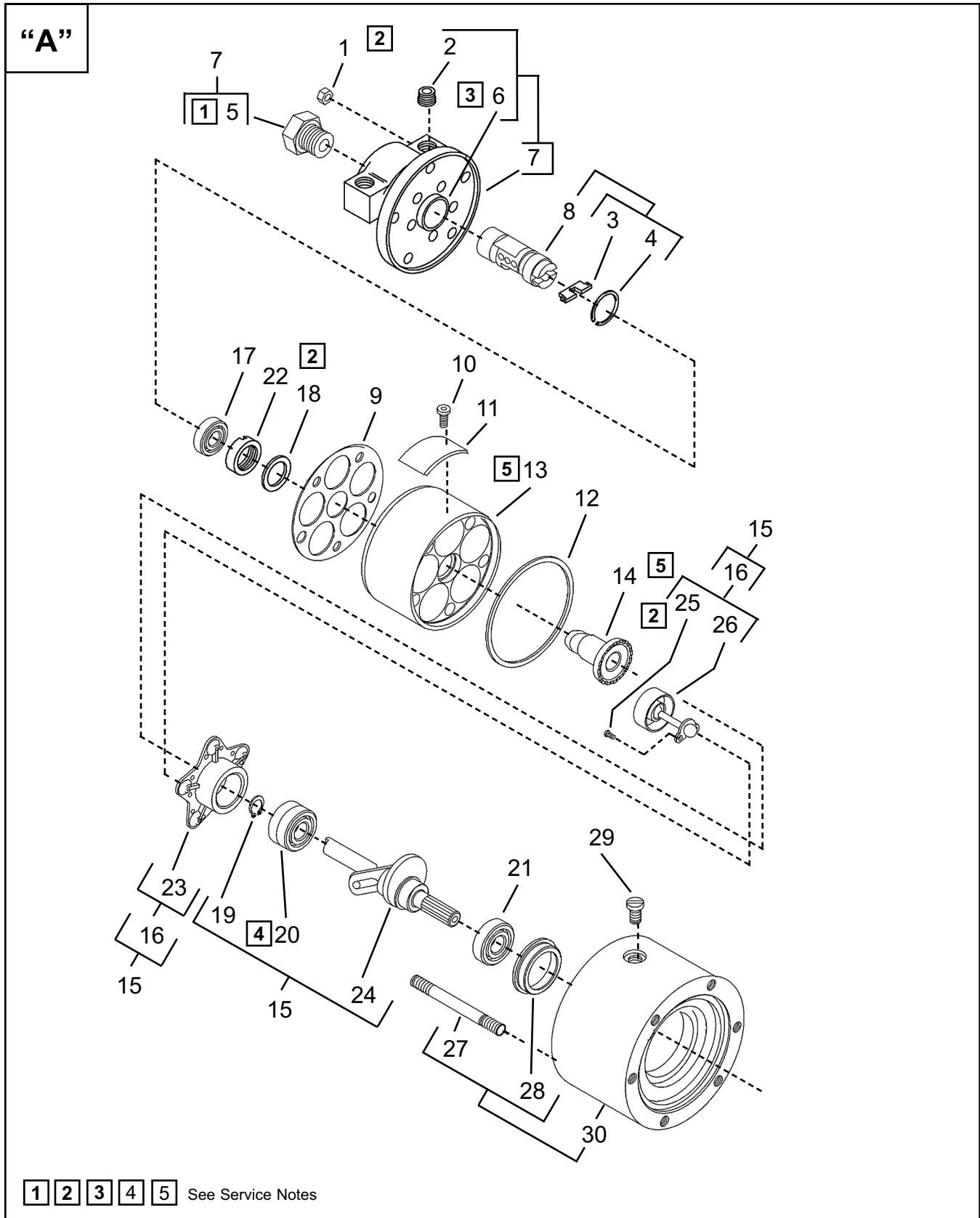
The Gear Case will lose grease through the motor. The motor will siphon gear grease, saturated with airline oil, through the exhaust. After 200 hours of operation, add the following amounts of A123771 grease into each Gear Housing.

Model	Gear Case (each)
A2 series	0.5 oz.
B4 series	0.5 oz.
A6 series	0.5 oz.
A8 series	1.0 oz.

CAUTION: Too much grease in the Gear Case will force the seal out of the front housing.

Inspection:

Thoroughly inspect the air motor every 500 hours of operation or every six months, whichever comes first. Inspect immediately if you detect unusual motor or gearing noise. This is usually an indication of low lubricant levels. Replace worn parts using only genuine replacement parts manufactured by Clecos.



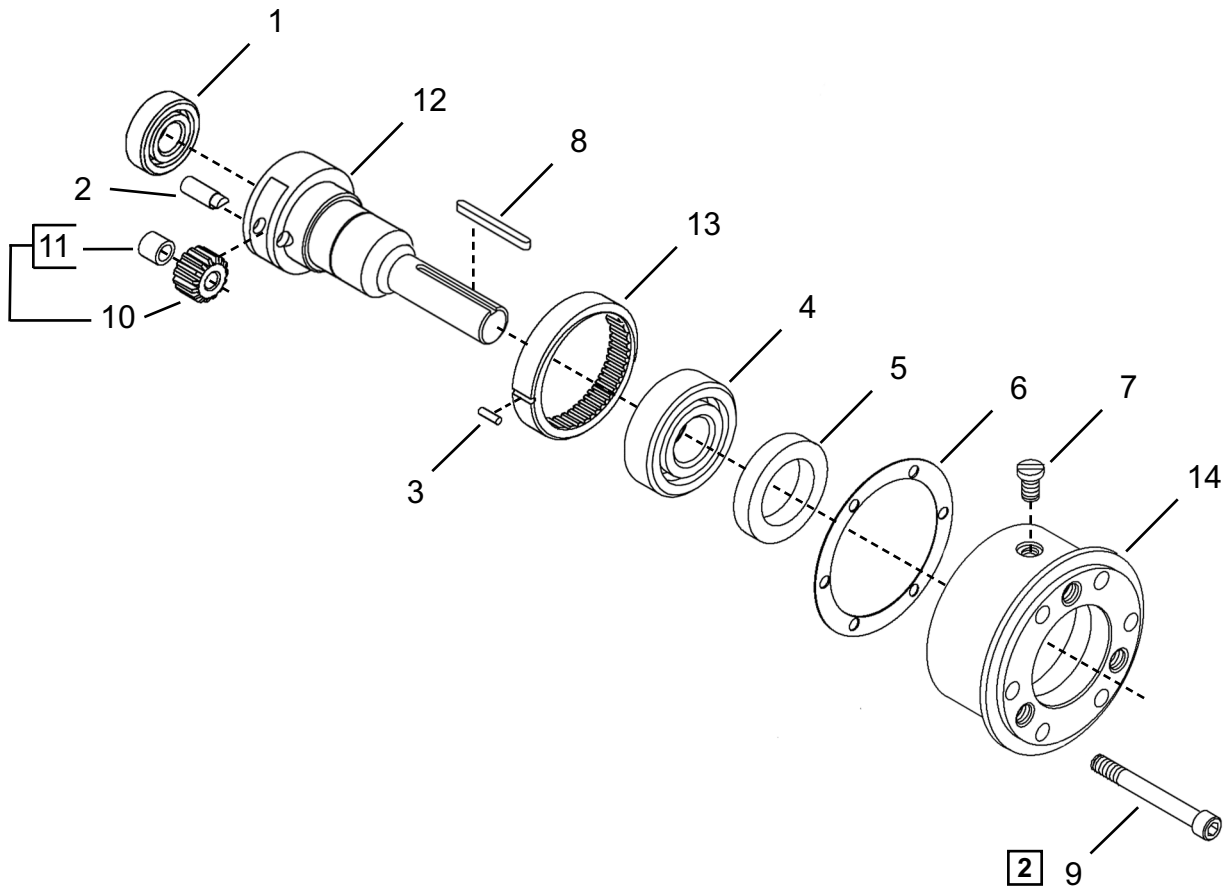
Illustration, Abbildung, Illustration, Ilustración, Illustrazione "A"								
Ref.	Number	#	X	EN	DE	FR	ES	IT
				Description	Benennung	Designation	Descripción	Descrizione
1	C108S	5	10	Nut	Mutter	Ecrou	Tuerca	Dado
2	B112E	2	2	Pipe Plug	Buchse	Bouchon	Tapón	Spina
3	2VR43	1	1	Key	Schlüssel	Clavette	Llave	Chiave
4	800090	1	2	Retaining Ring	Sicherungsring	Anneau de fixation	Anillo de retención	Anello di fissaggio
5	17748	1	1	Reducer	Reduzierstück	Réducteur	Reductor	Riduttore
6	10237	1	1	Bushing	Lagerbuchse	Douille	Casquillo	Boccola
7	A17739	1		Head Assembly	Koepf	Tête	Cabezal	Testa
8	A10226	1		Distributor	Verteiler	Distributeur	Distribuidor	Distributore
9	2V1891	1	3	Gasket	Dichtung	Joint d'étanchéité	Empaquetadura	Guarnizione
10	534820	2	4	Screw	Gewindestift	Vis	Tornillo	Vite
11	530322	1		Nameplate	Namensschild	Plaque	Placa	Targa
12	10027	1	3	Gasket	Dichtung	Joint d'étanchéité	Empaquetadura	Guarnizione
13	A2V1	1		Cylinder	Zylinder	Cylindre	Cilindro	Cilindro
14	A17605	1	1	Bevel Gear	Kegelrad	Engrenage conique	Engranaje cónico	Ingranaggio conico
15	507810	1		Driveshaft Asm.	Abtriebsschaft	Arbre de transmission	Eje motor	Albero motore
16	533944	1		Socket Plate Asm.	Platte	Plaque	Placa	Piattello
17	2V85	1	2	Bearing	Kugellager	Roulement à billes	Cojinete de bolas	Cuscinetto a sfera
18	2V272	1	1	Washer	Scheibe	Rondelle	Arandela	Rondella
19	800251	1	3	Retaining Ring	Sicherungsring	Anneau de fixation	Anillo de retención	Anello di fissaggio
20	507806	1	2	Bearing	Kugellager	Roulement à billes	Cojinete de bolas	Cuscinetto a sfera
21	22G155	1	2	Bearing	Kugellager	Roulement à billes	Cojinete de bolas	Cuscinetto a sfera
22	2V169	1	1	Lock Nut	Überwurfmutter	Contre-ecrou molette	Tuerca de fijación	Dado di bloccaggio
23	507692	1		Socket Plate	Platte	Plaque	Placa	Piattello
24	507808	1		Driveshaft	Abtriebsschaft	Arbre de transmission	Eje motor	Albero motore
25	B135Z	10	20	Screw	Gewindestift	Vis	Tornillo	Vite
26	A2V2	5	5	Piston	Kolben	Piston	Embolo	Pistone
27	27401PT	5	5	Stud	Bolzen	Goujon	Espárrago	Perno sporgente
28	18364PT	1	1	Bearing Liner	Buchse	Paquebot	El transatlántico	Il transatlantico
29	30775PT	1	1	Grease Fitting	Schmiernippel	Monture de graisse	Accesorio de grasa	Ingrassatore
30	A18317	1		Rear Housing	Gehäuse	Corps	Caja	Corpo

(#) Quantity / Stückzahl / Quantité / Cantidad / Quantità

(X) Recommended Spare Parts / Kennzeichnet empfohlenes / Identifica un particolare di ricambio raccomandato / Designa el repuesto recomendado / Indique la pièce de rechange conseillée.

Cleco® Gearing Assembly

“B”



2 See Service Notes

Illustration, Abbildung, Illustration, Ilustración, Illustrazione "B"								
Ref.	Number	#	X	EN	DE	FR	ES	IT
				Description	Benennung	Designation	Descripción	Descrizione
1	525424	1	2	Bearing	Kugellager	Roulement à billes	Cojinete de bolas	Cuscinetto a sfera
2	10032	2	4	Pin	Stift	Goupille cylindrique	Pasador	Spina
3	DP120PT	1	2	Pin	Stift	Goupille cylindrique	Pasador	Spina
4	18304	1	2	Bearing	Kugellager	Roulement à billes	Cojinete de bolas	Cuscinetto a sfera
5	18307	1	3	Oil Seal	Ölabdichtung	Joint d'huile	Sello de aceite	Paraolio
6	10026	1	3	Gasket	Dichtung	Joint d'étanchéité	Empaquetadura	Guarnizione
7	30775PT	1	1	Grease Fitting	Schmiernippel	Monture de graisse	Accesorio de grasa	Ingrassatore
8	18326	1	3	Key	Schlüssel	Clavette	Llave	Chiave
9	B119S	6	6	Screw	Gewindestift	Vis	Tornillo	Vite
10	540766	2	4	Idler Gear	Getriebe	Engrenage	Engranaje	Ingranaggio
11	800160	2	4	Bearing	Kugellager	Roulement à billes	Cojinete de bolas	Cuscinetto a sfera
12	544024	1		Gear Cage	Planetenradträger	Cage d'engrenage	Jaula de engranajes	Gabbia ingranaggio
13	10019	1	1	Ring Gear	Ring	Bague	Anillo	Anello
14	18316	1		Front Housing	Gehäuse	Corps	Caja	Corpo
(#) Quantity / Stückzahl / Quantité / Cantidad / Quantità								
(X) Recommended Spare Parts / Kennzeichnet empfohlenes / Identifica un particolare di ricambio raccomandato / Designa el repuesto recomendado / Indique la pièce de rechange conseillée.								

1 Illustration: "A"

EN: If a valve is used, it should have a full flow air passage to utilize full power of the motor. For quick motor stops, an all-ports closed-in-neutral type valve with a spring return should be used.

DE: Falls ein Ventil verwendet wird, sollte es mit einem Luftschnitt zum vollen Durchfluß versehen sein, um die volle Leistung des Motors ausnutzen zu können. Bei Motoren mit Schnellabschaltung sollte ein Ventil mit Federrückzug verwendet werden, bei dem alle Öffnungen in der Leerlaufstellung geschlossen sind.

FR: Si une valve est utilisée, elle devrait posséder un débit complet d circulation d'air afin d'exploiter la puissance totale du moteur. Pour des arrêts rapides du moteur, une valve à orifices fermés à position neutre avec un ressort de rappel devrait être utilisée.

ES: Si se usa una válvula, debe tener un pasaje de aire completo para poder utilizar toda la potencia del motor. Para que el motor se detenga rápidamente se debe usar una válvula con resorte de retorno que mantenga sus puertos cerrados en neutro.

IT: Se si usa una valvola, questa deve essere munita di un passaggio per il massimo flusso d'aria, al fine di sfruttare la massima potenza del motore. Per gli arresti immediati del motore, usare una valvola con capacità di bloccaggio in folle di tutte le aperture, e munita di molla di ritorno.

EN: Torque Output Control

- A) When air enters from this side,
- B) it must exhaust without restrictions.
- C) Four-Way Valve
- D) Pressure Regulator
- E) Air Supply

DE: Drehmomentausgaberegung

- A) Wenn Luft von dieser Seite eintritt,
- B) muß sie ohne Behinderung austreten.
- C) Vierwegventil
- D) Druckregler
- E) Luftzufuhr

FR: Contrôle de la sortie de torsion

- A) Quand l'air entre par ce côté
- B) Il doit épuiser sans restrictions.
- C) Valve à quatre voies
- D) Régulateur de pression
- E) Alimentation d'air

ES: Control de salida de torsión

- A) Cuando el aire entra por este lado
- B) debe salir sin ninguna restricción.
- C) Válvula de cuatro vías
- D) Regulador de presión
- E) Suministro de aire

IT: Comando emissione coppia

- A) L'aria che entra da questo lato
- B) deve sfiatare senza ostruzioni.
- C) Valvola a quattro vie
- D) Regolatore della pressione
- E) Alimentazione dell'aria

EN: Control Forward and Reverse Speeds

- A) Metered flow control (inlet)
- B) Free (open) flow control (exhaust)
- C) Four-Way Valve
- D) Air Supply

DE: Vorwärts-und Rückwärtsgänge regein

- A) Gemessene Flußregelung (Einlaß)
- B) Freie (offene) Flußregelung (Auslaß)
- C) Vierwegventil
- D) Luftzufuhr

FR: Commande des vitesses automatique et de renversement

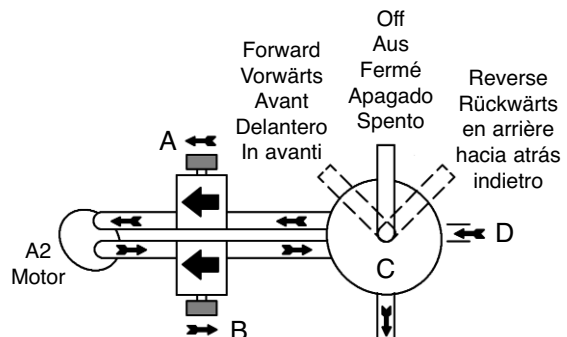
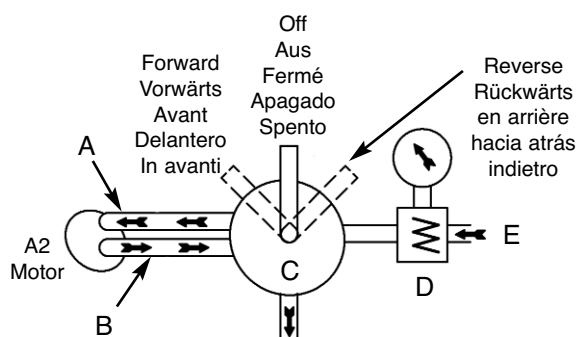
- A) Contrôle de circulation mesuré (entrée)
- B) Contrôle de circulation libe (ouvert) (compréhensif)
- C) Valve à quatre voies
- D) Alimentation d'air

ES: Velocidades de control hacia adelante y hacia atrás

- A) Control de flujo con contador (entrada)
- B) Control de flujo libre (abierto) (salida)
- C) Válvula de cuatro vías
- D) Suministro de aire

IT: Comando della marcia avanti e retromarcia

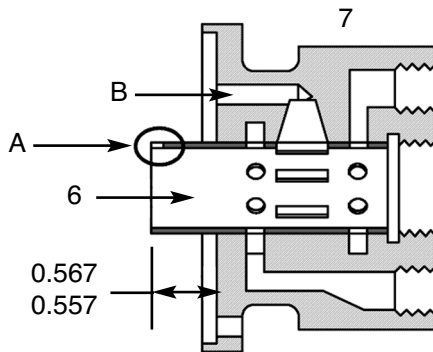
- A) Dosaggio del flusso (entrata)
- B) Comando libero (aperto) del flusso (uscita)
- C) Valvola a quattro vie
- D) Alimentazione dell'aria



2 Illustrations: "A, B & C"

Illustration Abbildung Illustration Ilustración Illustrazione	Reference Verweisung Référence Referencia Riferimento	Tightening torque Anzugsmoment Torsion de serrage Torsión de apriete Coppia di serraggio	
		Ft-Lbs (in-lbs)	Nm
A	1	10-11	13-15
A	22	50-55	68-75
A	25	8-9	11-12
B	9	18-20	24-27

3 Illustration: "A"



EN: IMPORTANT: Press the new bushing into the head as shown. Notch "A" in the bushing must line up with hole "B" in the head.

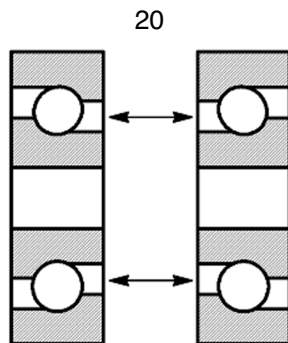
DE: WICHTIG: Drücken Sie die neue Muffe wie abgebildet in das Kopfstück. Die Kerbe "A" in der Muffe muß mit dem Loch "B" im Kopfstück ausgerichtet sein.

FR: IMPORTANT: Appuyer sur la tête de la nouvelle douille comme indiqué. L'encoche "A" de la douille doit être alignée avec le trou "B" de la tête.

ES: IMPORTANTE: Empuje el buje nuevo contra el cabezal como se muestra. La muesca "A" en el cabezal debe estar en frente del agujero "B" en el cabezal.

IT: IMPORTANTE: Premere la nuova bussola nella testa come illustrato. La tacca "A" della bussola deve essere opposta al foro "B" della testa.

4 Illustration: "A"



EN: IMPORTANT: The small diameters of the bearings must face each other when assembled.

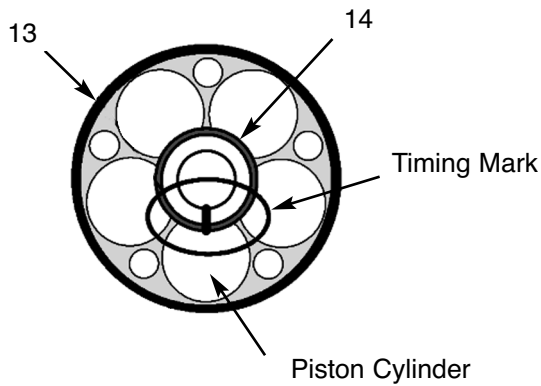
DE: WICHTIG: Die kleinen Durchmesser der Lager müssen nach dem Zusammenbau einander gegenüber liegen.

FR: IMPORTANT: Les petits diamètres des coussinets doivent se faire face lors de leur assemblage.

ES: IMPORTANTE: Los cojinetes deben montarse de manera que sus diámetros pequeños estén frente a frente.

IT: IMPORTANTE: Durante l'assemblaggio, i diametri piccoli dei cuscinetti devono essere uno di fronte all'altro.

5 Illustration: "A"



EN: IMPORTANT: Make sure the timing mark on the bevel gear is pointing at the center of a piston cylinder before assembling the driveshaft assembly into the cylinder.

DE: WICHTIG: Stellen Sie vor der Montage der Triebachsenbaugruppe in den Zylinder sicher, daß die Steuermarkierung auf dem Kegelrad zur Mitte eines Kolbenzylinders zeigt.

FR: IMPORTANT: Vérifiez que la marque de synchronisation sur l'engrenage conique pointe vers le centre du cylindre d'un piston avant d'assembler l'assemblage d'arbre de transmission dans le cylindre.

ES: IMPORTANTE: Asegúrese de que la marca de sincronización apunta hacia el centro del pistón del cilindro antes de montar el ensamblaje del eje motor en el cilindro.

IT: IMPORTANTE: Prima di montare il gruppo albero motore nel cilindro, assicurarsi che la marcatura dei tempi sull'ingranaggio conico punti verso il centro di un cilindro per pistoni.



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