

KOBELT

6555 Analog Control Head

Owner's Operation, Installation & Maintenance Manual



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1 INTRODUCTION

1.1 CONTACT

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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.

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

 WARNING	Equipment Starts Automatically: Equipment may activate suddenly while servicing this product, causing bodily harm. Ensure that all power sources are locked out prior to performing work.
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 WARNING	Pinch Points: The 6555 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

2.1 OVERVIEW

The Kobelt 6555 analog control head provides potentiometer output proportional to the handle positions. The handle also has three detent positions; one at TDC plus another two to correspond with the clutch-in points.

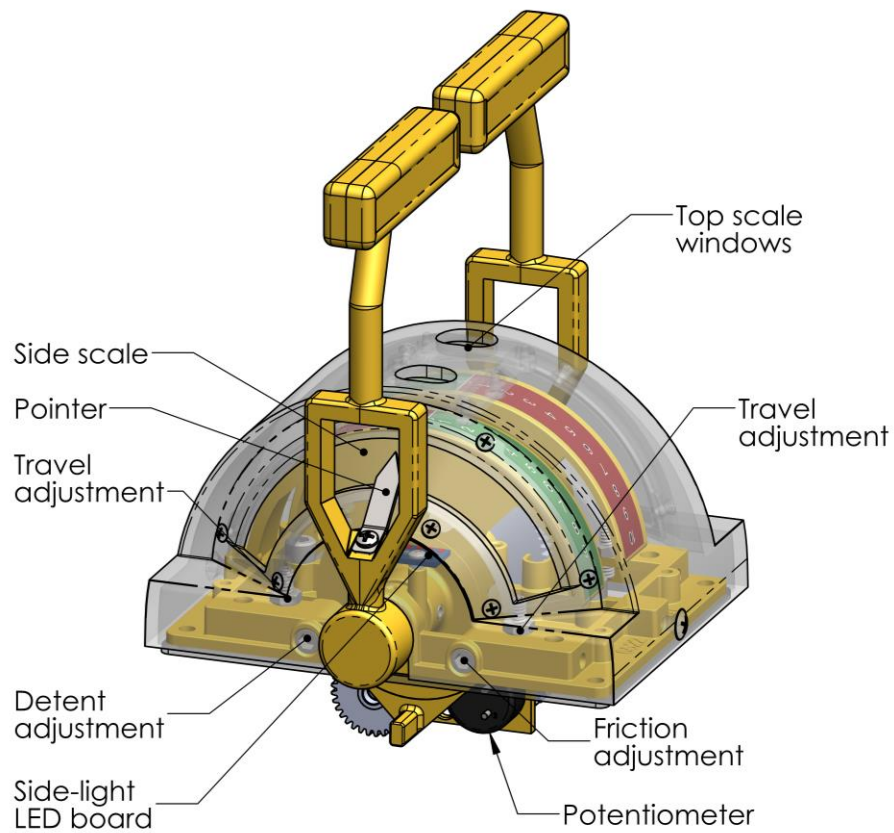


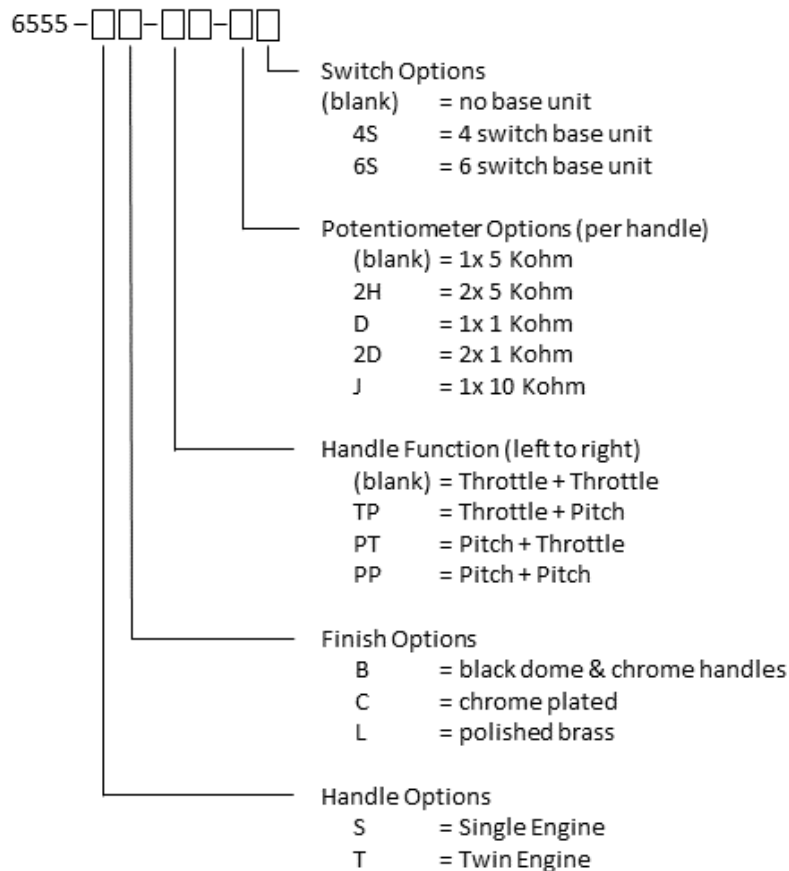
Figure 1: Control head overview

2.2 TECHNICAL DATA

Table 1: 6555 Technical Data

MODEL	6555 SERIES
Handle Travel:	
○ Neutral	0° Detented
○ Clutch engage	+/-20° Detented
○ Full throttle	+/-75°
Power:	12VDC or 24VDC / 12 mA maximum
Output:	5kΩ/1 W potentiometers
Connection:	40 in [1m] pigtail, 22 AWG [0.5 mm ²]
EMC immunity:	per IEC 60945
Environmental category:	ENV2 / Class A / Protected
Operating Temperature:	-13°F ... 158°F [-25°C ... 70°C]
Finish:	Polyester powder coat Textured black
Product Weight:	7 lbs [3.2 kg]

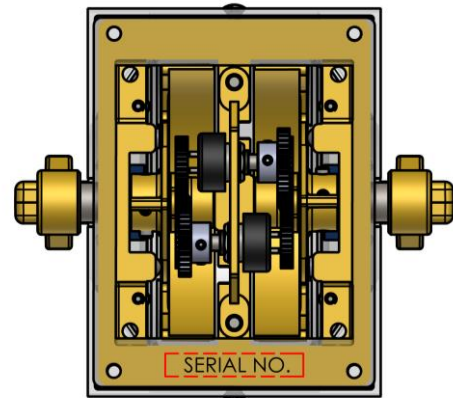
2.3 MODEL CONFIGURATION KEY



3 INSTALLATION

3.1 RECEIPT

Kobel offers the 6555 control head in several configurations (reference [section 2.3](#)). Upon receipt of the device ensure that the model number and serial number are noted on the table in page 2 of this manual. The serial number can be found in the location noted at right. This model number will determine what spare parts are applicable.



3.2 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, preferably with an anaerobic thread locker such as Loctite 243. Before securing the screws, ensure that the control head is facing the correct direction by referencing the scales. This will ensure that the potentiometer output increases towards the forward position.

3.3 ELECTRICAL

The standard control head has two 4 foot [1.0 m] long 3C/22AWG shielded cables for external connections. Connect them to a 6505-2000, 6505-3000 or 6510 remote panel as required.

The potentiometers are wired as per the table below:

Table 2: 6555 Wire Connections – Potentiometers

65555 Potentiometers				
Wire #	Wire Name	Colour	Gauge	Function
1	Vref	White	22AWG	power supply connection.
2	Signal	Red	22AWG	signal connection.
3	Com	Black	22AWG	ground connection.

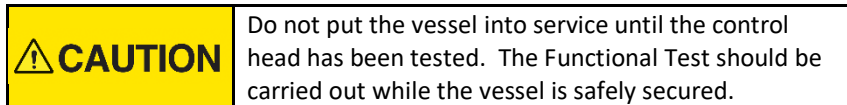
The two LED boards for side illumination are connected together and are wired as follows:

Table 3: 6555 Wire Connections – LED boards

6555 LED boards				
Wire #	Wire Name	Colour	Gauge	Function
1	power	Red	22AWG	power supply connection.
2	com	Black	22AWG	Common connection.

3.4 FUNCTIONAL TEST

After installation, test that the potentiometers provide minimum reading at full astern. Ensure that the friction adjustment is adequate to hold the handle position at all angles. Adjust if necessary ([reference fig 1](#)).



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](#))
- Every 5 years
 - Replace potentiometers

4.2 CALIBRATION

When replacing the potentiometer or if the setting has become disturbed, follow these steps to center the output:

1. Remove the control head from the console
2. Locate the potentiometer in need of centering.
3. Connect a multimeter to the Pot+ (white wire) and the Pot Wiper (red wire). Set the meter to read resistance.
4. Position the handle in the center (neutral) position.
5. Loosen the two locking set screws on the pinion gear with a 1/16-inch Allen key.
6. Using a short flat head screwdriver, rotate the potentiometer shaft until the meter reads half of the rated output (2500 ohms for a 5K potentiometer).
7. Compare the output between the wiper and Vref+ to wiper and Vref-. Adjust the shaft until the two readings are equal.

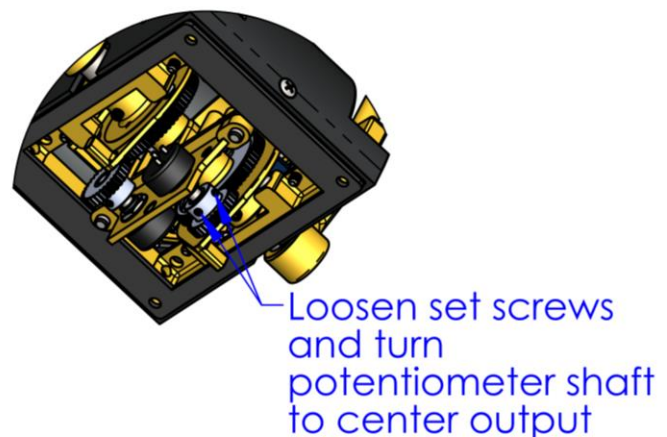


Figure 2: Potentiometer centering

8. Tighten the two locking set screws and reinstall the control head.

4.3 LUBRICATION

The track the detent runs along on the cam must be lubricated to prevent premature wear. Use a grease with MoS₂ additives for best results. The following greases are approved:

Table 4: Approved Lubricants

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

4.4 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:

Table 5: Recommended Spare Parts

Part Number	Description	Qty
2012-0007	Detent Plunger	2
2542-0008	Friction Button	2
POT-5	Potentiometer	2
YPB-3232	Pinion Gear	2

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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The table below itemizes which spare part numbers change with the various configuration options. Please reference this table to ensure you receive the correct parts.

Table 6: Configuration Part Numbers

Configuration Part Numbers		
Potentiometer Code	Potentiometer	Resistance
(blank)	POT-1	1 kohm
-H	POT-5	5 kohm
-J	POT-10	10 kohm

5 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.

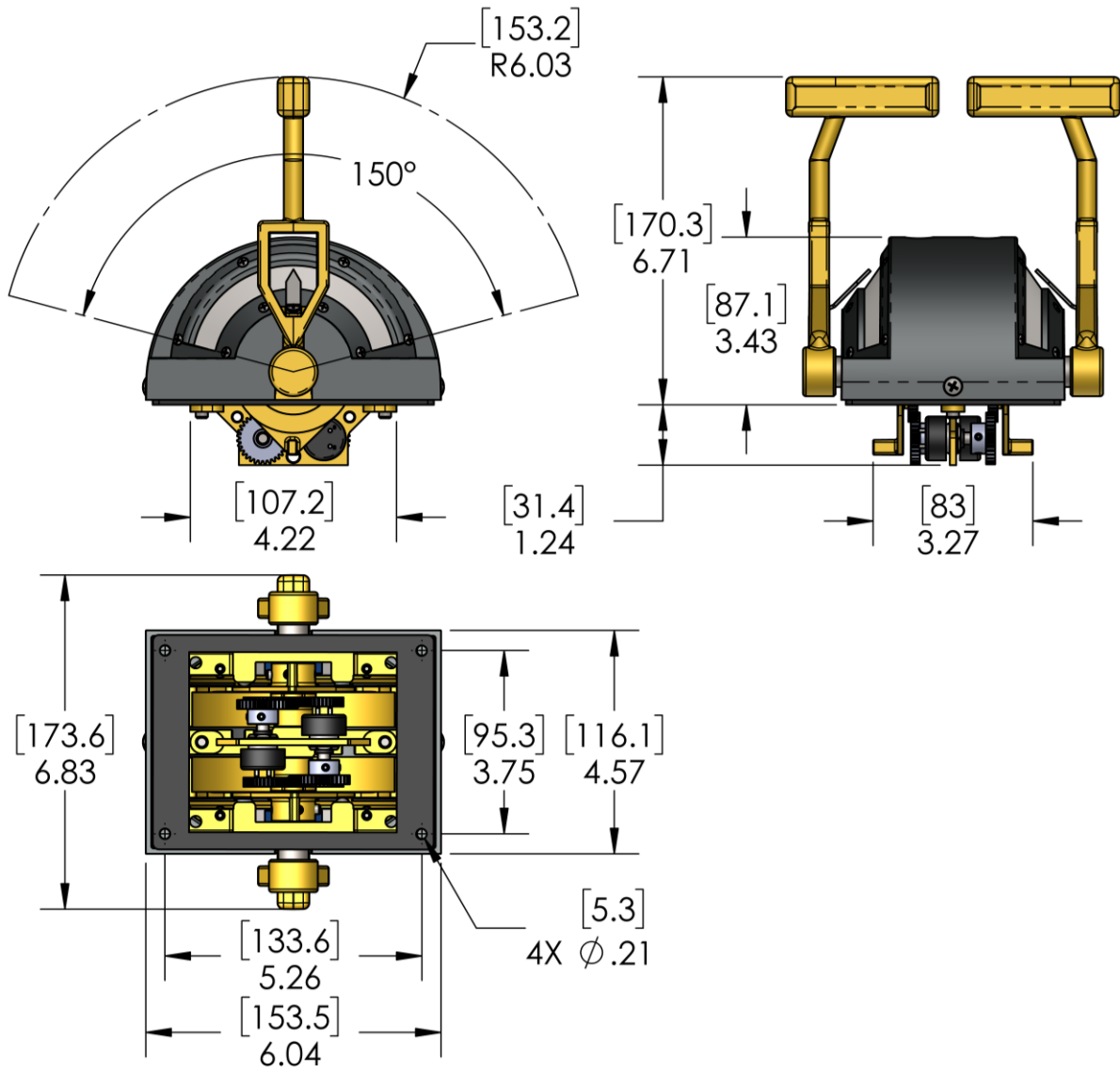
Upon identification of a potential issue or defect with a Kobel Product or Part, the Warranty Applicant (“Applicant”) must immediately contact Kobel and describe the issue in writing, by letter, fax, email or other electronic conveyance. Kobel will then assess the cause of the defect and determine warranty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

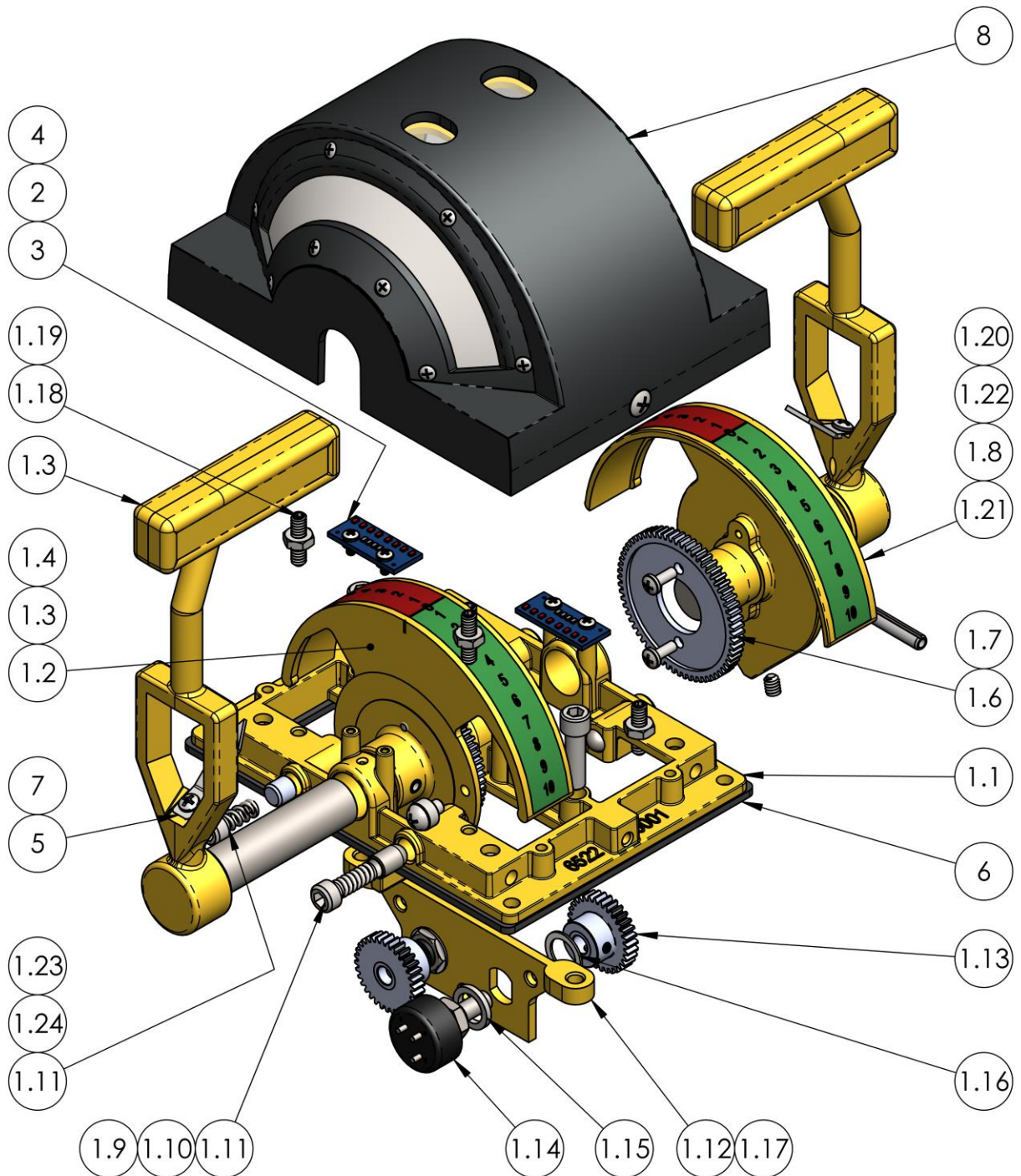
Kobel will be responsible for all Products or Parts sold by Kobel but manufactured by 3rd party manufacturing companies. However, these products and parts are subject to applicable 3rd party warranties and may not be the same as the Kobel warranty.

6 APPENDIX A: INSTALLATION DIMENSIONS



7 APPENDIX B: PARTS LIST

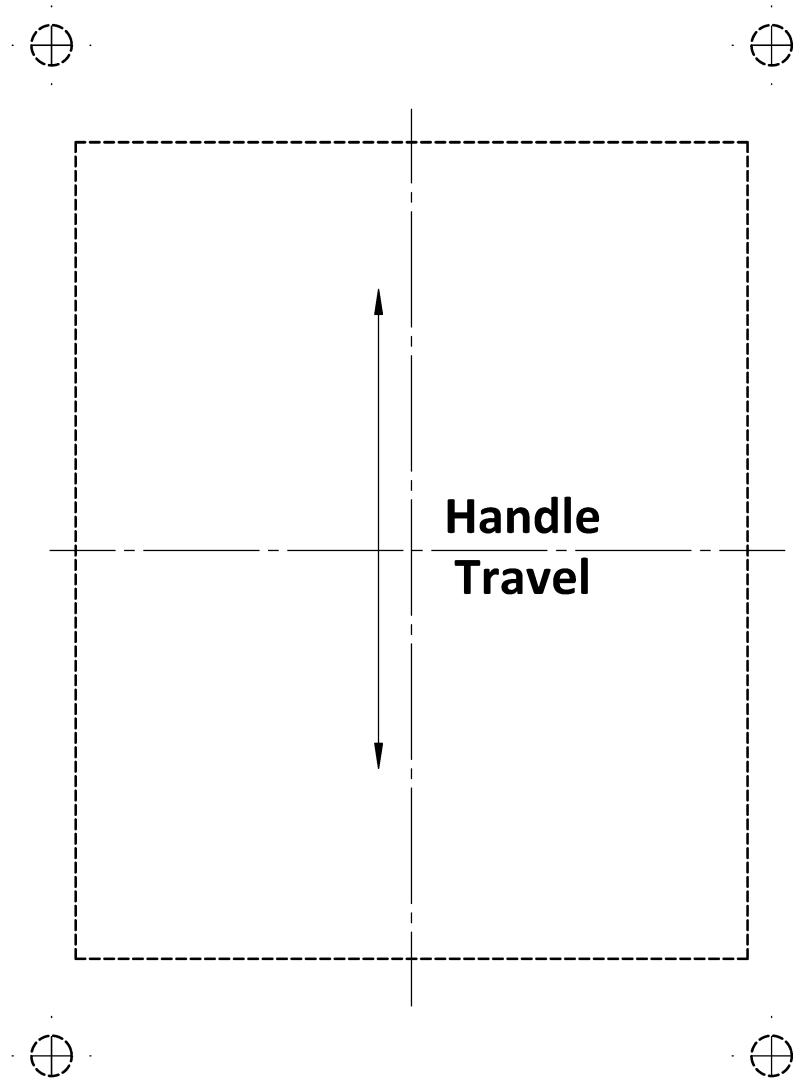
6555-TB-TP



ITEM	QTY.	PART NUMBER	DESCRIPTION
1	1	6555-TB-TP-SUB	SUB-ASSY - CONTROL HEAD; TWIN ENGINE / THROTTLE & PITCH
1.1	1	6522-0001	FRAME
1.2	1	6522-0103-L	CAM; LEFT / NEU DETENT / REV STOP
1.3	1	1044-0209	STANDOFF, ROUND, 3/8 OD X 3/16 IN LG, 18-8 SS
1.4	1	1010-0806	SCREW, RND HD PHL, 10-24 X 3/8, 18-8 SS
1.5	2	2075-0001-K	HANDLE; SHORT/ 2-3/8 SHAFT / CHROME FINISH
1.6	2	YP-3264-3	SPUR GEAR; 64T / 32DP / 2IN PD X .19 IN W / 20 DEG / DELRIN
1.7	4	1012-0606	SCREW, PAN HD, PHL DRIVE, 6-32 x 3/8IN, 18-8 SS
1.8	2	1024-0816	PIN, .1875 DIAMETER
1.9	2	2542-0008	FRICTION PLUG
1.10	2	1201-0003	SPRING, COMPRESSION, 0.25 DIA X .50 LG
1.11	4	1016-1204	SET SCREW - SKT; CP PT, 3/8 UNC X 1/4, 18-8
1.12	1	6521-0001-2	BRACKET; 2 POT VERSION
1.13	2	YPB-3232	SPUR GEAR - DELRIN, 32T, 32DP, 1/4IN ID, B-STYLE
1.14	2	POT-5	POTENTIOMETER; 5K / 340DEG / 22MM / SLOTTED SHAFT
1.15	2	6639-0001	SHIM WASHER, 10MM X 2MM, AISI 304
1.16	2	1023-0214	WASHER, .622 X .445 X .030 IN, STEEL
1.17	2	1002-1014	SCREW, SKT HD, 1/4-20 X 7/8, 18-8
1.18	4	1016-0812	SCREW, CP SET, 10-24 x 3/4, 18-8
1.19	4	1022-0108	NUT, HEX, #10-24, 18-8 SS
1.20	2	6522-0105	TOP SCALE; 10- 0-10
1.21	1	6522-0304	CAM; RIGHT / NEUTRAL DETENT
1.22	2	1016-0804	SET SCREW - SKT HD CUP PT; #10-24 X 1/4 LG / 18-8
1.23	2	2012-0007	DETENT PLUG
1.24	2	1201-0062	COMPRESSION SPRING; .25OD X .05W X .75 FL
2	4	1012-0404	SCREW, PAN HD, PHL, 4-40 X 1/4, 18-8
3	2	6555-1002	LED BOARD - WHT
4	4	6009-7208	WASHER, SHOULDER, #4, NYLON (KEYSTONE 3049)
5	2	2553-0018-H	POINTER - BRIGHT FINISH
6	1	6523-0004	GASKET
7	2	1012-0604	MACHINE SCREW - PAN HD PHIL;, 6-32 X 1/4, 18-8
8	1	6555-B-DOME	SUB-ASSY, BLACK DOME / STD SCALES

ITEM	QTY.	PART NUMBER	DESCRIPTION
1	1	6555-TB-PP-SUB	SUB-ASSY - CONTROL HEAD; TWIN ENGINE COMBINED
1.1	1	6522-0001	FRAME
1.2	2	6522-0104	CAM; LEFT/ NEU DETENT
1.3	2	2075-0001-K	HANDLE; SHORT/ 2-3/8 SHAFT / CHROME FINISH
1.4	2	YP-3264-3	SPUR GEAR; 64T / 32DP / 2IN PD X .19 IN W / 20 DEG / DELRIN
1.5	4	1012-0606	SCREW, PAN HD, PHL DRIVE, 6-32 x 3/8IN, 18-8 SS
1.6	2	1024-0816	PIN, .1875 DIAMETER
1.7	2	2012-0007	DETENT PLUG
1.8	2	2542-0008	FRICTION PLUG
1.9	2	1201-0003	SPRING, COMPRESSION, 0.25 DIA X .50 LG
1.10	2	1201-0062	COMPRESSION SPRING; .25OD X .05W X .75 FL
1.11	4	1016-1204	SET SCREW - SKT; CP PT, 3/8 UNC X 1/4, 18-8
1.12	1	6521-0001-2	BRACKET; 2 POT VERSION
1.13	2	YPB-3232	SPUR GEAR - DELRIN, 32T, 32DP, 1/4IN ID, B-STYLE
1.14	2	POT-5	POTENTIOMETER; 5K / 340DEG / 22MM / SLOTTED SHAFT
1.15	2	6639-0001	SHIM WASHER, 10MM X 2MM, AISI 304
1.16	2	1023-0214	WASHER, .622 X .445 X .030 IN, STEEL
1.17	2	1002-1014	SCREW, SKT HD, 1/4-20 X 7/8, 18-8
1.18	4	1016-0812	SCREW, CP SET, 10-24 x 3/4, 18-8
1.19	4	1022-0108	NUT, HEX, #10-24, 18-8 SS
1.20	2	6522-0105	TOP SCALE; 10- 0-10
1.21	2	1016-0804	SET SCREW - SKT HD CUP PT; #10-24 X 1/4 LG / 18-8
2	4	1012-0404	SCREW, PAN HD, PHL, 4-40 X 1/4, 18-8
3	2	6555-1002	LED BOARD - WHT
4	4	6009-7208	WASHER, SHOULDER, #4, NYLON (KEYSTONE 3049)
5	2	2553-0018-H	POINTER - BRIGHT FINISH
6	1	6523-0004	GASKET
7	2	1012-0604	MACHINE SCREW - PAN HD PHIL;, 6-32 X 1/4, 18-8
8	1	6555-B-DOME	SUB-ASSY, BLACK DOME / STD SCALES

8 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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