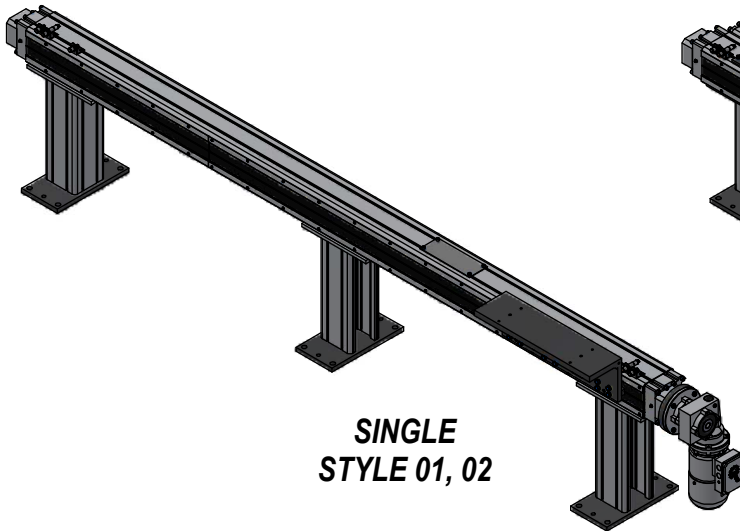
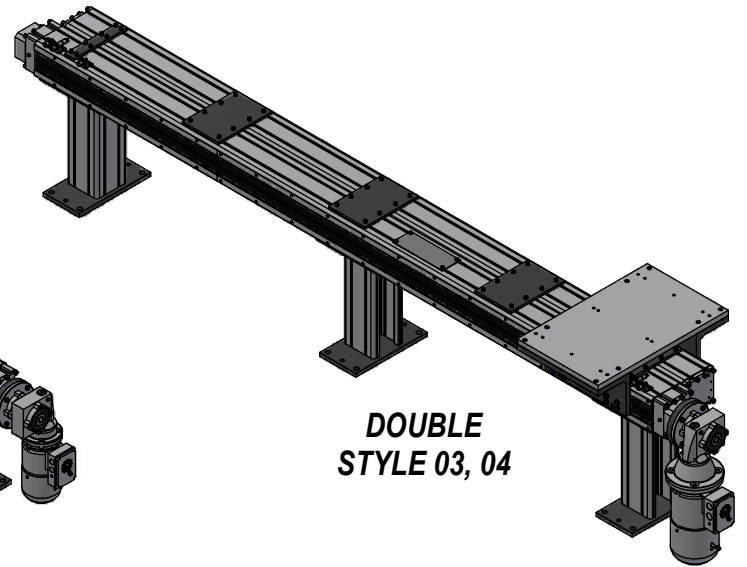


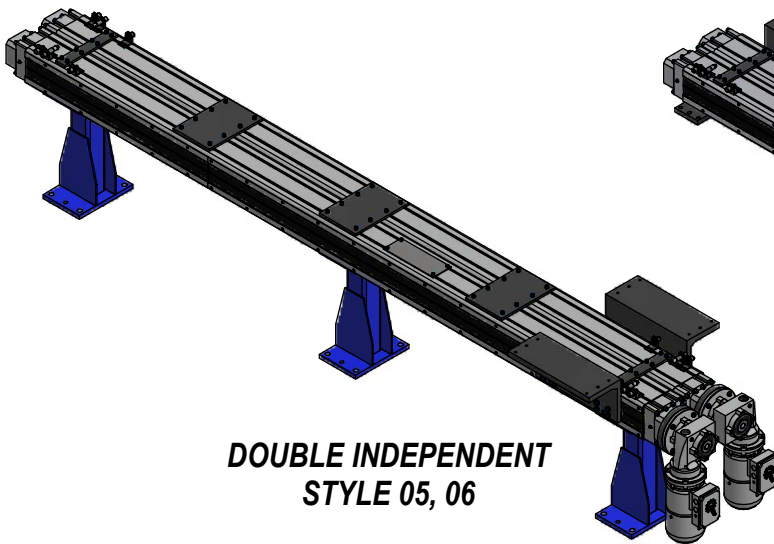
## AES SLIDES MAINTENANCE MANUAL



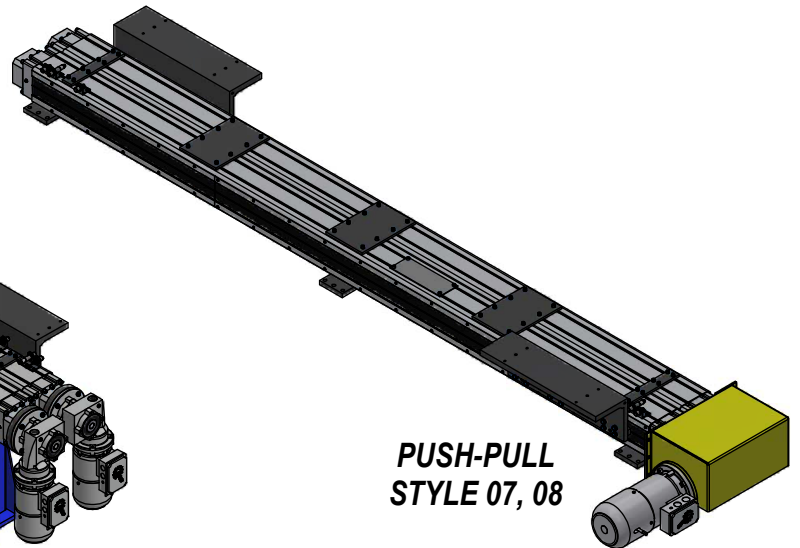
**SINGLE**  
**STYLE 01, 02**



**DOUBLE**  
**STYLE 03, 04**



**DOUBLE INDEPENDENT**  
**STYLE 05, 06**



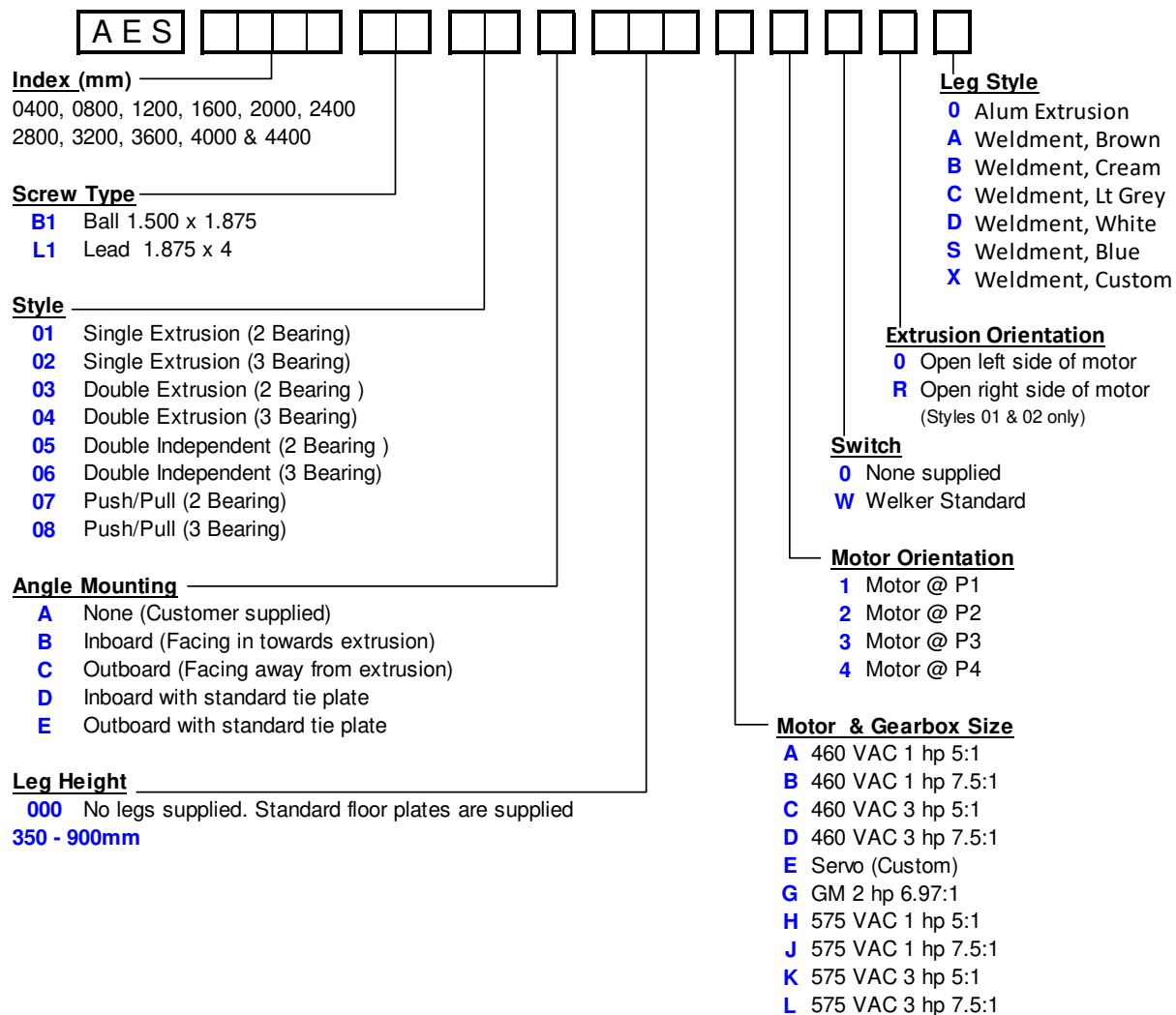
**PUSH-PULL**  
**STYLE 07, 08**

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## PART NUMBER BREAKDOWN

USE THE CHART BELOW TO BREAK DOWN YOUR WELKER SLIDE PART NUMBER:



# **MAINTENANCE**

## ***SAFETY FIRST!***

MAINTENANCE SHOULD ONLY BE PERFORMED BY QUALIFIED PERSONNEL. PROPER SAFETY GEAR AND PROCEDURES MUST BE USED AT ALL TIMES. BEFORE PERFORMING MAINTENANCE, CUT OFF POWER SUPPLY TO THE UNIT.

PREVENTATIVE MAINTENANCE: Regularly inspect unit to verify proper operation. Check for debris build up inside extrusion as too much contamination can jam debris into bearing block, past seals. Clean as needed. Inspect all electrical, lubrication and mounting connections, making sure all connections are tight and secure.

NYLON BRUSH: Inspect every six (6) months. Replace when damaged or worn.

BEARING ASSEMBLY & RAIL: Bearings must be lubricated every 6 months: see Lubrication Schedule. Inspect rail for damage and debris.

SWITCHES: Switches may fail and need replacement; it is recommended to keep a spare switch on hand.

## **INSPECTION & MAINTENANCE INTERVALS**

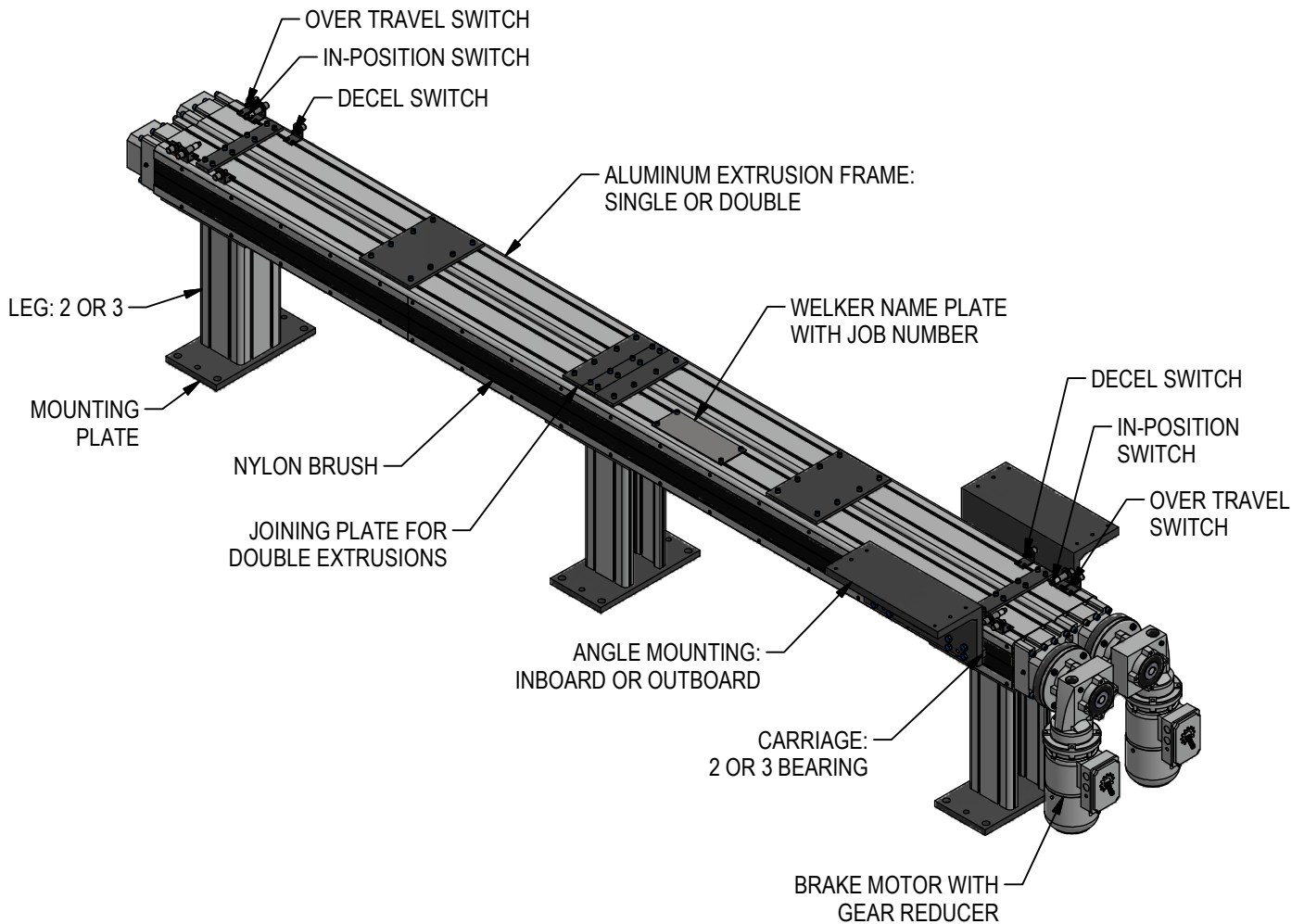
INSPECT	CHECK	ACTION
Motor Exterior	Check the external surfaces for contamination. Accumulation of dirt and fibrous deposits must be removed.	Clean the motor external surfaces using clean, lint-free cloths. Clean deposits from between cooling fins using a vacuum cleaner and a stiff-bristled nylon brush.
	Check the external surfaces for oil film and greasy deposits.	Clean the oil film and greasy deposits from the motor surface using clean, lint-free cloths. If necessary, moisten the cloth with an approved non-flammable, residue-free solvent. Do not pour solvent on the motor.
	Check for evidence of damage or overheating.	If the motor has physical damage, replace the motor.
Motor Mountings	Make sure the mounting hardware is secure.	If the mounting hardware is not secure, check the motor/gearbox alignment, and tighten the mounting hardware.
Motor Electrical Connections	Check that all electrical connections are secure.	If the electrical connections are not secure, tighten them.
	Check the electrical connections for evidence of arcing.	Loose electrical connections can cause arcing, which is evident by discoloration and charring. If you find evidence of arcing, replace the damaged connections.
Insulation Resistance	Using an OHM meter, check and record the resistance of motor winding insulation.	Compare the current resistance reading to previous readings. If the resistance drops significantly, perform an internal inspection for insulation damage or deterioration.
Motor Brake	On motors that have a brake, use a feeler gauge to check the air gap in between the brake pad and the rotor according to the appropriate user manual.	If the air gap exceeds the maximum allowed for that brake configuration provided in the manual, adjust the air gap or replace the brake pad according to user manual U35000.

# GENERAL TROUBLESHOOTING

Fault	Likely Cause	Corrective Action
Excessive noise or vibration	Lead screw lacking lubrication. Rail(s) lacking lubrication. Tapered bearing lacking lubrication or is clogged with contaminants.	Lubricate lead screw nut and rail bearing via carriage block per scheduled interval. Lubricate tapered bearing via bearing block per scheduled interval. Clean as needed.
Carriage does not repeat position	Gas spring failure	Visual inspection of gas spring. Replace if damaged or at scheduled intervals.
Carriage does not fully extend or retract	Switch failure, loose wire. Contaminants/debris in slide. Rail bearing failure. Unit load is over capacity.	Check switch for proper operation and connection. Replace if required. Inspect nylon brush, replace if damaged or worn. Rebuild, repair or replace bearing. Check unit maximum load or interference.

## SLIDE COMPONENTS

DOUBLE INDEPENDENT SLIDE (STYLE 05) SHOWN:



# MOTOR TROUBLESHOOTING FOR MOTOR OPTIONS A, B, C, D, H, J, K, L

Fault	Likely Cause	Corrective Action
Motor fails to start.	Motor is incorrectly wired Brake is not be releasing. Fan guard damaged and contacting fan. Motor protection device has tripped or does not switch 1-Ph capacitor or start switch has failed.	Verify and correct motor wiring. Troubleshoot brake. Replace damaged fan guard. Check motor protection device for correct setting and correct error. Discharge capacitor and use a volt-ohm meter to check the capacitor for an open circuit - replace if needed. Inspect switch and connections. Replace if contacts look burned or pitted.
Fuses blow or motor protection faults immediately.	Short circuit in line. Lines connected incorrectly. Fuse or circuit breaker tripped. Motor is overloaded or equipment jammed. Stator is shorted or went to ground.	Rectify short circuit. Check circuit diagram and make corrections. Replace fuse or circuit breaker. Make sure load is free. Verify motor amp draw compared to nameplate rating. A damaged or blown stator will show a burn mark. Stator must be repaired or replaced.
Motor hums and has high current consumption	Brake may not be releasing. Rotor may be rubbing stator. Defective or incorrect stator winding.	Troubleshoot brake. Send motor to a repair specialist.
Severe speed loss under load or excessive acceleration time.	Overload. Excessive voltage drop. Damaged or failing motor bearings. Damaged or worn gear unit. 1-Ph capacitor or start switch has failed.	Check load conditions and make certain system is unobstructed. Reduce load or consider a larger motor. Verify service voltage is within specification. Check if nearby equipment is affecting incoming power. Make sure connection harness and wiring is adequate. Replace motor bearings. Replace or repair damaged gear unit. See instructions under "Motor fails to start".
Motor runs the incorrect direction.	Incorrect wiring.	Rewire motor according to system schematic and/or switch two incoming motor phases.
Motor heats up excessively or thermal overload protection trips	Overload. Ambient temperature is too high. Inadequate cooling. Operation is outside the allowed duty cycle. Motor protection device may be defective. Excessive supply voltage. System short or damaged stator.	Make sure load is free. Verify motor amp draw compared to nameplate rating. Reduce load or consider a larger motor. Do not operate above the rated conditions. Correct cooling air supply. Open and clear cooling air passages. Retrofit with forced ventilator fan if needed. Adjust operating duty cycle or contact a specialist to select a suitable motor or drive. Replace motor protection device. Adapt motor supply voltage. Check for loose, cut or damaged wires. Check stator winding for defects or burn damage.
Excessive Noise or Vibration	Motor bearings contaminated or damaged. Excessive motor shaft end play. Misaligned or imbalanced load.	Test motor by itself. If bearings are bad noise may be heard or roughness detected. Replace bearings. Add lubrication if bearings have grease fittings. Check shaft endplay with motor and system power disconnected. If shaft movement is excessive replace motor shaft bearings. Check all mating shaft connections for proper alignment and correct all imbalanced load conditions.
1 Ph Start Capacitor Failures	Motor is not coming up to speed quickly enough. Motor is being cycled frequently Start switch is defective or damaged.	Verify motor size to load conditions. Motor should come up to speed in no more than 2-3 seconds. Verify duty cycle and consult specialist for recommendations. Replace start switch.
1 Ph Run Capacitor Failures	Possible power surge to motor caused by transient voltage or lightening. Excessive ambient temperature.	Install proper surge protection. Verify ambient conditions do not exceed name plate value.

# BRAKE TROUBLESHOOTING FOR MOTOR OPTIONS A, B, C, D, H, J, K, L

Troubleshooting	Cause	Remedy
<b>Brake doesn't release</b>	Air gap too large	Check air gap and adjust
	Brake not receiving electrical power	Check electrical connection
	Failed rectifier	Replace rectifier
	Brake is getting too warm	Use fast response (FR) rectifier
	Voltage to brake coil too small	Check connection voltage of brake coil
	Rectifier supply voltage from inverter	Rectifier voltage must be from separate source. (Inverter output voltage varies)
<b>Brake release is delayed</b>	Air gap too large	Check air gap and adjust
	Voltage to brake coil too small	Check connection voltage of brake coil
<b>Brake does not engage</b>	Voltage to coil too large	Check connection voltages of brake windings
	Hand release is adjusted incorrectly	Adjust to correct air gap
	Anchor plate mechanically blocked	Remove mechanical blockage
<b>Brake engagement is delayed</b>	Voltage to coil too large	Check connection voltage of brake windings
	Brake is switched to AC side	Use DC switching

## GENERAL BRAKE MAINTENANCE FOR MOTOR OPTIONS A, B, C, D, H, J, K, L

**BRAKE AIR GAP** is set at the factory. If the brake is ordered as a part, the air gap must be set in the field. All brake air gap adjustments must be made with the brake assembled onto the motor and power off (brake engaged).

In order to obtain optimal brake performance and maximum brake life, it is necessary to periodically check and reset the brake air gap. As the brake rotor wears and decreases in thickness, the air gap will increase. If the air gap is too large, the brake coil may not have enough magnetic force to pull the metal armature disc across the gap and the brake will drag.

**HAND RELEASE LEVER** air gap is set at the factory. When ordered as parts, proper hand-lever and air gap adjustments must be made in the field. Hand-lever adjustments must always be made prior to assembling the brake to the motor. All brake air gap adjustments must be made with the brake assembled to the motor and the power off (brake engaged).

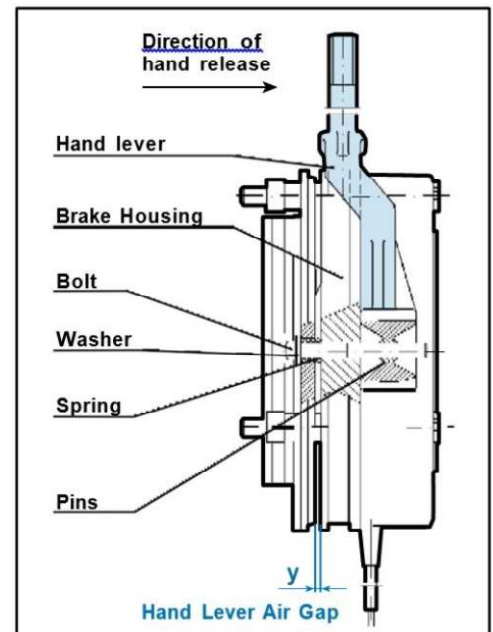
The hand release lever allows the brake to be manually released without requiring that the brake be energized with voltage. The lever has a spring return that allows the brake to be hand released and returned automatically to its set position. The handle of the hand release lever can be unscrewed for easy removal.

## BRAKE HAND-LEVER MAINTENANCE FOR MOTOR OPTIONS A, B, C, D, H, J, K, L

### Installation and Adjustment

When setting the hand-lever gap or dimension "y" the magnetic brake coil housing and the anchor plate must be kept uniform all around. To assure proper assembly and proper functioning of the brake, the hand-lever must be assembled to the brake, and the hand-lever air gap must be adjusted, before the brake is assembled to the motor. Once adjusted properly, the hand-lever air gap setting should not be altered, even when readjusting the air gap setting.

1. Place the hand-lever over the brake housing (as shown) and align the pins.
2. Screw the bolts with washer and spring into the pins.
3. Using a feeler gage, adjust the hand-lever air gap to **1mm (0.040")**.  
**Tolerance +0.2mm (+0.008")**

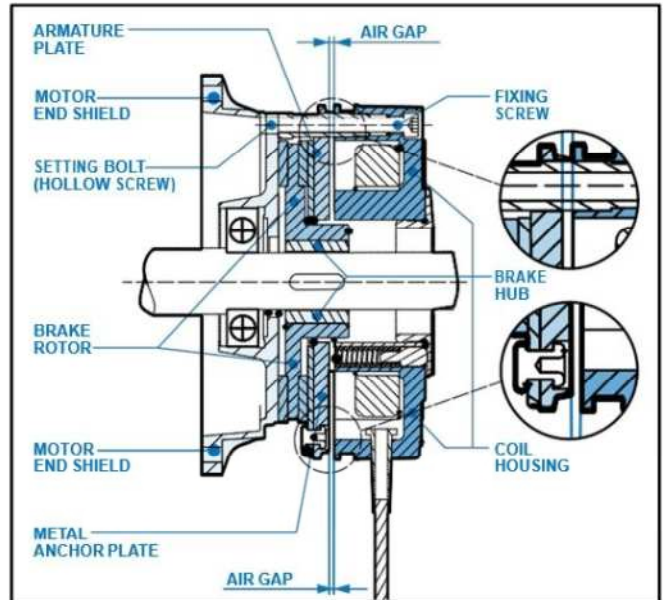


# BRAKE AIR GAP MAINTENANCE FOR MOTOR OPTIONS A, B, C, D, H, J, K, L

**BRAKE AIR GAP** is set at the factory. If the brake is ordered as a part, the air gap must be set in the field. All brake air gap adjustments must be made with the brake assembled onto the motor and power off (brake engaged). The air gap of the brake rotor or brake disc must be periodically checked and adjusted. If necessary, the worn brake rotor must be replaced. The brake air gap is checked by placing a feeler gage between metal anchor plate and the brake coil housing.

## Setting the brake air gap

1. Loosen the fixing screws that attach the brake to the motor's end-shield by approximately half a turn.
2. If required, the brake assembly may be loosened slightly from the motor's end shield by turning the threaded setting bolts (hollow screws) that surround the fixing screws, counter clockwise, into the brake coil housing.
3. Depending upon whether or not the air gap needs to be decreased or increased, turn the fixing screws accordingly until the desired nominal air gap is reached, as measured using the appropriate feeler gauge.
  - Turning the fixing screws clockwise allows the brake coil housing to be moved towards the anchor plate and reduces the air gap.
  - Turning the fixing screws counter-clockwise allows the brake coil housing to be moved away from the anchor plate and increases the air gap.
4. If the setting bolts (hollow screws) were adjusted as suggested in Step 2, re-secure the brake coil housing firmly against the motor's end shield by turning the setting bolts (hollow screws) clockwise, out of the brake coil housing.
5. Tighten the fixing screws to the appropriate torque.
6. Re-check and measure the air gap in multiple locations to check for appropriate spacing. Repeat the steps as needed until the desired air gap spacing is uniform and consistent all the way around the brake.



**Brake Rotor (Brake Disc) Wear Assessment:** Periodically the brake rotor or brake disc must also be checked for wear. If the brake rotors wear approaches the minimum allowed thickness, then the part should be replaced.

**Brake Pad Replacement:** When the brake pad is worn the pad should be replaced to maintain proper brake operation and ensure safety.  
 Required Tools: - Phillips head screw drivers (fan shroud removal) - External snap ring pliers (fan and brake hub removal).  
 - Large flat head screw driver or small pry bar (fan removal) - Metric T-handle wrenches and open-end wrenches.

## Procedure

1. Remove the fixing screws securing the fan cover to the motor end-shield. If the brake has a hand release, the lever arm should be removed by unscrewing it.
2. Remove the fan cover and note the position of the hand release slot if applicable.
3. Remove the snap ring holding the cooling fan and carefully remove the cooling fan, key and second snap ring.
4. If the brake is equipped with a dust boot, remove it.
5. Remove the socket head cap screws holding the brake coil to the motor end-shield.
6. Remove the brake coil, noting the hand release and power cable locations.
7. Slide the brake rotor off the brake hub which is secured to the motor shaft.
8. Clean the brake, install the new brake rotor pad and reassemble the brake in reverse order of the steps outlined.

STYLE	MOTOR	BRAKE AIR GAP SETTINGS						NOMINAL BRAKE ROTOR THICKNESS (AS NEW CONDITION)		MINIMUM BRAKE ROTOR THICKNESS (WORN CONDITION - REPLACEMENT REQUIRED!)	
		FIXING SCREW TIGHTENING TORQUE		NOMINAL AIR GAP SETTING (1)		MAXIMUM AIR GAP (2)					
		LB-FT	Nm	in	mm	in	mm	in	mm	in	mm
01/02 05/06	A, B, H, J	4.4	6	0.008	0.2	0.028	0.7	0.335	8.5	0.217	5.5
03/04 07/08	C, D, K, L	7.4	10	0.012	0.3	0.035	0.9	0.492	12.5	0.374	9.5

# MOTOR TROUBLESHOOTING FOR MOTOR OPTION G

Problem	Possible cause	Remedy
Motor does not start up	Supply cable interrupted	Check connections, correct if necessary
	Brake does not release	See Brake Problems
	Fuse blown	Replace fuse
	Motor protection has tripped	Check motor protection for correct setting, correct error if necessary. Current specification is on the nameplate.
	Motor protection does not switch, error in control	Check motor protection control, correct error if necessary.
Motor does not start or only with difficulty	Malfuction in control or in the control process	Observe the switching sequence; correct if necessary
	Motor designed for delta connection but used in star connection Motor power designed for star-star connection but only connected in star	Correct connection. Observe wiring diagram.
Motor does not start in star connection, only in delta connection	Voltage and frequency deviate markedly from setpoint, at least during switch-on	Provide better power supply system; check cross section of supply cable, replace with cable of larger cross section if necessary
	Torque not sufficient in star connection	Switch on directly if delta inrush current is not too great; otherwise use a larger motor or a special version (contact SEW)
Incorrect direction of rotation	Contact fault on star delta switch	Rectify fault
	Motor connected incorrectly	Swap over two phases of the motor supply cable
Motor hums and has high current consumption	Brake does not release	See Brake Problems
	Winding defective	Send motor to specialist workshop for repair
	Rotor rubbing	
Fuses blow or motor protection trips immediately	Short circuit in motor supply cable	Rectify short circuit
	Short circuit in motor	Send motor to specialist workshop for repair
	Supply cables connected incorrectly	Correct circuit
	Ground fault on motor	Send motor to specialist workshop for repair
Severe speed loss under load	Motor overload	Perform power measurement, use larger motor or reduce load if necessary
	Voltage drops	Check cross section of supply cable, replace with cable of larger cross section if necessary
Motor heats up excessively (measure temperature)	Overload	Perform power measurement, reduce load if necessary. Check for mechanical wear or blockage
	Inadequate cooling	Correct cooling air supply or clear cooling air passages, retrofit forced cooling fan if necessary. Check air filter, clean or replace
	Ambient temperature is too high	Adhere to permitted temperature range
	Use delta connection for motor rather than star connection as provided for	Correct circuit
	Loose contact in incoming cable (one phase missing)	Tighten loose contact, check connections, observe wiring diagram
	Fuse blown	Look for and rectify cause (see above); replace fuse
	Supply voltage deviates from rated motor voltage by more than 5% (range A) / 10% (range B)	Adjust the operating mode of the motor to the required operating conditions; consult a professional to determine the correct drive
	Operating mode (S1 to S10, DIN 57530) exceeded, e.g. caused by excessive switching frequency	Adjust rated operation mode of motor to required operating conditions; if necessary call in a specialist to determine correct drive
Excessively loud	Ball bearing compressed, contaminated or damaged	Re-align motor and the driven machine, inspect rolling bearing and replace if necessary
	Vibration of rotating parts	Rectify cause, possibly imbalance, observe method for balancing
	Foreign bodies in cooling air ducts	Clean the cooling air ducts



## **BRAKE TROUBLESHOOTING FOR MOTOR OPTION G**

<b>Problem</b>	<b>Possible cause</b>	<b>Remedy</b>
Brake does not release	Incorrect voltage on brake control unit	Apply correct voltage; brake voltage specified on the nameplate
	Brake control unit failed	Install a new control system, check resistors and isolation of the brake coils. Check switchgear, replace if necessary
	Maximum permitted working air gap exceeded because brake lining worn down	Measure and set working air gap. If brake disk is too thin, replace the brake disk
	Voltage drop along connecting harness > 10%	Provide for correct connection voltage; brake voltage specifications on the nameplate. Check cable cross section; increase cross section if necessary
	Inadequate cooling, brake overheats	Provide for cooling air supply or clear cooling air passages, check air filter, clean or replace if necessary. Replace type BG brake rectifier with type BGE
	Brake coil has interturn fault or short circuit to frame	Check resistors and isolation of the brake coils; Replace complete brake and brake control (specialist workshop), check switchgear, replace if necessary
	Rectifier defective	Replace the rectifier and brake coil; it may be more economical to replace the complete brake
Brake does not brake	Working air gap not correct	Measure and set working air gap. If the brake disk is too thin, replace the brake disk.
	Brake lining worn down	Replace entire brake disk
	Working air gap so large that setting nuts for the manual brake release come into contact	Set the working air gap
	Brake locked by manual brake release HF	Loosen the set screw, remove if needed.
Noise in the brake area	Gearing wear on the brake disk of the driver caused by jerky startup	Replace the brake disk if necessary. Have a specialist workshop replace the driver
	Alternating torques due to incorrectly set frequency inverter	Check correct setting of frequency inverter according to operating instructions, correct if necessary

# PARTS REPLACEMENT ~ NON-MOTOR END

BEARING SEAL ASSEMBLY KIT INCLUDES TAPERED ROLLER BEARING, BEARING BLOCK SEALS, AND BALL BEARING.

## TO REPLACE BALL BEARING

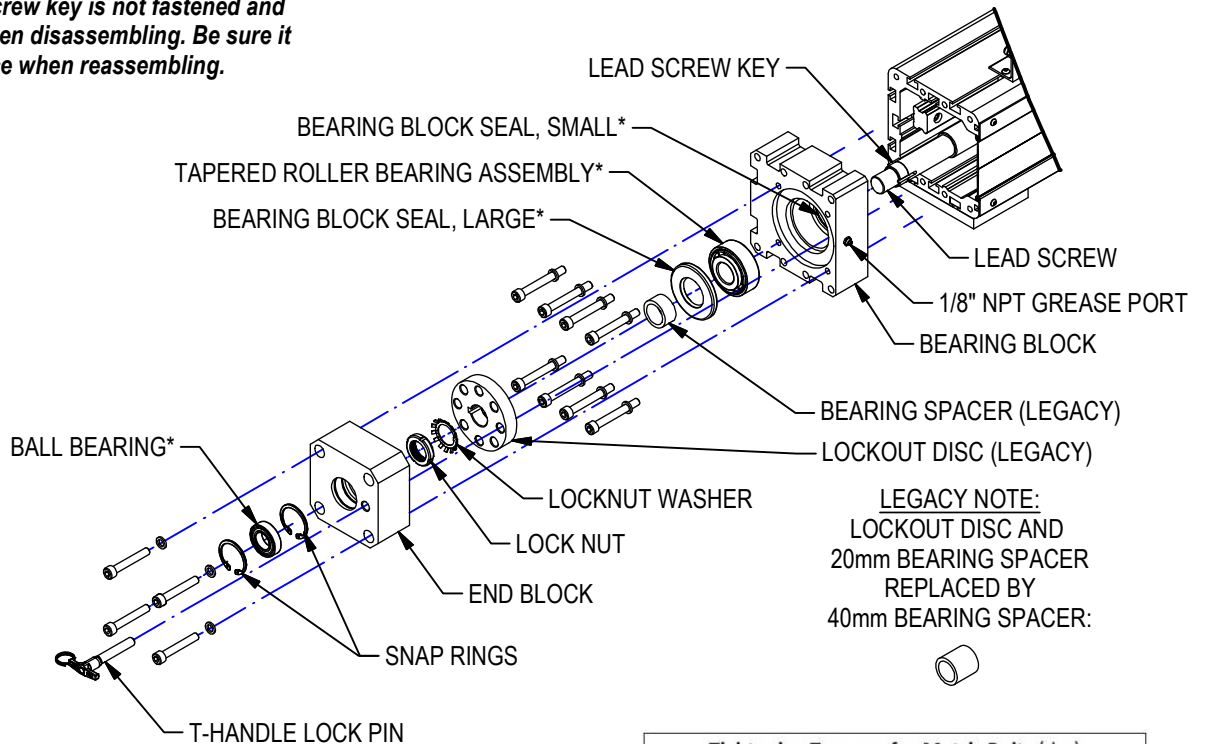
1. Position slide so that carriage is at the non-motor end. This will help support lead screw. Be sure tooling does not interfere with access to end blocks.
2. Turn off all power to unit.
3. Remove lockout pin, if present.
4. Remove end block fasteners & lock washers. Remove end block noting orientation.
5. Disengage ball bearing from end block via snap ring. Install new bearing. Replace snap ring.

## TO REPLACE TAPERED ROLLER BEARING ASSEMBLY

6. Follow steps 1-4 above.
7. Remove lock nut and lock washer from lead screw. Remove lockout disc if present. Remove bearing spacer.
8. Remove bearing block fasteners & lock washers. Remove bearing block.
9. Remove seals from both sides of bearing block.
10. Remove tapered roller bearing (cone), noting angle of cone. Remove press-fit "cup" bearing. Clean bearing block.
11. Install new press-fit cup bearing and tapered roller bearing. Pack grease into bearing\*\*. Install new seals.
12. Reassemble unit. Apply grease to bearing block cavity via 1/8" NPT port on bearing block, filling cavity approx 40%. Do not overfill.

\*\*Recommended lubricant: Mobil XHP222 Lithium Complex

**NOTE: Lead screw key is not fastened and may fall out when disassembling. Be sure it is in place when reassembling.**



\*INCLUDED IN BEARING SEAL ASSEMBLY KIT

Tightening Torques for Metric Bolts (dry)				
Size	Steel		Aluminum	
M5	10.0 Nm	7.4 ft lb.	5.0 Nm	3.7 ft lb.
M6	19.0 Nm	14.0 ft lb.	9.5 Nm	7.0 ft lb.
M8	45.0 Nm	33.2 ft lb.	22.5 Nm	16.6 ft lb.
M10	89.0 Nm	65.6 ft lb.	44.5 Nm	32.8 ft lb.
M12	156.0 Nm	115.1 ft lb.	78.0 Nm	57.5 ft lb.

# PARTS REPLACEMENT ~ MOTOR END

BEARING SEAL ASSEMBLY KIT INCLUDES TAPERED ROLLER BEARING, BEARING BLOCK SEALS, AND BALL BEARING.

## TO REPLACE BALL BEARING

1. Position slide so that carriage is in retracted position, at motor end. This will help support lead screw.  
Be sure tooling does not interfere with access to end blocks.
2. Turn off all power to unit.
3. Remove fasteners & lock washers securing motor to motor mount.
4. Remove motor mount fasteners & lock washers. Remove motor mount.
5. Remove motor plate fasteners & lock washers. Remove motor plate noting orientation.
6. Disengage ball bearing from motor plate via snap ring. Install new bearing. Replace snap ring.

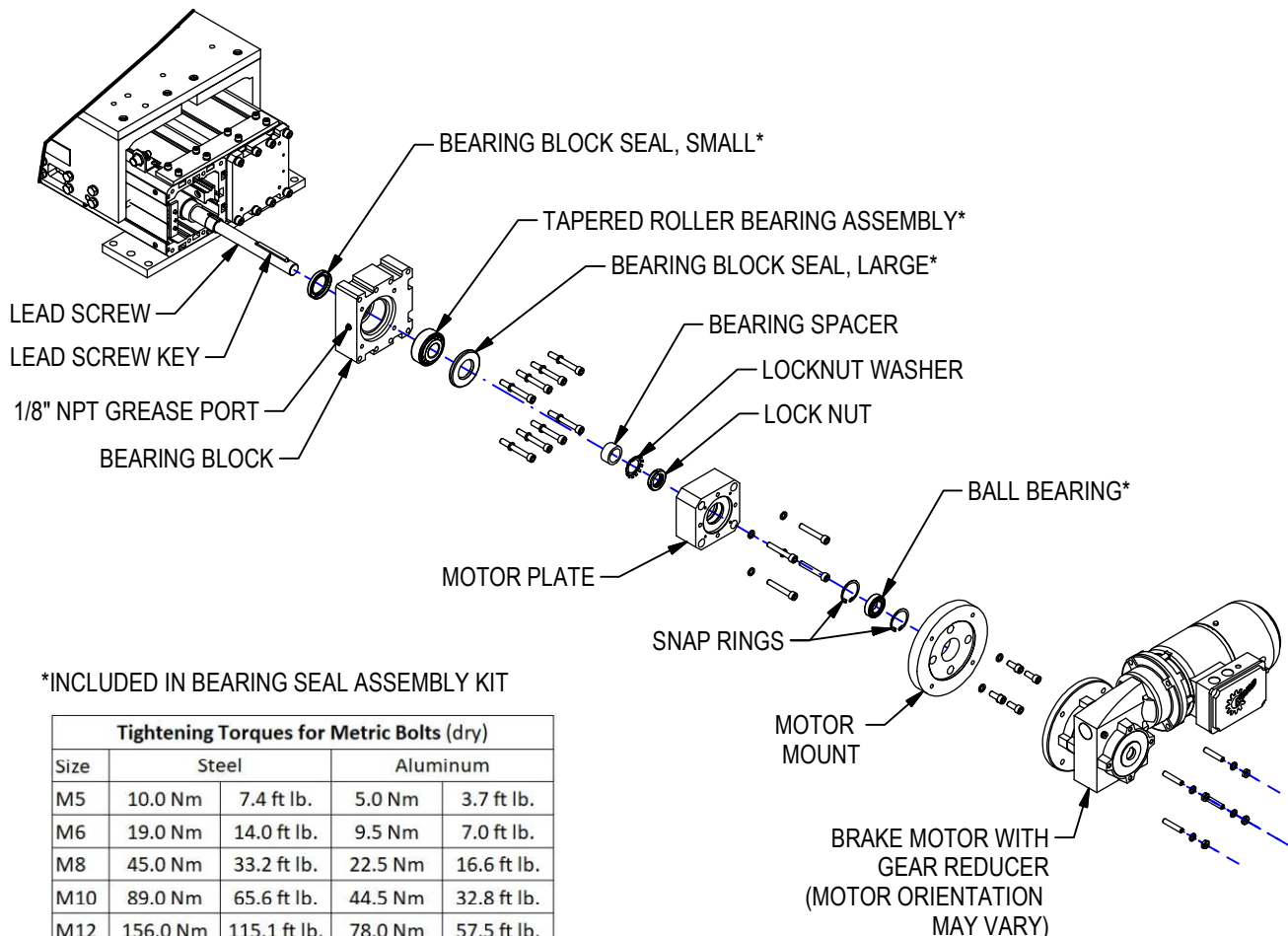
## TO REPLACE TAPERED ROLLER BEARING ASSEMBLY

7. Follow steps 1-5 above. Remove motor plate fasteners & lock washers. Remove motor plate.
8. Remove lock nut and lock washer from lead screw. Remove bearing spacer.
9. Remove fasteners & lock washers from bearing block. Remove bearing block.
10. Remove seals from both sides of bearing block.
11. Remove tapered roller bearing (cone), noting angle of cone. Remove press-fit "cup" bearing. Clean bearing block.
12. Liberally apply Mobil XHP 222 grease to new tapered roller bearing.
13. Install new press-fit cup bearing and tapered roller bearing. Pack grease into bearing\*\*. Install new seals.
14. Reassemble unit. Apply grease to bearing block cavity via 1/8" NPT port on bearing block, filling cavity approx 40%. Do not overfill.

\*\*Recommended lubricant: Mobil XHP222 Lithium Complex

## NOTES:

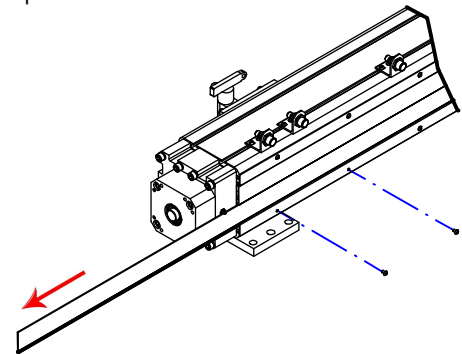
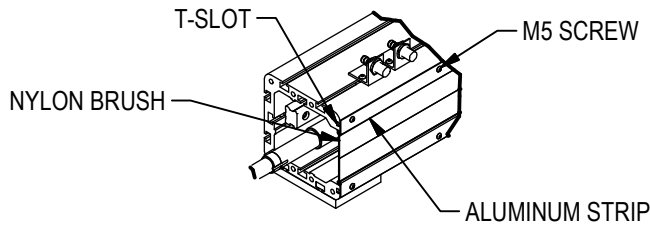
- A. Lead screw key is not fastened and may fall out when disassembling. Be sure it is in place when reassembling.



# PARTS REPLACEMENT ~ NYLON BRUSH

## TO REPLACE NYLON BRUSH

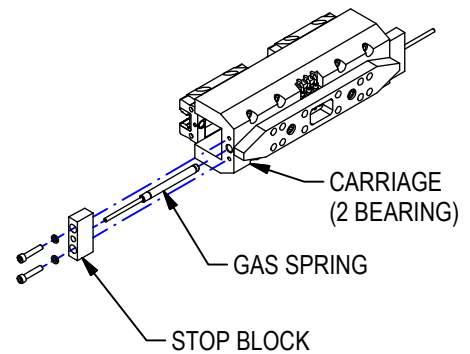
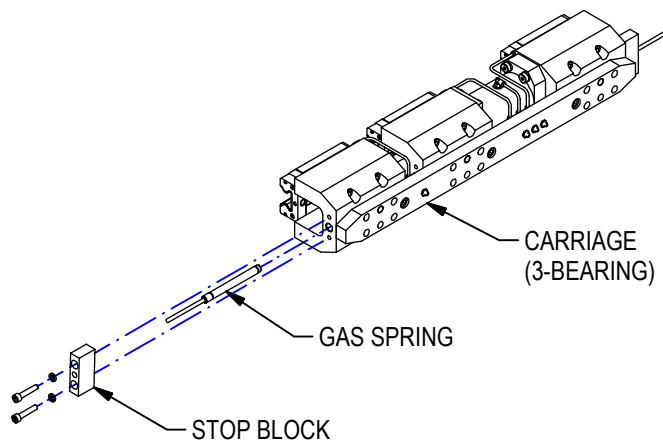
1. Turn off power to unit. Lock out unit.
2. Remove two end screws securing aluminum strip to unit. Gently pull end of aluminum strip 1/4" away from unit, slide out nylon brush.
3. Install new nylon brush.
4. Align nuts in extrusion slot to holes of aluminum strip. Secure with M5 screws. Be sure strip is tight against inner edge of extrusion.



# PARTS REPLACEMENT ~ GAS SPRING

## TO REPLACE GAS SPRING

1. Locate carriage in center of unit. Turn off power to unit. Lock out unit.
2. Gas springs are located on either side of carriage. Carriage construction may differ.
3. Remove screws and lock washers from stop block as shown.
4. Replace gas spring. Secure stop block. Tighten screws to proper torque.



Tightening Torques for Metric Bolts (dry)				
Size	Steel		Aluminum	
M5	10.0 Nm	7.4 ft lb.	5.0 Nm	3.7 ft lb.
M6	19.0 Nm	14.0 ft lb.	9.5 Nm	7.0 ft lb.
M8	45.0 Nm	33.2 ft lb.	22.5 Nm	16.6 ft lb.
M10	89.0 Nm	65.6 ft lb.	44.5 Nm	32.8 ft lb.
M12	156.0 Nm	115.1 ft lb.	78.0 Nm	57.5 ft lb.

# LUBRICATION SCHEDULE

**Lubrication is required for rail bearings, lead screw and tapered roller bearings!**

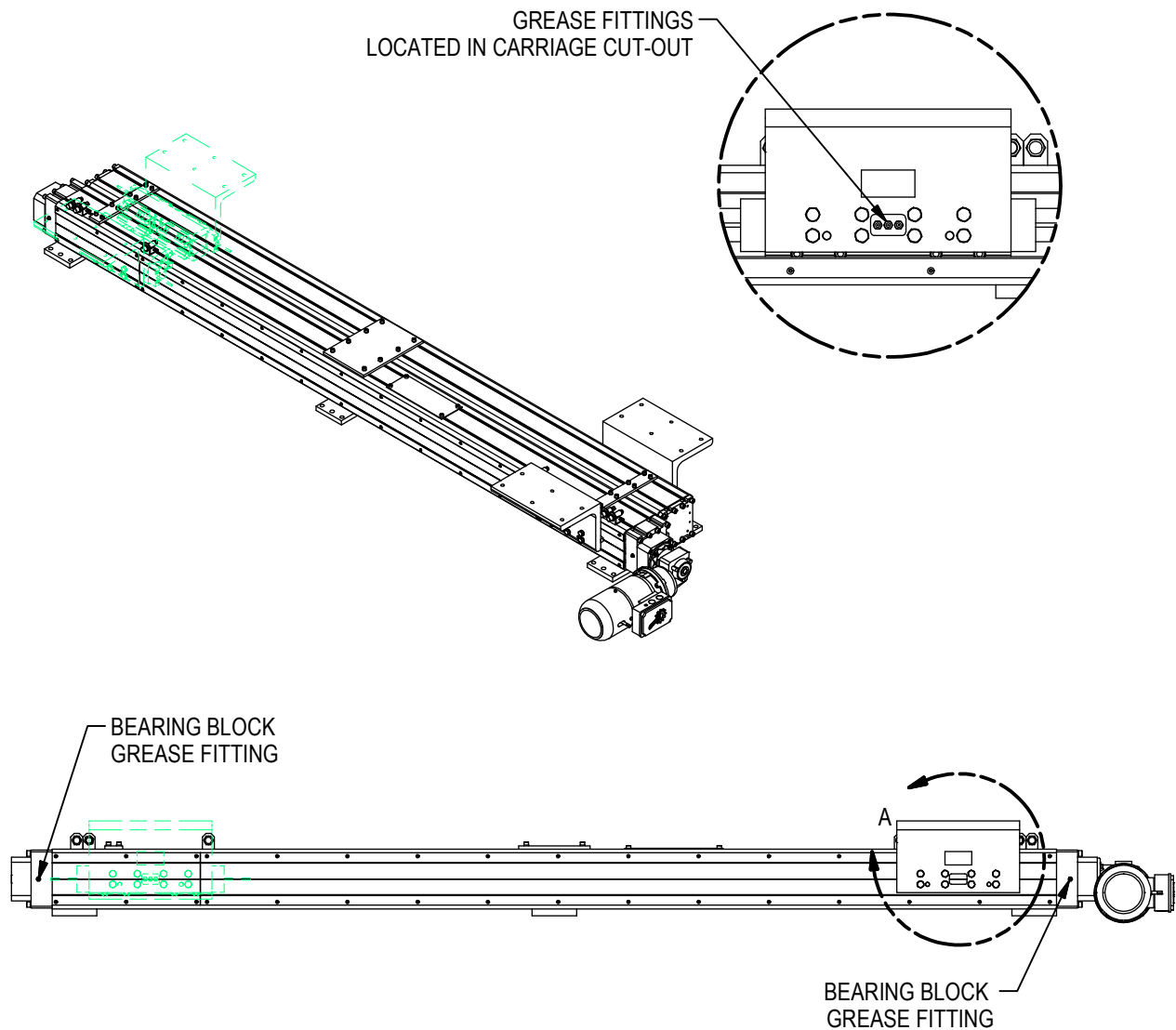
A lube bulkhead is provided on the side of the carriage with multiple grease fittings that feed rail(s) and lead screw nut. Grease fittings are provided on bearing blocks for tapered roller bearing lubrication. Recommended lubricant: MOBIL XHP222 LITHIUM COMPLEX

## LUBRICATION INTERVALS:

Rail bearings: 3.4 CC applied every 10,000 km of travel or 6 months\*

Tapered roller bearings: 2.6 CC applied every 6 months

\* Lubrication should be applied throughout the stroke distance and not injected in a single dose while stationary: fill 1/4 of the amount, stroke 1/4 of distance, repeat.

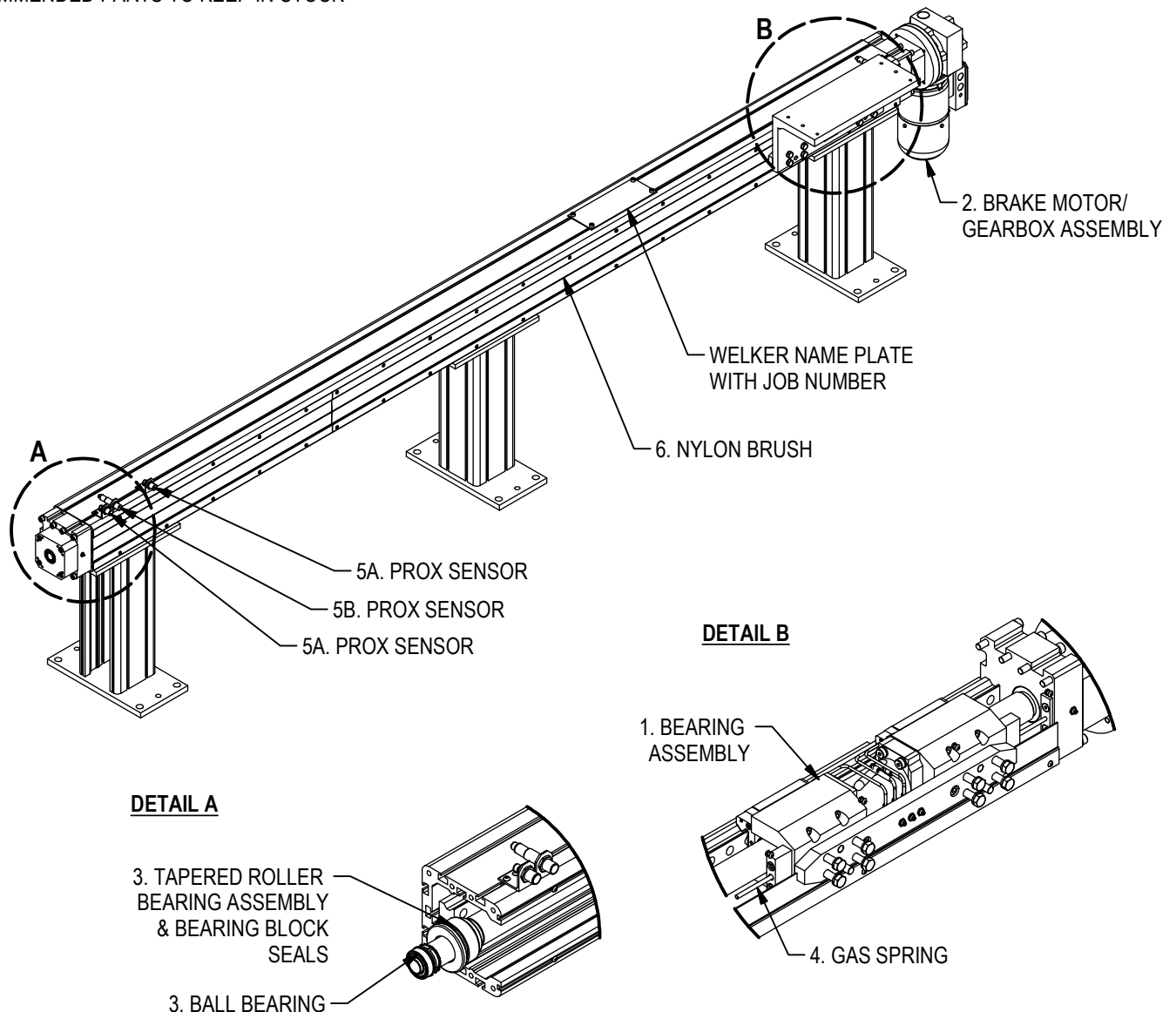


# REPLACEMENT PARTS: SINGLE EXTRUSION STYLES 01/02

**NOTE A:** When replacement parts, please have the unit's Welker Job Number available - located on the unit's name plate. When ordering motors, have the motor model & serial number available.

ITEM	QTY	STOCK*	DESCRIPTION	PART NUMBER
1	1		RAIL/BEARING ASSEMBLY (RAIL, BEARING BLOCKS AND LEAD/BALL SCREW NUT)	AES-RBA-JOB NUMBER
2	1	1	BRAKE MOTOR/GEARBOX ASSEMBLY	AES-GMA-JOB NUMBER
3	1	1	BEARING SEAL ASSEMBLY KIT FOR SINGLE EXTRUSION: TAPERED ROLLER BEARING (2), BEARING BLOCK SEALS (4), BALL BEARING (2)	AES-BSA
4	2	1	GAS SPRING	R12-80-BK-90 BAR
5A	4	2	PROX SENSOR: MOTOR OPTION A, B, H, J	IGC207
5B	2	1	PROX SENSOR: MOTOR OPTION A, B, H, J	IG5539
5A	4	2	PROX SENSOR: MOTOR OPTION G (GM)	NBB8-18GM50-E3-V1-M
5B	2	1	PROX SENSOR: MOTOR OPTION G (GM)	NBB5-18GM60-A2-V1
6	2	1	NYLON BRUSH: 1 X LENGTH (LONGER EXTRUSIONS WILL BE IN 2 SECTIONS)	AESE28-JOB NUMBER
7	1	1	T HANDLE LOCK PIN (LEGACY)	SP12Y065T00000

\*RECOMMENDED PARTS TO KEEP IN STOCK

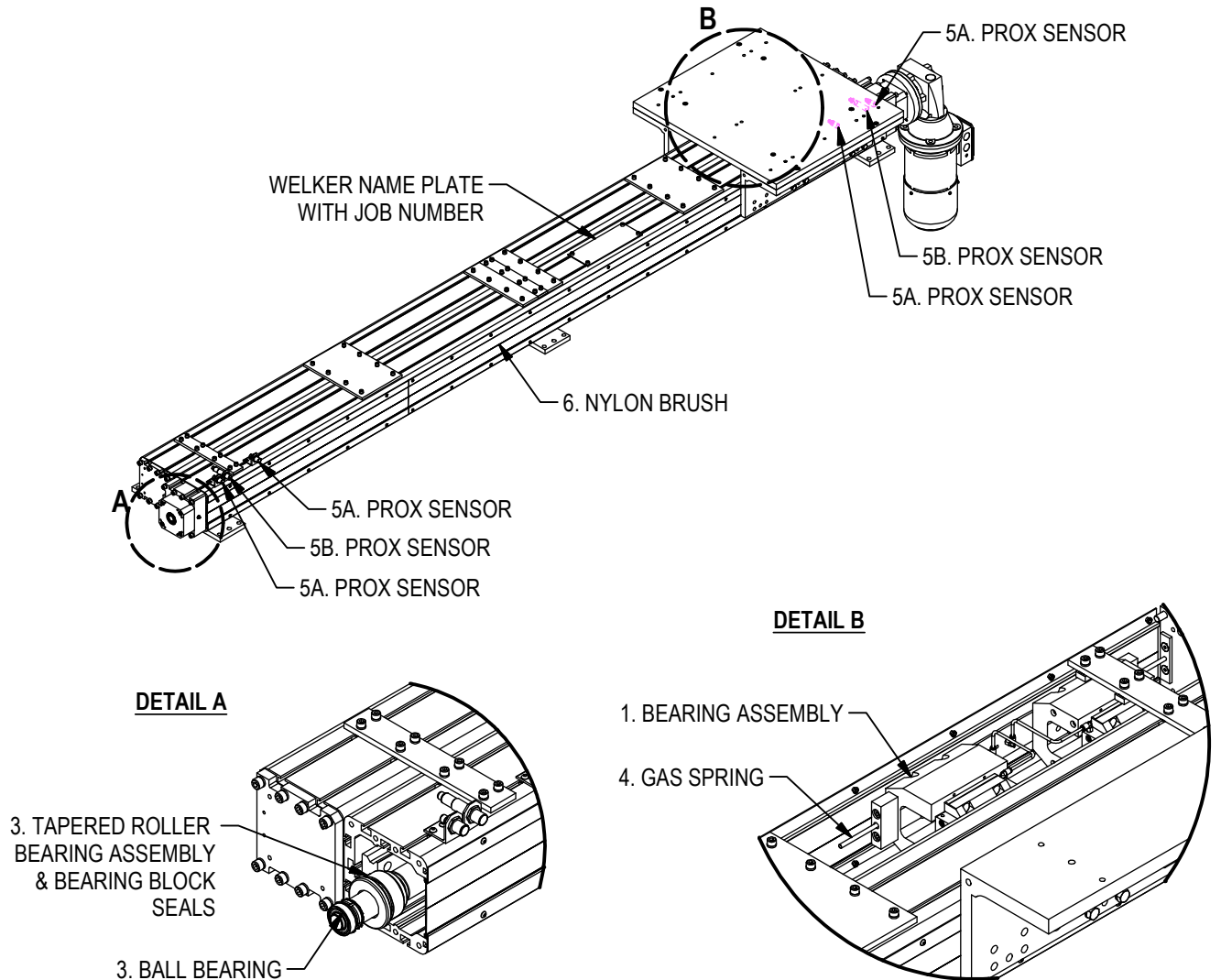


# REPLACEMENT PARTS: DOUBLE EXTRUSION STYLES 03/04

**NOTE A:** When replacement parts, please have the unit's Welker Job Number available - located on the unit's name plate. When ordering motors, have the motor model & serial number available.

ITEM	QTY	STOCK*	DESCRIPTION	PART NUMBER
1A	1		RAIL/BEARING ASSEMBLY (RAIL, BEARING BLOCKS, LEAD/BALL SCREW NUT)	AES-RBA-JOB NUMBER
1B	1		RAIL/BEARING ASSEMBLY FOR NON-MOTOR SIDE (RAIL & BEARING BLOCKS)	AES-RBAS-JOB NUMBER
2	1	1	BRAKE MOTOR/GEARBOX ASSEMBLY	AES-GMA-JOB NUMBER
3	2	1	BEARING SEAL ASSEMBLY KIT FOR SINGLE EXTRUSION: TAPERED ROLLER BEARING (2), BEARING BLOCK SEALS (4), BALL BEARING (2)	AES-BSA
4	4	1	GAS SPRING	R12-80-BK-90 BAR
5A	4	2	PROX SENSOR: MOTOR OPTION C, D, K, L	IGC207
5B	2	1	PROX SENSOR: MOTOR OPTION C, D, K, L	IG5539
5A	4	2	PROX SENSOR: MOTOR OPTION G (GM)	NBB8-18GM50-E3-V1-M
5B	2	1	PROX SENSOR: MOTOR OPTION G (GM)	NBB5-18GM60-A2-V1
6	4	1	NYLON BRUSH: 1 X LENGTH (LONGER EXTRUSIONS WILL BE IN 2 SECTIONS)	AESE28-JOB NUMBER
7	1	1	T HANDLE LOCK PIN (LEGACY)	SP12Y065T00000

\*RECOMMENDED PARTS TO KEEP IN STOCK

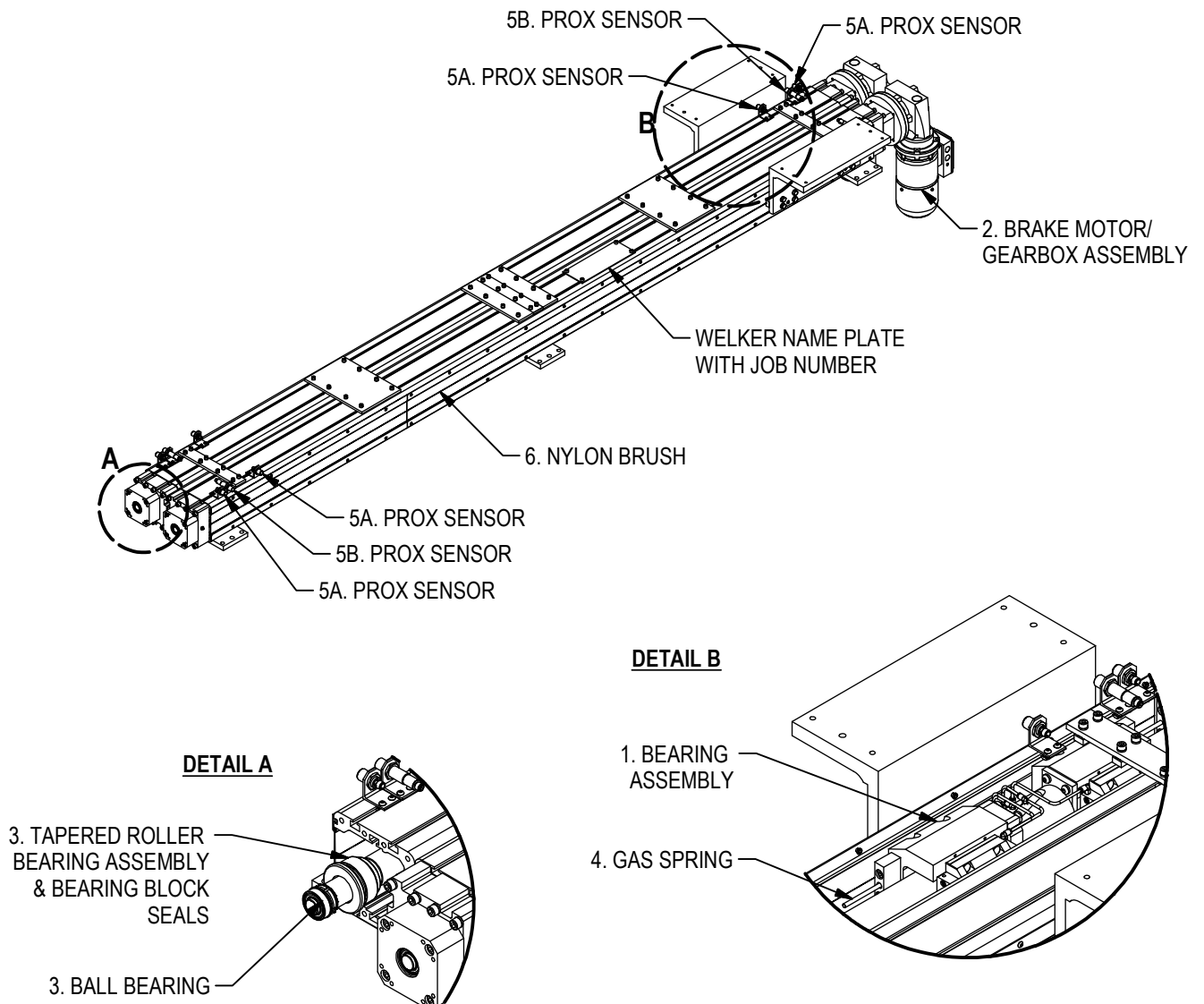


# REPLACEMENT PARTS: DOUBLE INDEPENDENT STYLES 05/06

**NOTE A:** When replacement parts, please have the unit's Welker Job Number available - located on the unit's name plate. When ordering motors, have the motor model & serial number available.

ITEM	QTY	STOCK*	DESCRIPTION	PART NUMBER
1	2		RAIL/BEARING ASSEMBLY (RAIL, BEARING BLOCKS, LEAD/BALL SCREW NUT)	AES-RBA-JOB NUMBER
2	2	1	BRAKE MOTOR/GEARBOX ASSEMBLY	AES-GMA-JOB NUMBER
3	2	1	BEARING SEAL ASSEMBLY KIT FOR SINGLE EXTRUSION: TAPERED ROLLER BEARING (2), BEARING BLOCK SEALS (4), BALL BEARING (2)	AES-BSA
4	4	1	GAS SPRING	R12-80-BK-90 BAR
5A	8	2	PROX SENSOR: MOTOR OPTION A, B, H, J	IGC207
5B	4	1	PROX SENSOR: MOTOR OPTION A, B, H, J	IG5539
5A	8	2	PROX SENSOR: MOTOR OPTION G (GM)	NBB8-18GM50-E3-V1-M
5B	4	1	PROX SENSOR: MOTOR OPTION G (GM)	NBB5-18GM60-A2-V1
6	4	1	NYLON BRUSH: 1 X LENGTH (LONGER EXTRUSIONS WILL BE IN 2 SECTIONS)	AESE28-JOB NUMBER
7	2	1	T HANDLE LOCK PIN (LEGACY)	SP12Y065T00000

\*RECOMMENDED PARTS TO KEEP IN STOCK



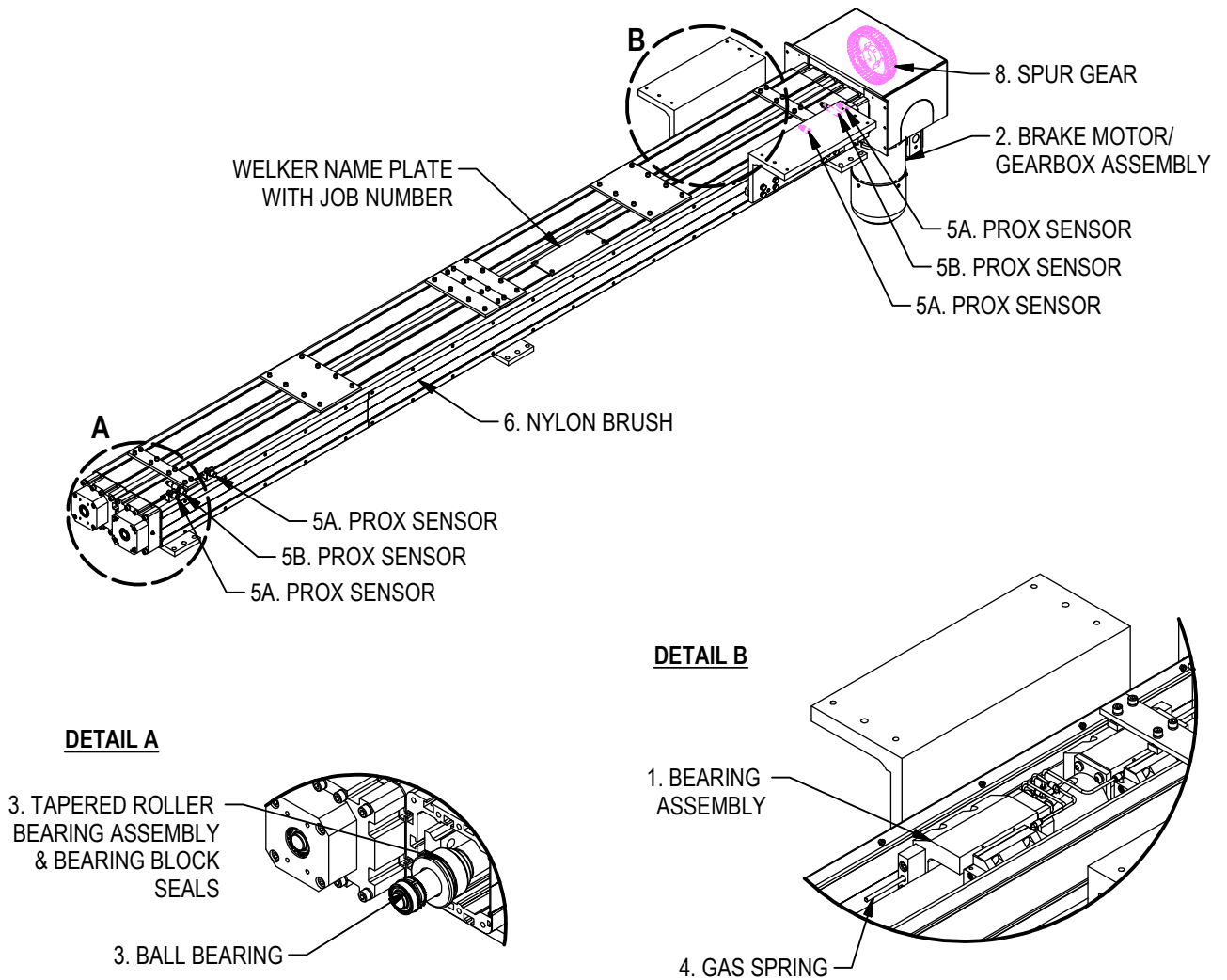


# REPLACEMENT PARTS: PUSH/PULL STYLES 07/08

**NOTE A:** When replacement parts, please have the unit's Welker Job Number available - located on the unit's name plate. When ordering motors, have the motor model & serial number available.

ITEM	QTY	STOCK*	DESCRIPTION	PART NUMBER
1	2		RAIL/BEARING ASSEMBLY (RAIL, BEARING BLOCKS, LEAD/BALL SCREW NUT)	AES-RBA-JOB NUMBER
2	1	1	BRAKE MOTOR/GEARBOX ASSEMBLY	AES-GMA-JOB NUMBER
3	2	1	BEARING SEAL ASSEMBLY KIT FOR SINGLE EXTRUSION: TAPERED ROLLER BEARING (2), BEARING BLOCK SEALS (4), BALL BEARING (2)	AES-BSA
4	4	1	GAS SPRING	R12-80-BK-90 BAR
5A	4	2	PROX SENSOR: MOTOR OPTION C, D, K, L	IGC207
5B	2	1	PROX SENSOR: MOTOR OPTION C, D, K, L	IG5539
5A	4	2	PROX SENSOR: MOTOR OPTION G (GM)	NBB8-18GM50-E3-V1-M
5B	2	1	PROX SENSOR: MOTOR OPTION G (GM)	NBB5-18GM60-A2-V1
6	4	1	NYLON BRUSH: 1 X LENGTH (LONGER EXTRUSIONS WILL BE IN 2 SECTIONS)	AESE28-JOB NUMBER
7	1	1	T HANDLE LOCK PIN (LEGACY)	SP12Y065T00000
8	1	1	SPUR GEAR	S01808E46

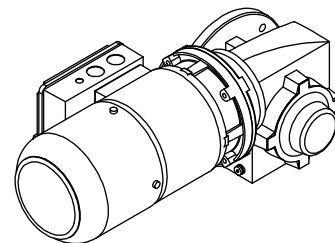
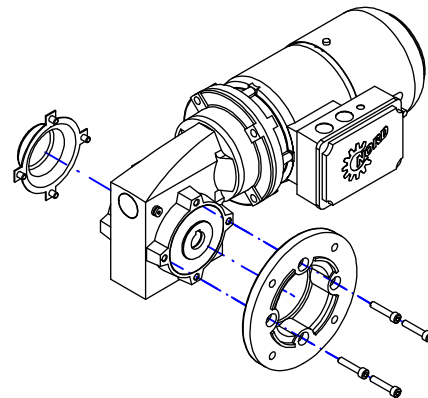
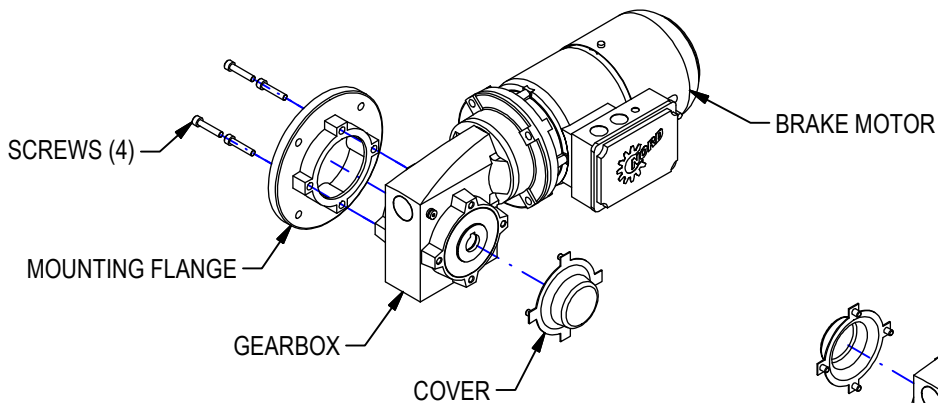
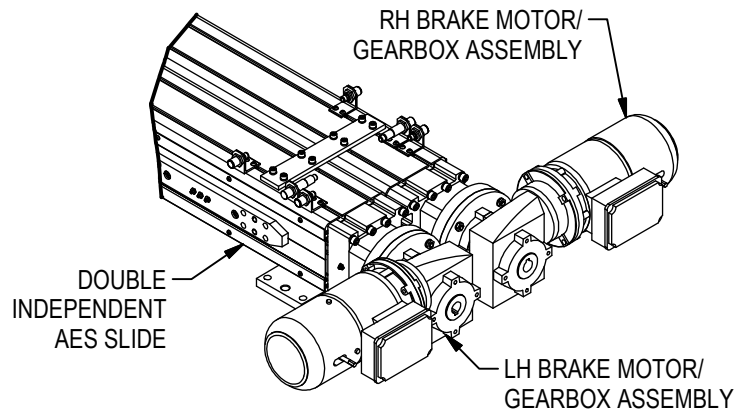
\*RECOMMENDED PARTS TO KEEP IN STOCK



# GEARBOX CONVERSION: RH TO LH, DOUBLE INDEPENDENT UNITS

REPLACEMENT BRAKE MOTOR/GEARBOX KITS ARE SHIPPED FACTORY ASSEMBLED. TO CONVERT FROM RIGHT HAND TO LEFT HAND:

1. Remove cover (press-fit into gearbox).
2. Remove screws from mounting flange.
3. Remove mounting flange.
4. Install cover to opposite side.
5. Install mounting flange to opposite side.
6. Secure with screws and removable thread adhesive.
7. Tighten to torque shown.



Tightening Torques for Metric Bolts (dry)				
Size	Steel		Aluminum	
	M5	10.0 Nm	7.4 ft lb.	5.0 Nm
M6	19.0 Nm	14.0 ft lb.	9.5 Nm	7.0 ft lb.
M8	45.0 Nm	33.2 ft lb.	22.5 Nm	16.6 ft lb.
M10	89.0 Nm	65.6 ft lb.	44.5 Nm	32.8 ft lb.
M12	156.0 Nm	115.1 ft lb.	78.0 Nm	57.5 ft lb.