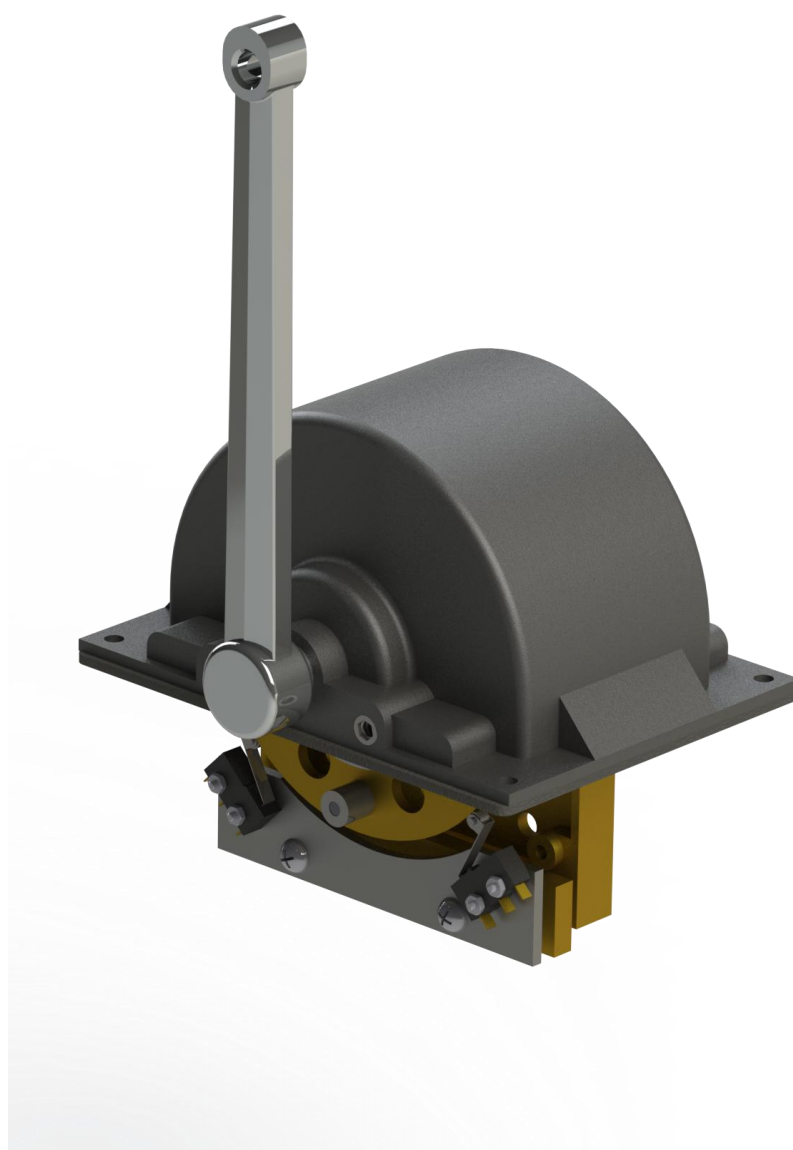


**KOBELT**

## 6523 Electronic Control Head

### *Owner's Operation, Installation & Maintenance Manual*



[illegible]

| RECORD DATA BEFORE INSTALLATION FOR FUTURE REFERENCE |  |
|------------------------------------------------------|--|
| Model #:                                             |  |
| Serial #:                                            |  |
| Date of Purchase:                                    |  |
| Date of Installation:                                |  |

---

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# 1 INTRODUCTION

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## 1.1 CONTACT

**Kobelt Manufacturing Co. Ltd.**  
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Surrey, British Columbia  
Canada, V3W 0A6

Sales Tel: +1-604-572-3935  
Fax: +1-604-590-8313  
Email: [sales@kobelt.com](mailto:sales@kobelt.com)  
Website: [www.kobelt.com](http://www.kobelt.com)

This document is intended to clearly present comprehensive product data and provide technical information to assist the end user in design applications. Kobelt reserves the right, without notice, to change the design, or construction, of any products and to discontinue or limit distribution of any products. Kobelt also reserves the right to change, or update, without notice, any technical information contained within this document.

Kobelt recommends that customers visit our website to check for updates to this Manual. Once a product has been selected for use, it should be tested by the user to ensure proper function in all possible applications. For further instructions, please contact our distributors or visit our website.

## 1.2 SAFETY

### 1.2.1 Safety Alerts

Throughout this manual, the following symbols, and their accompanying explanation, are used to alert the user to special instructions concerning a service or operation that may be hazardous if performed incorrectly or carelessly. The associated risk levels are stated below.

|                                                                                                    |                                                                                                                                       |
|----------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|
|  <b>DANGER</b>  | This symbol indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.                |
|  <b>WARNING</b> | This symbol indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.               |
|  <b>CAUTION</b> | This symbol indicates a hazardous situation, which if not avoided, could result in minor or moderate injury.                          |
| <b>NOTICE</b>                                                                                      | This symbol informs the reader of events not related to personal injury but which there is a risk of damage to property or equipment. |
| <b>SAFETY INSTRUCTIONS</b>                                                                         | This symbol informs the reader of safety-related instructions or procedures.                                                          |

### 1.2.2 Notice to Installer

Disregarding the following safety measures can result in an accident causing severe injury to personnel and damage to material assets.

- Only use the product as directed in this manual.
- Never put the product into service if there is evidence of visible damage.
- Never put the product into service before fully completing installation and commissioning.

- 
- Do not carry out any modifications to the product.
  - Only use authentic Kobelt spare parts.
  - Observe all local regulations, directives and laws during the installation of this product.
  - All installation, commissioning, and maintenance work must only be conducted by qualified personnel. (For the purpose of this manual, qualified personnel are persons who are familiar with the assembly, installation, commissioning, and operation of the product and who have the qualifications necessary for their occupation.)
  - Observe all specifications in this manual. If these guidelines are not followed and damage occurs, the warranty will be voided.

### 1.2.3 Product Hazards

|                                                                                                  |                                                                                                                                                                                                     |
|--------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  <b>WARNING</b> | <b>Equipment Starts Automatically:</b><br>Equipment may activate suddenly while servicing this product, causing bodily harm. Ensure that all power sources are locked out prior to performing work. |
|  <b>WARNING</b> | <b>Pinch Points:</b><br>The 6523 control head contains pinch points, which can cause bodily harm. Ensure that hands and fingers remain clear of the pinch points when performing work.              |

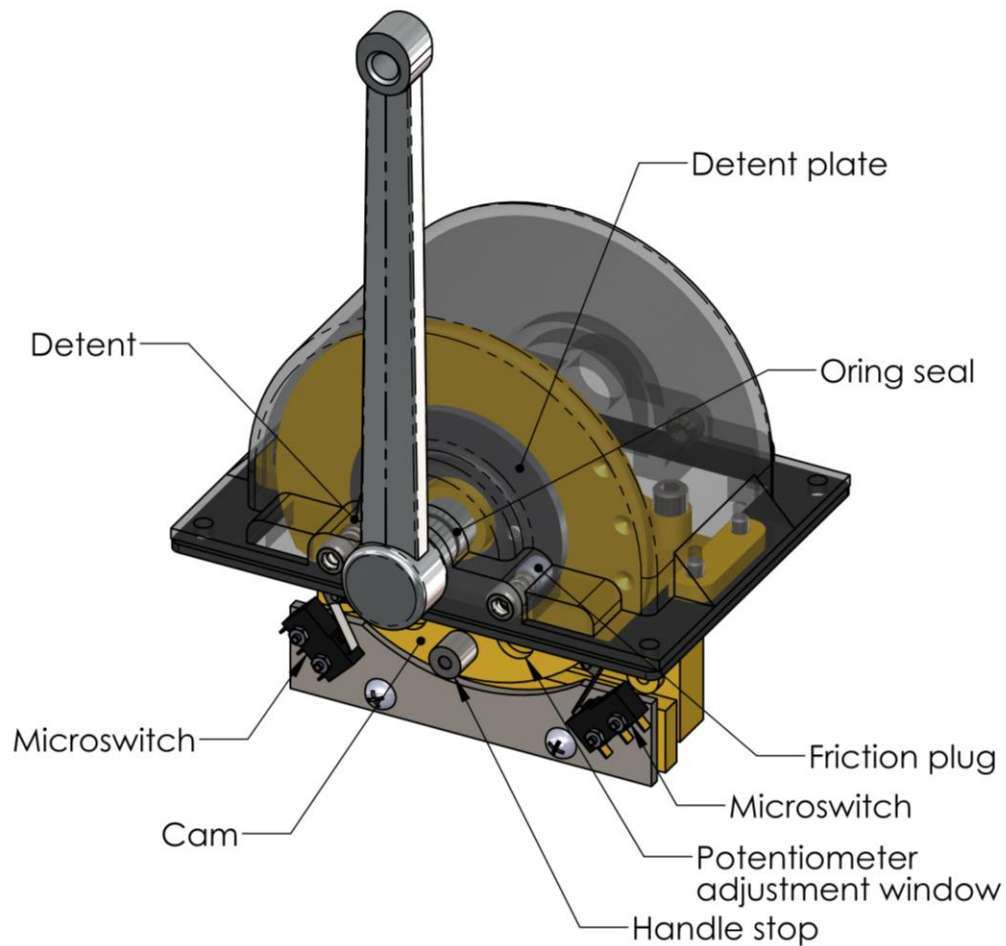
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## 2 PRODUCT DESCRIPTION

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### 2.1 OVERVIEW

The Kobelt 6523 electronic control head provides potentiometer output proportional to the handle position plus two position switches. The switches activate at plus or minus 18.5 degrees of handle movement from TDC. The handle also has three detent positions; one at TDC plus another two to correspond with the position switch trip points.



*Figure 1: Control head overview*

---

## 2.2 TECHNICAL DATA

### Handle Travel:

- Neutral: 0° detented
- Switch trip: +/- 18.5° detented
- Full travel: +/- 72°

### Switch Output:

- Current: 5 A (resistive)  
3 A (inductive)
- Rating voltage: 250 VAC
- Contacts: SPDT

Ambient Temperature: -65°F...+140°F [-54 °C... + 60 °C]

Weight: 5.4 lbs [2.5 kg]

### 6523-TM Configuration:

Rotary Sensor: Magnetic  
Electrical Angle: 340°  
Supply voltage: 5 VDC (+/-10%)

## 3 INSTALLATION

### 3.1 MECHANICAL

The control head must be mounted on a flat surface strong and stiff enough to withstand the operating forces imposed during normal use without excessive flexing. Choose a location that has sufficient room for the handle to swing to both extreme positions. Use the template at the back of this manual to make the correct cut-out on the mounting surface.

The control head is equipped with (4) four clearance holes for #10 (M5) screws or bolts inserted from underneath for direct mounting to the dash. Ensure the unit is securely fastened, preferable with an anaerobic thread locker such as Loctite 243. Before securing the screws, ensure that the potentiometer output increases towards the forward position.

### 3.2 ELECTRICAL

The 6523 control head switches and potentiometer have solder terminals. Use 18 AWG wire for external connections to an electrical junction box.

When soldering the lead wire to the terminal, first insert the lead wire conductor through the terminal hole and then solder.

Make sure that the capacity of the soldering iron is 60 W maximum. Do not take more than 5 seconds to solder the switch terminal. Improper soldering involving an excessively high temperature or excessive soldering time may deteriorate the characteristics of the switch.

Be sure to apply only the minimum required amount of flux. The switch may have contact failures if flux intrudes in the interior of the switch.

#### 3.2.1 6532-TM wiring

The rotary position sensor for 6523-TM version is terminated as depicted in Figure 4, on the right.

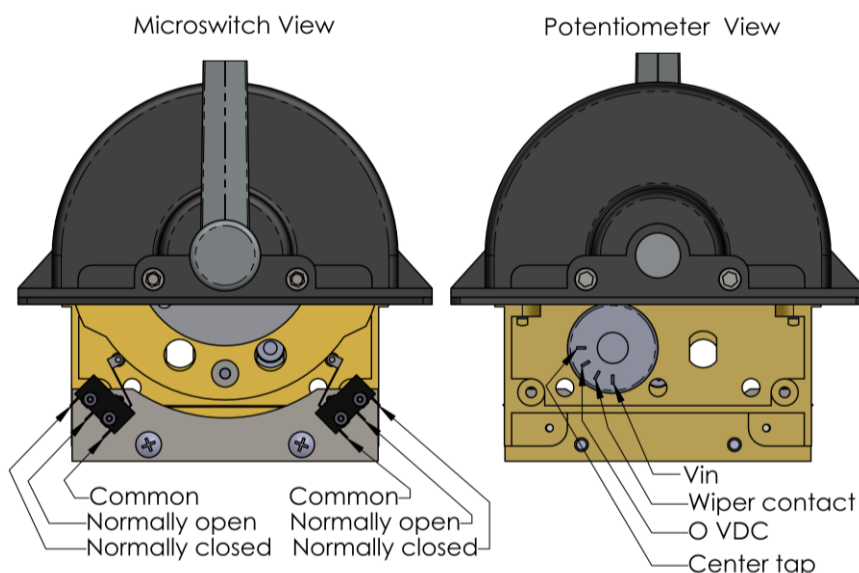


Figure 2: 6523-HD Wire Termination

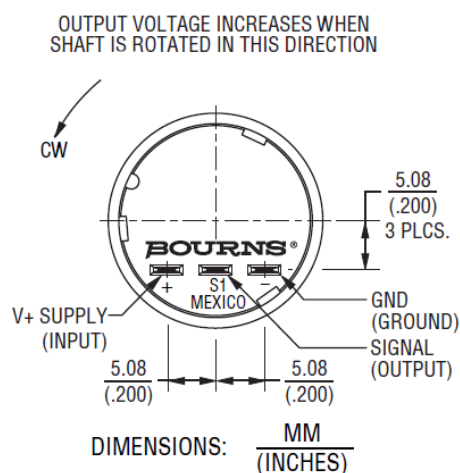


Figure 3: 6523-TM Sensor Termination

### 3.3 FUNCTIONAL TEST

After installation, test that the switches operate properly, and the potentiometer provides minimum reading at TDC. Ensure that the friction adjustment is adequate to hold the handle position at all angles. Adjust if necessary ([reference fig 1](#)).

|                                                                                                  |                                                                                                                                                                |
|--------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  <b>CAUTION</b> | Do not put the equipment into service until the control head has been tested. The Functional Test should be carried out while the equipment is safely secured. |
|--------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|

## 4 MAINTENANCE

### 4.1 PREVENTATIVE MAINTENANCE

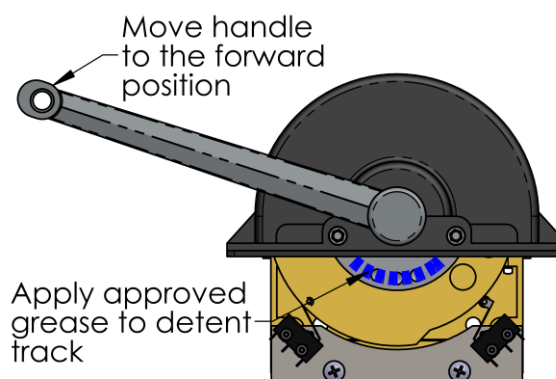
- Monthly
  - Lubricate the detent track (reference [section 4.2](#))
- Quarterly (4 times per year)
  - Ensure that the friction adjustment is adequate.
- Every 2 years
  - Inspect detent plate. Replace if necessary (reference [section 4.3](#))
  - Replace shaft seal

### 4.2 LUBRICATION

The track the detent runs along on the detent plate must be lubricated to prevent premature wear. Use a grease with MoS<sub>2</sub> additives for best results. The following greases are approved:

*Table 1: Approved Lubricants*

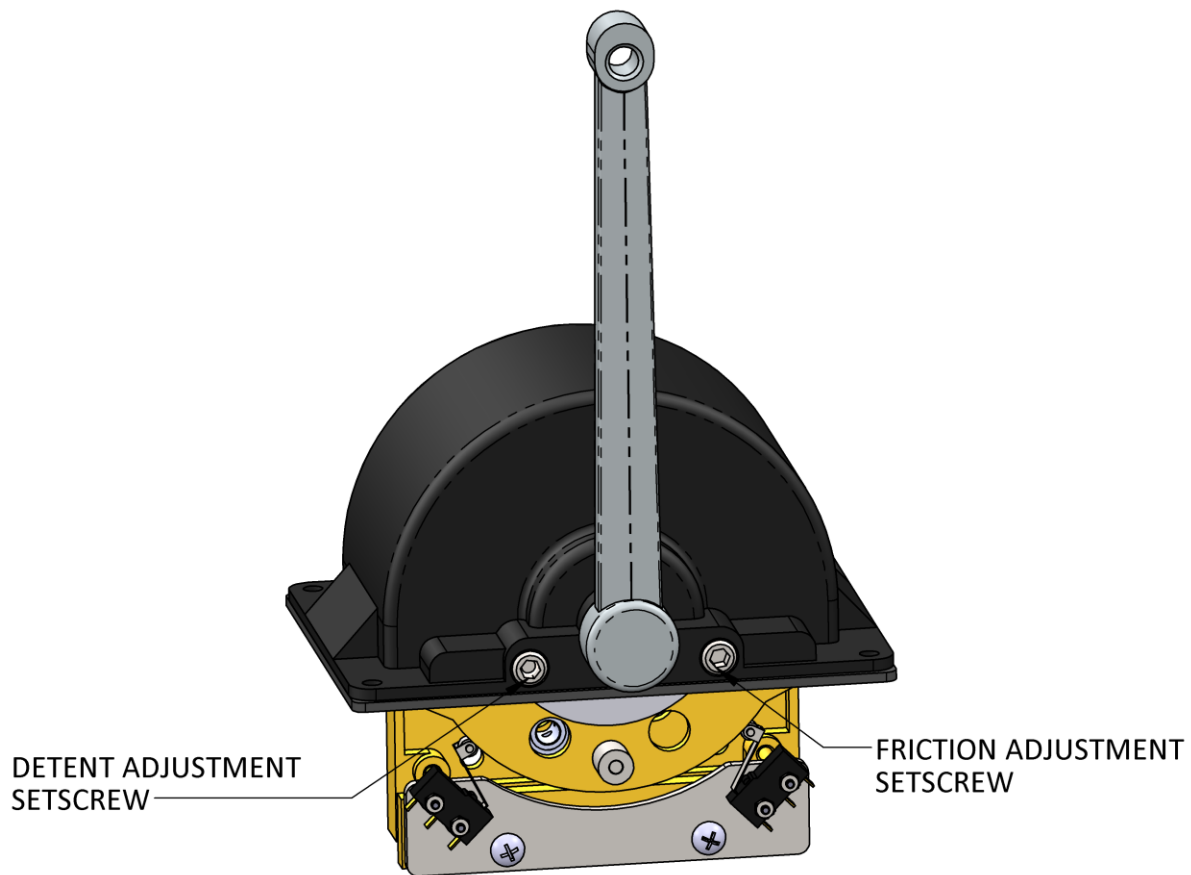
| EP Grease Brand          |
|--------------------------|
| CHEVRON DELO MOLY 5% EP2 |
| MOBIL XHP-322            |
| SHELL S3 V460            |



---

### 4.3 DETENT AND FRICTION ADJUSTMENT

Periodically, the preload on the detent and friction mechanism will need to be adjusted to compensate for wear of the moving components. Follow the directions given in section 4.3.1 to adjust the detent mechanism preload and section 4.3.2 to adjust the preload on the friction mechanism. Figure 5 identifies the location of the detent and friction mechanism adjustment set-screws.



*Figure 5: 6523 Detent/Friction adjustment overview*

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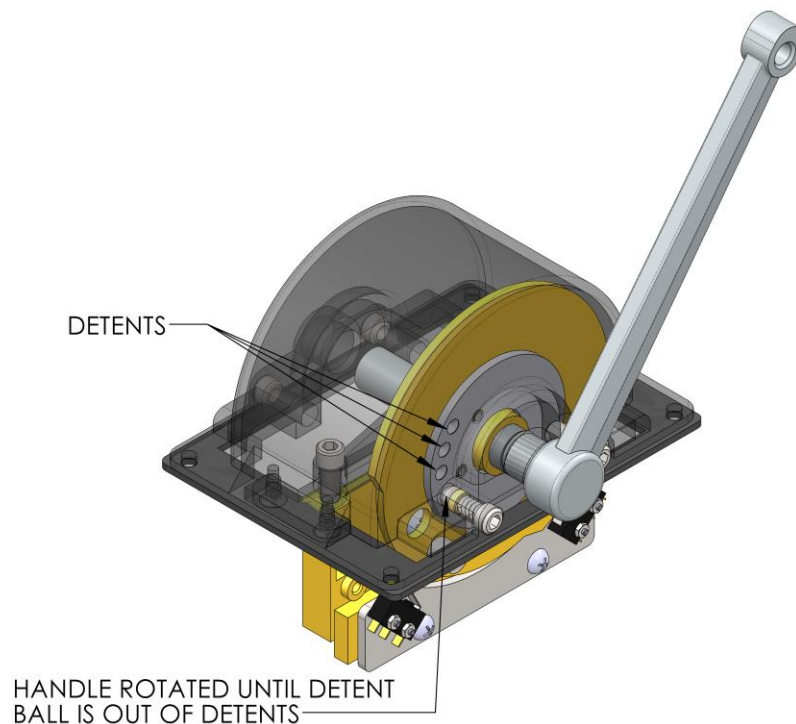
#### 4.3.1 Detent Adjustment

Follow the steps described below to properly set the preload on a 6523 control head:



Do not overtighten the detent preload setscrew.  
Follow the instruction given in section 4.3.1 to set the maximum preload on the spring.

1. Review Figure 5 for location of the detent set screw.
2. Move the control handle out of the detent position so that the detent ball is on the flat portion of the track as shown in Figure 6.



*Figure 6: Rotating the handle so detent ball is out of detent locations*

3. Tighten the detent adjustment screw until resistance is felt, indicating the detent spring is compressed to its maximum limit. This should occur approximately when the setscrew is flush with the exterior surface of the control head.
4. Back off the detent screw by turning the set screw counter-clockwise 1/4 of a turn. This is the maximum setting for the detent preload.
5. Move the control handle in and out of a detented position.
6. If desired, the preload on the detent can be reduced to provide a lighter feel on the detent release. Turn the setscrew counter-clockwise to reduce the detent preload. DO NOT increase the preload on the detent all any further than was done in step 3 & 4.

---

If the steps above have been followed and greater resistance to movement is desired on the control handle then the friction plug preload should be increased as instructed in section 4.3.2.

If the detent setscrew is periodically backing off due to machine vibrations, it is recommended to apply a thread locking product such as Loctite 243, to threads of the set screw. The thread locker should be re-applied every time the set screw is adjusted.

#### 4.3.2 Friction Adjustment

To adjust the friction setting of the control head, locate the friction adjustment setscrew shown in Figure 5. Turn the screw clockwise to increase the friction setting or counter-clockwise to decrease the setting. Adjust the setscrew until the desired friction setting is achieved.

If it is found that the friction adjustment setscrew periodically loosens, it is recommended to apply a thread locking product such as Loctite 243 to the threads of the setscrew.

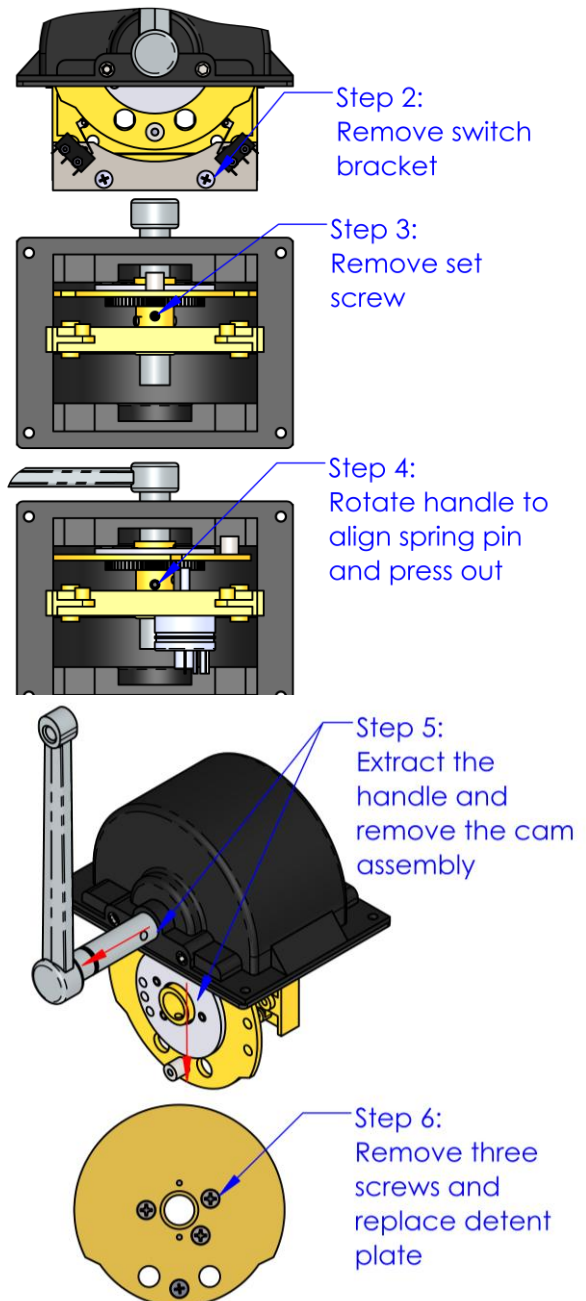
#### 4.4 DETENT PLATE REPLACEMENT

It may become necessary, over the life of this product, to replace the detent plate due to wear. Follow the procedure below to complete:

- Step 1) Remove the control head from the console.
- Step 2) Remove the switch bracket using a Phillip's head screwdriver.
- Step 3) Remove the set screw in the cam using a 3/32 Allen key.
- Step 4) Rotate the handle to align the spring pin as shown and press it out using a 3/16 inch spring pin punch.
- Step 5) Extract the handle from the cover and remove the cam assembly.
- Step 6) Remove the three screws from the cam assembly using a Phillip's head screwdriver and replace the detent plate.

#### NOTICE

Use Loctite 243 when replacing all screws.



---

#### 4.5 RECOMMENDED SPARE PARTS AND KITS

The spare parts kept on hand will depend on the severity of the service. The User should monitor the condition of their control head to predict necessary spare parts and ensure they are on hand when needed. As a minimum Kobelt recommends keeping the following parts for each brake in service:

1. One friction kit
2. One detent kit
3. One detent plate

When purchasing spare parts refer to [Appendix B](#) at the back of this manual for Kobelt component Part Numbers.

#### **NOTICE**

It is recommended that any required service work on a Kobelt unit be performed by a factory authorized service representative. Please contact the nearest Kobelt authorized distributor for assistance.

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## 5 REVISION HISTORY

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*Table 2: Revision History*

| Document<br>Revision | Release<br>Date | CO    | Author | Revision Summary                                                                                                                                                                                                                                        |
|----------------------|-----------------|-------|--------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| C                    | 2026-09-24      | 01510 | GG     | <ul style="list-style-type: none"><li>Added Section 4.3: Detent and Friction adjustment.</li><li>Changed spring part number in Bill of Materials to 1201-0003-H, was 1201-0003.</li><li>Various updates to part numbers in Bill of Materials.</li></ul> |

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## 6 WARRANTY

---

Kobel Manufacturing Co. Ltd. ("Kobel") warrants the Products and Parts manufactured by Kobel to be free from defects in workmanship or material and that said products are designed mechanically and functionally to perform to specifications.

This warranty is effective providing:

- The equipment is used within the intended operating conditions and in accordance with Kobel recommendations
- The equipment is installed according to equipment diagrams, specifications and recommendations which Kobel has provided

This warranty becomes invalid if the factory supplied serial number has been removed or altered on the product. This warranty does not cover cosmetic damage or damage caused by an act of God, accident, misuse, abuse, negligence or modification of any part of the product. This warranty does not cover damage due to improper operation or maintenance, connection to inappropriate equipment or attempted repair by anyone other than an authorized Kobel representative.

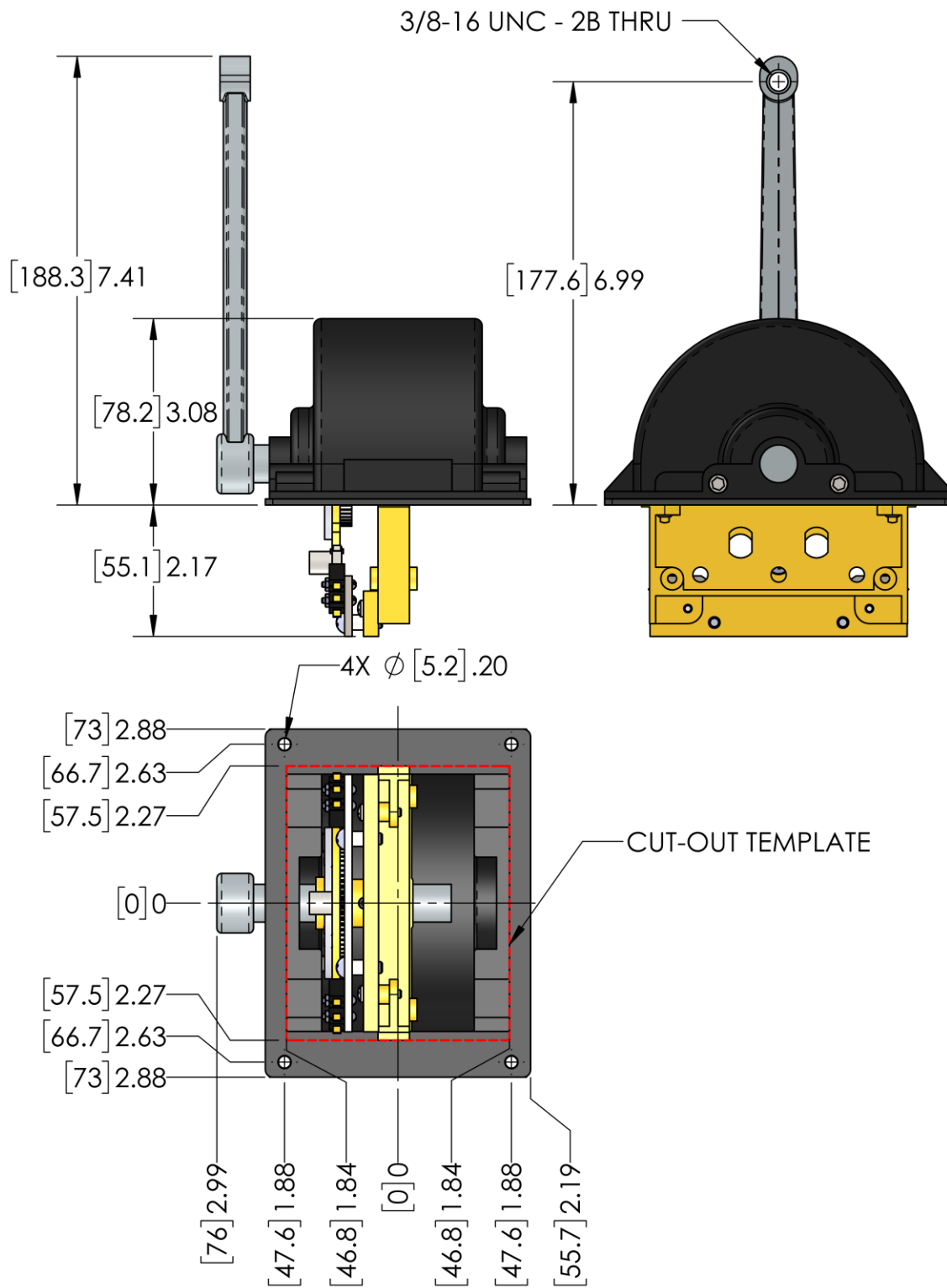
Upon identification of a potential issue or defect with a Kobel Product or Part, the Warranty Applicant ("Applicant") must immediately contact Kobel and describe the issue in writing, by letter, fax, email or other electronic conveyance. Kobel will then assess the cause of the defect and determine warranty applicability and appropriate remediation.

If any part is found to be defective, Kobel will replace said part FOB the Kobel factory provided that any such defective part is returned by the Buyer with freight and applicable forwarding charges prepaid by the Buyer. Kobel's sole obligation to the Applicant will be to repair or replace the defective part with same or similar product, to a maximum value of the list price of the product or part. The Kobel warranty does not cover labour charges, travel or any other associated expenses.

All Products and Parts manufactured by Kobel, are subject to a warranty against manufacturer's defects in materials or workmanship for a period of two (2) years from the date of purchase.

Kobel will be responsible for all Products or Parts sold by Kobel but manufactured by 3<sup>rd</sup> party manufacturing companies. However, these products and parts are subject to applicable 3<sup>rd</sup> party warranties and may not be the same as the Kobel warranty.

## 7 APPENDIX A: INSTALLATION DIMENSIONS

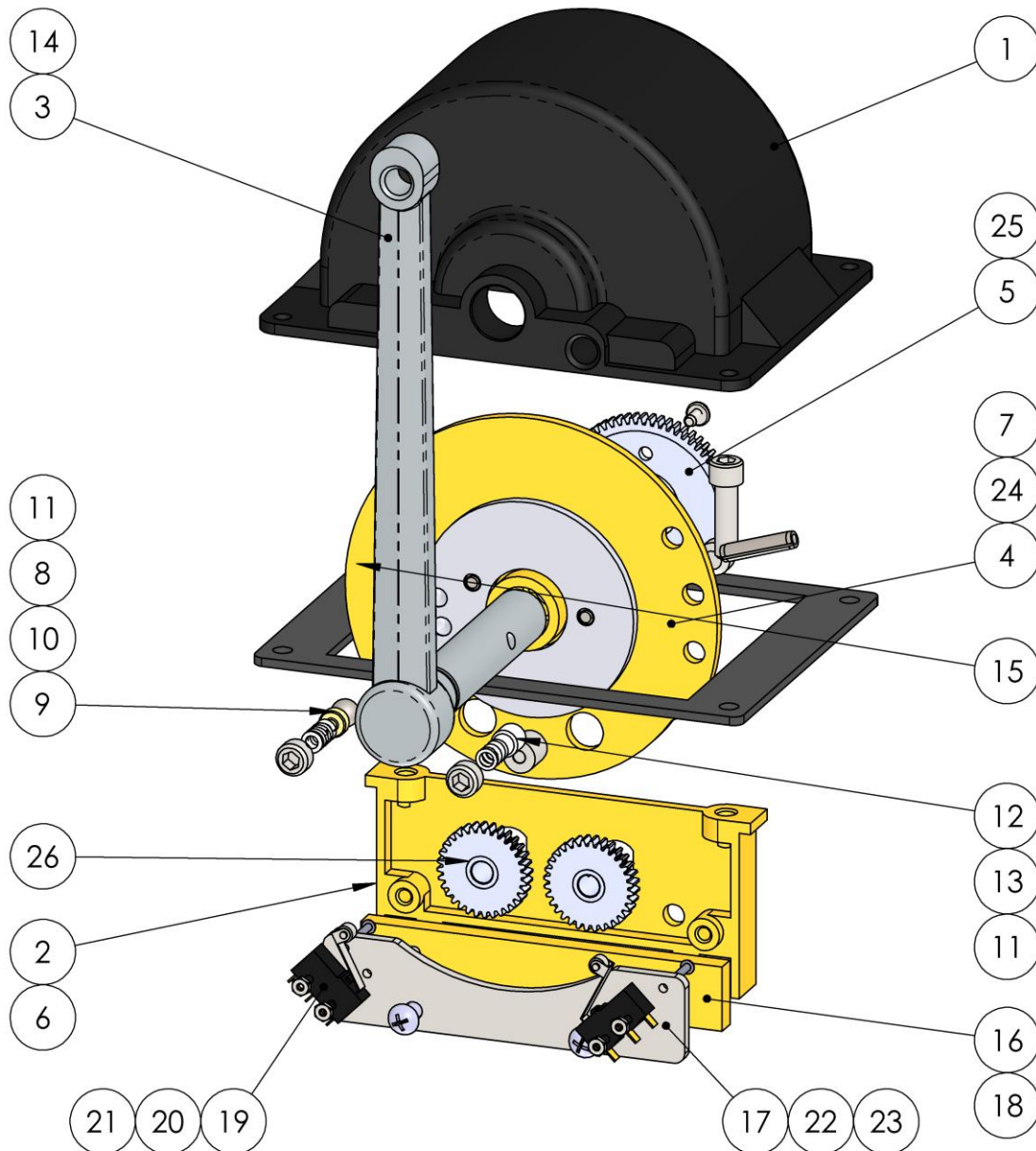


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## 8 APPENDIX B: PARTS LIST

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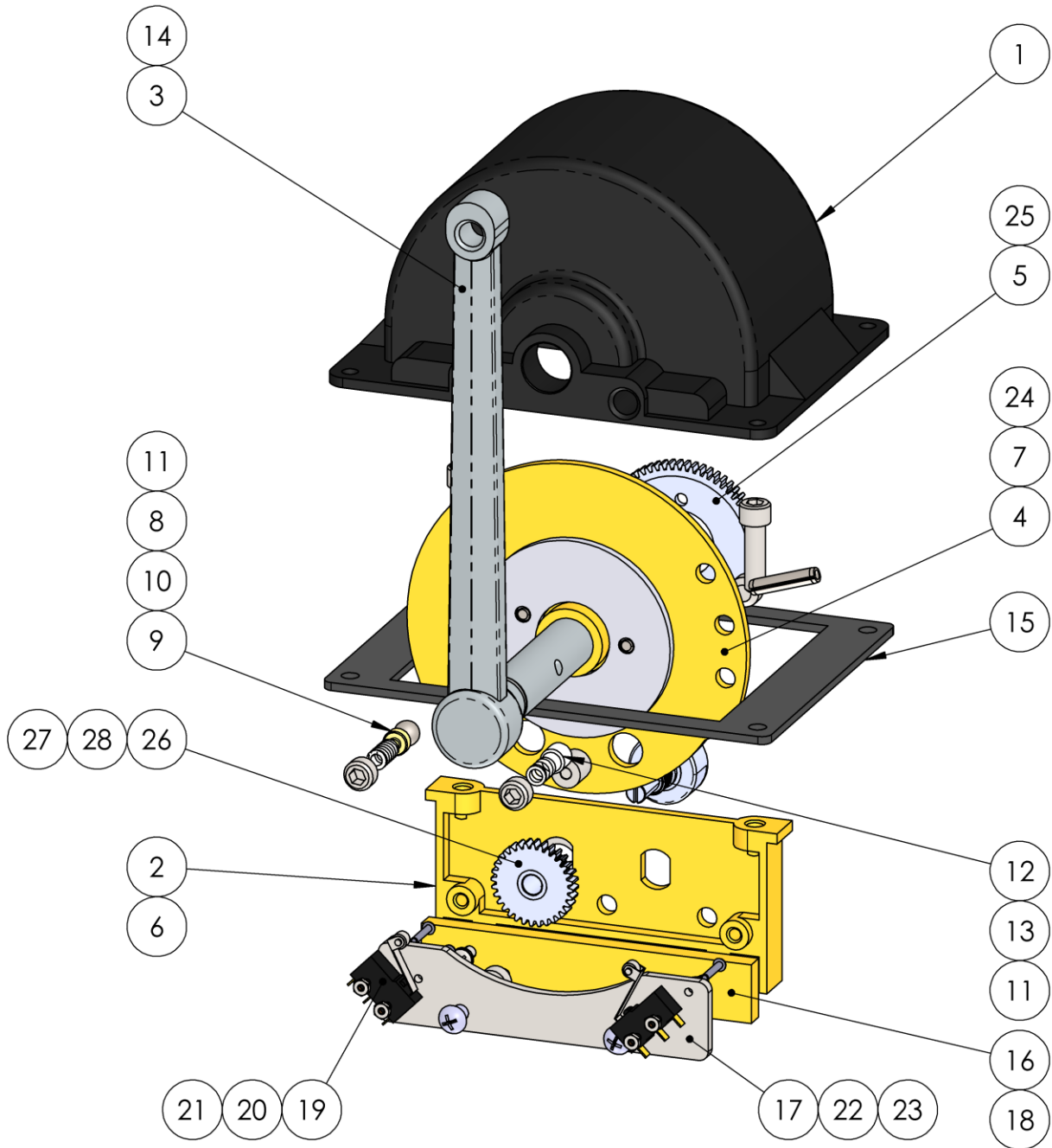
### 6523-HD



---

| ITEM | QTY. | PART NUMBER    | DESCRIPTION                                                                                   |
|------|------|----------------|-----------------------------------------------------------------------------------------------|
| 1    | 1    | 6523-0001-1-B  | DOME; SINGLE HANDLE / BLACK                                                                   |
| 2    | 1    | 6522-0002-MADI | POT BRACKET, MADI                                                                             |
| 3    | 1    | 6523-0015      | HANDLE                                                                                        |
| 4    | 1    | 2070-0001-MADI | PIVOT PLATE                                                                                   |
| 5    | 1    | YP-3264-1      | SPUR GEAR - DELRIN; 64T / 32DP / 20DEG / .19IN W                                              |
| 6    | 2    | 1002-1014      | SCREW, SKT HD, 1/4-20 X 7/8, 18-8                                                             |
| 7    | 1    | 1016-0802      | SET SCREW - CP PT; #10 UNC X 1/8 LG, 18-8                                                     |
| 8    | 1    | 1201-0003-H    | SPRING - COMPRESSION; .25 OD X .05 WIRE X .425LG X 6<br>COIL; LH WOUND; SQ ENDS; 17-7PH CH900 |
| 9    | 1    | 6523-DET-BS    | DETENT COLLAR                                                                                 |
| 10   | 1    | 1301-0110      | BALL, 5/16 D, HARDENED CHROMED STEEL                                                          |
| 11   | 4    | 1016-1204-01   | SET SCREW - SKT; FLAT PT, 3/8 UNC X 1/4, 18-8                                                 |
| 12   | 1    | 2542-0008      | FRICTION PLUG                                                                                 |
| 13   | 1    | 1201-0002      | COMPRESSION SPRING; 1/4 DIA X 3/8 LG                                                          |
| 14   | 1    | 1101-0014      | O-RING, 2-014, 1/2IN X 1/16IN, NBR70                                                          |
| 15   | 1    | 6523-0004      | GASKET                                                                                        |
| 16   | 1    | 6523-0013      | BRACKET; SWITCH PLATE                                                                         |
| 17   | 1    | 6523-0012      | SWITCH PLATE                                                                                  |
| 18   | 2    | 1012-0610      | MACHINE SCREW - PAN HD PHILLIPS; #6 UNC X 5/8 LG, 18-8                                        |
| 19   | 2    | 6001-0111      | MICRO SWITCH, ROLLER LEVER, SPDT, 10A                                                         |
| 20   | 4    | 1004-0208      | SCREW, RND HD, SLOTTED, 2-56 X 1/2, GR 18-8                                                   |
| 21   | 4    | 1022-0102      | NUT, #2-56, GR 18-8                                                                           |
| 22   | 2    | 1010-0810      | SCREW, RND HD, PHL DRIVE, 10-24 X 5/8, 18-8                                                   |
| 23   | 2    | 1044-0108      | SPACER - ROUND; #10 X 3/8OD X 3/16 LG, 18-8                                                   |
| 24   | 1    | 1024-0814      | SPRING PIN; 3/16 DIA X 7/8 LG, AISI 420                                                       |
| 25   | 2    | 1012-0604      | MACHINE SCREW - PAN HD PHIL; 6-32 X 1/4, 18-8                                                 |
| 26   | 2    | YPB-3232-3/16  | SPUR GEAR - DELRIN; 32T, 32DP, 3/16in ID, BRASS INSERT                                        |

# 6523-TM

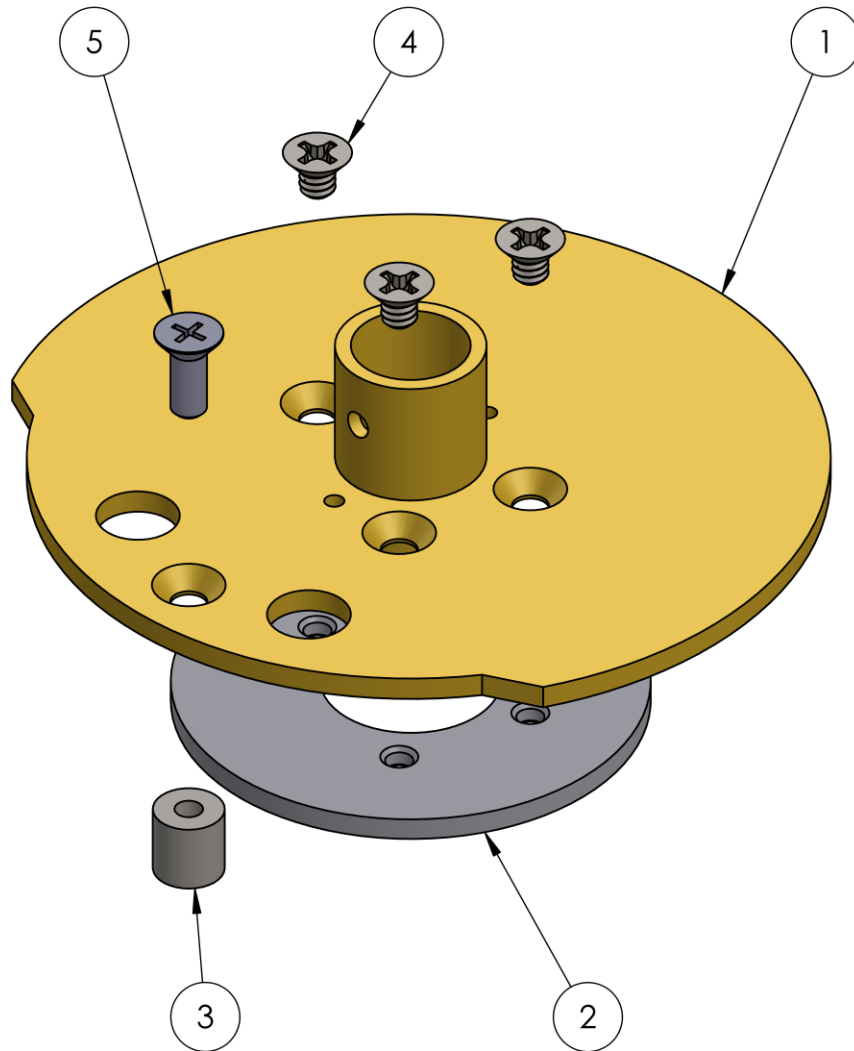


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| ITEM | QTY. | PART NUMBER    | DESCRIPTION                                                                                |
|------|------|----------------|--------------------------------------------------------------------------------------------|
| 1    | 1    | 6523-0001-1-B  | DOME; SINGLE HANDLE / BLACK                                                                |
| 2    | 1    | 6522-0002-MADI | POT BRACKET, MADI                                                                          |
| 3    | 1    | 6523-0015      | HANDLE                                                                                     |
| 4    | 1    | 2070-0001-MADI | PIVOT PLATE                                                                                |
| 5    | 1    | YP-3264-6      | SPUR GEAR; 64T / 32DP / 2in PD X .19W / 20 DEG / DELRIN                                    |
| 6    | 2    | 1002-1014      | SCREW, SKT HD, 1/4-20 X 7/8, 18-8                                                          |
| 7    | 1    | 1016-0804      | SET SCREW - SKT HD CUP PT; #10-24 X 1/4 LG / 18-8                                          |
| 8    | 1    | 1201-0003-H    | SPRING - COMPRESSION; .25 OD X .05 WIRE X .425LG X 6 COIL; LH WOUND; SQ ENDS; 17-7PH CH900 |
| 9    | 1    | 6523-DET-BS    | DETENT COLLAR                                                                              |
| 10   | 1    | 1301-0110      | BALL, 5/16 D, HARDENED CHROMED STEEL                                                       |
| 11   | 4    | 1016-1204-01   | SET SCREW - SKT; FLAT PT, 3/8 UNC X 1/4, 18-8                                              |
| 12   | 1    | 2542-0008      | FRICTION PLUG                                                                              |
| 13   | 1    | 1201-0002      | COMPRESSION SPRING; 1/4 DIA X 3/8 LG                                                       |
| 14   | 1    | 1101-0014      | O-RING, 2-014, 1/2IN X 1/16IN, NBR70                                                       |
| 15   | 1    | 6523-0004      | GASKET                                                                                     |
| 16   | 1    | 6523-0013      | BRACKET; SWITCH PLATE                                                                      |
| 17   | 1    | 6523-0012      | SWITCH PLATE                                                                               |
| 18   | 2    | 1012-0610      | MACHINE SCREW - PAN HD PHILLIPS; #6 UNC X 5/8 LG, 18-8                                     |
| 19   | 2    | 6001-0111      | MICRO SWITCH, ROLLER LEVER, SPDT, 10A                                                      |
| 20   | 4    | 1004-0208      | SCREW, RND HD, SLOTTED, 2-56 X 1/2, GR 18-8                                                |
| 21   | 4    | 1022-0102      | NUT, #2-56, GR 18-8                                                                        |
| 22   | 2    | 1010-0810      | SCREW, RND HD, PHL DRIVE, 10-24 X 5/8, 18-8                                                |
| 23   | 2    | 1044-0108      | SPACER - ROUND; #10 X 3/8OD X 3/16 LG, 18-8                                                |
| 24   | 1    | 1024-0814      | SPRING PIN; 3/16 DIA X 7/8 LG, AISI 420                                                    |
| 25   | 2    | 1012-0604      | MACHINE SCREW - PAN HD PHIL; 6-32 X 1/4, 18-8                                              |
| 26   | 1    | YPB-3232       | SPUR GEAR - DELRIN, 32T, 32DP, 1/4IN ID, B-STYLE                                           |
| 27   | 2    | 6639-0001      | SHIM WASHER, 10MM X 2MM, AISI 304                                                          |
| 28   | 1    | POT-16         | ROTARY SENSOR - MAGNETIC; 22MM, 5VDC, SINGLE TURN                                          |

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2170-0001-MAD!

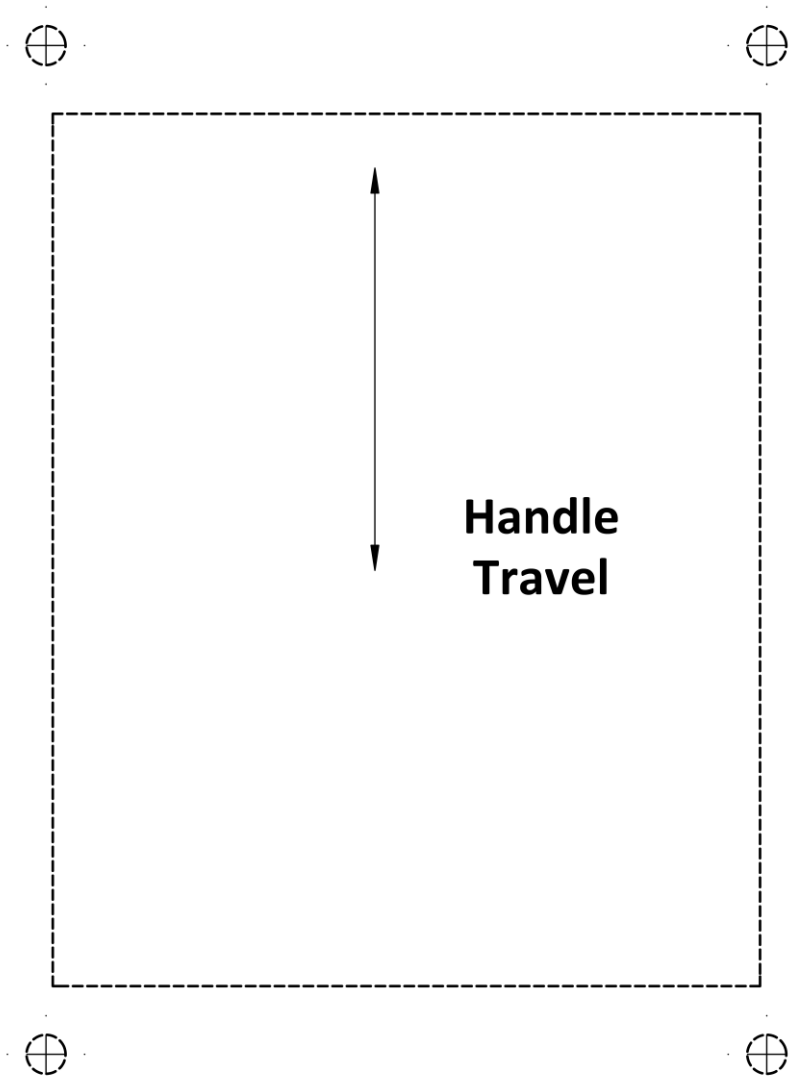


| ITEM | QTY. | PART NUMBER | DESCRIPTION                              |
|------|------|-------------|------------------------------------------|
| 1    | 1    | 2070-0001-1 | PIVOT PLATE, CUSTOM                      |
| 2    | 1    | 6523-1003   | DETENT PLATE; 3 POSITION, HEAVY DUTY     |
| 3    | 1    | 1044-0208   | STANDOFF ROUND 3/8 F-F, 10-32 X 3/8IN    |
| 4    | 3    | 1009-0804   | SCREW, FL HD PHILLIPS, 10-24 X 1/4, 18-8 |
| 5    | 1    | 1009-0809   | SCREW FL HD PHILLIPS, 10-32 X 1/2 18-8   |

---

## 9 APPENDIX C: INSTALLATION CUT-OUT TEMPLATE

---



**NOTICE**

Scale may not be exactly 1:1 due to PDF and printer scaling. Verify primary dimension with a ruler after printing and before using to cut.

Reference [Appendix A: Installation Dimensions](#) , for the cut-out dimensions.



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