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MANUAL REVISION TRANSMITTAL
Manual 165A (61-00-65)
Illustrated Tool and Equipment Manual
REVISION 39 dated July 2026

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REVISION HIGHLIGHTS

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NOTE 1: Record the removal of a Temporary Revision on the Record of Temporary Revisions pages in this manual.

NOTE 2: When the manual revision has been inserted in the manual, record the information required on the Record of Revisions pages in this manual.

NOTE 3: Pages distributed in this revision may include pages from previous revisions if they are on the opposite side of revised pages. This is done as a convenience to those users who wish to print a two-sided copy of the new revision.

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Manual No. 165A

61-00-65

Revision 39

July 2026



Illustrated Tool and Equipment Manual

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**HARTZELL TOOL AND EQUIPMENT MANUAL
165A**

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COVER 61-00-65 Inside Cover
Rev. 39 Jul/26

REVISION 39 HIGHLIGHTS

Revision 39, dated July 2026, incorporates the following:

Front matter (Cover, Revision Highlights, etc.), has been revised to match this revision.

Minor language/format changes and renumbering, if applicable are marked with a revision bar, but are not listed below.

- TOOL AND EQUIPMENT LIST

- Revised the following tool(s) in the Tool and Equipment List:

- CST-2987 Beta System Puller Base Kit (TE100)
 - CST-2987-(1,2) Beta System Puller [TE100-(1,2)]
 - 106804 Beta System Puller (TE615)

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REVISION 39 HIGHLIGHTS

1. Introduction

A. General

- (1) This is a list of current revisions that have been issued against this manual. Please compare to the RECORD OF REVISIONS page to make sure that all revisions have been added to the manual.

B. Components

- (1) Revision No. indicates the revisions incorporated in this manual.
- (2) Issue Date is the date of the revision.
- (3) Comments indicates the level of the revision.
 - (a) New Issue is a new manual distribution. The manual is distributed in its entirety. All the revision dates are the same and no change bars are used.
 - (b) Reissue is a revision to an existing manual that includes major content and/or major format changes. The manual is distributed in its entirety. All the revision dates are the same and no change bars are used.
 - (c) Major Revision is a revision to an existing manual that includes major content or minor format changes over a large portion of the manual. The manual is distributed in its entirety. All the revision dates are the same, but change bars are used to indicate the changes incorporated in the latest revision of the manual.
 - (d) Minor Revision is a revision to an existing manual that includes minor content changes to the manual. Only the revised pages of the manual are distributed. Each page retains the date and the change bars associated with the last revision to that page.

<u>Revision No.</u>	<u>Issue Date</u>	<u>Comments</u>
Original	Nov/95	Total rewrite
Revision 1	Aug/96	Minor Revision
Revision 2	May/98	Minor Revision
Revision 3	Jan/99	Minor Revision
Revision 4	Oct/99	Minor Revision
Revision 5	Apr/00	Minor Revision
Revision 6	May/01	Minor Revision
Revision 7	Aug/01	Minor Revision
Revision 8	Mar/02	Minor Revision
Revision 9	Jun/02	Minor Revision
Revision 10	Sep/03	Minor Revision
Revision 11	Aug/04	Minor Revision
Revision 12	Aug/11	Major Revision
Revision 13	Jul/12	Minor Revision

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<u>Revision No.</u>	<u>Issue Date</u>	<u>Comments</u>
Revision 14	Jun/13	Minor Revision
Revision 15	Dec/13	Minor Revision
Revision 16	Apr/14	Minor Revision
Revision 17	Dec/14	Minor Revision
Revision 18	Feb/16	Minor Revision
Revision 19	Nov/16	Minor Revision
Revision 20	Apr/17	Minor Revision
Revision 21	Oct/17	Minor Revision
Revision 22	Mar/18	Minor Revision
Revision 23	Feb/19	Minor Revision
Revision 24	Apr/19	Minor Revision
Revision 25	Sep/19	Minor Revision
Revision 26	Aug/21	Minor Revision
Revision 27	Dec/21	Minor Revision
Revision 28	Apr/22	Minor Revision
Revision 29	Sep/22	Minor Revision
Revision 30	Nov/22	Minor Revision
Revision 31	Mar/23	Major Revision
Revision 32	Mar/24	Major Revision
Revision 33	Jun/24	Minor Revision
Revision 34	Feb/25	Minor Revision
Revision 35	Apr/25	Minor Revision
Revision 36	Jul/25	Minor Revision
Revision 37	Sep/25	Minor Revision
Revision 38	Oct/25	Minor Revision
Revision 39	Jul/26	Minor Revision

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RECORD OF REVISIONS

This is a record of revisions inserted into this manual.
Revision 32 includes all previous revisions.

Revision Number	Issue Date	Date Inserted	Inserted By
32	Mar/24	Mar/24	HP
33	Jun/24	Jun/24	HP
34	Feb/25	Feb/25	HP
35	Apr/25	Apr/25	HP
36	Jul/25	Jul/25	HP
37	Sep/25	Sep/25	HP
38	Oct/25	Oct/25	HP
39	Jul/26	Jul/26	HP

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RECORD OF TEMPORARY REVISIONS

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Record of Temporary Revisions	1 thru 2	Rev. 32	Mar/24
List of Effective Pages	1 thru 2	Rev. 39	Jul/26
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	11	Rev. 35	Apr/25
	12	Rev. 32	Mar/24
	13	Rev. 34	Feb/25
	14	Rev. 32	Mar/24
	15 thru 20	Rev. 35	Apr/25
Tool and Equipment Index	1-1	Rev. 37	Sep/25
	1-2	Rev. 38	Oct/25
	1-3	Rev. 39	Jul/26
	1-4 thru 1-8	Rev. 35	Apr/25
	1-9 thru 1-12	Rev. 32	Mar/24
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	1-14	Rev. 37	Sep/25
Tool and Equipment List	2-1 thru 2-27	Rev. 32	Mar/24
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	2-150	Rev. 33	Jun/24
	2-151 thru 2-152	Rev. 32	Mar/24
	2-153	Rev. 39	Jul/26
	2-154 thru 2-155	Rev. 32	Mar/24
	2-156	Rev. 35	Apr/25
	2-157 thru 2-162	Rev. 32	Mar/24
	2-163	Rev. 36	Jul/25
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1. Using the Illustrated Tool and Equipment Manual

A. General

- (1) This manual contains the tooling and equipment required to perform standard procedures in accordance with Hartzell Propeller manuals.

B. Tool and Equipment Index

- (1) The Tool and Equipment Index of this manual is a list of the tools by TE number listed in numerical order.
 - (a) The index also provides a description of the tool and the page number on which the tool and information may be found.

C. Tool and Equipment List

- (1) The following information is provided in the Tool and Equipment List chapter of this manual for each tool:
 - (a) Title of the Tool
 - (b) Part Number (TE Number)
 - 1 The part number listed should be used when ordering the tool from Hartzell Propeller or an approved Hartzell Propeller vendor.
 - 2 The TE number is used to reference the tool in Hartzell Propeller publications.
 - (c) Description
 - 1 The tools' uses and other related tools needed to perform the task.
 - 2 Information required to fabricate the tool, if applicable.
 - (d) Vendor
 - 1 Additional vendors where the tool may be purchased, as necessary. Refer to the section, "Tooling Vendors" in this chapter for a list of the vendors and their contact information. Vendors are listed alphabetically by abbreviation.
 - (e) Components (if applicable)
 - 1 A breakdown of subcomponents, as necessary.
 - (f) Figure (if applicable)
- (2) Some tools can be purchased through Hartzell Propeller.
 - (a) To purchase a tool, refer to the Hartzell Propeller tool part number and contact Hartzell Propeller.

2. Tooling Vendors

NOTE: The vendor is the point of purchase of the tool for the end user:

AE	All Phase Electric Supply Co. Tele: 1-937-323-7555 Fax: 1-937-325-0838 Email: customerservice@ape8250.com https://all-phase-springfield.portalced.com/
AF	American Forge & Foundry, Inc. Tele: 1-800-323-7402 Email: orders.usa@surewerx.com www.affjaxx.com
AP	APEX Tool Group Tele: 1-937-222-7871 www.apex-tools.com
BD	Contact any bearing distributor
BG	Browning
BI	Baty International Bowers Group Tele: +44 (0) 1276 469866 Email: sales@bowersgroup.co.uk https://www.bowersgroup.co.uk/row/brand/baty
BK	B&K Precision Corp. Tele: 714-921-9095 Tele: 1-800-462-9832 (US & CAN) Fax: 714-921-6422 www.bkprecision.com/
BN	Branson Ultrasonics Corp. Tele: 1-800-732-9262 Fax: 1-203-796-2250 infoquest@emerson.com https://www.emerson.com/en-us/automation/branson
BO	Bodine Electric Co. Tele: 1-800-726-3463 (US) Tele: 1-773-478-3515 (International) Fax: 1-773-478-3232 Email: info@bodine-electric.com www.bodine-electric.com

Tooling Vendors
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BR	BriskHeat Corp. Tele: 1-888-412-0122 Email: bhtsales1@briskheat.com www.briskheat.com
CG	Clay-Groomer Machine Shop, Inc. Tele: 1-505-327-7751 Email: info@cgms.us www.cgms.us
CL	Clemco Industries Corp. Tele: 1-636-239-4300 www.clemcoindustries.com/
CS	Customer Supplied (Tool is locally fabricated by the end user)
DE	Surface Prep DeLong Equipment Co. Tele: 1-800-548-8233 www.surfaceprep.com
DS	Destaco Tele: 1-888-337-8226 Fax: 1-248-836-6740 www.destaco.com
EC	Eaton Corp. Tele: 1-866-652-3756 Tele: 1-440-523-4357 www.eaton.com
EK	Eastman Kodak Co. Tele: 1-585-724-4000 www.kodak.com/en/
EL	Electronics Inc. Tele: 1-574-256-5001 Tele: 1-800-832-5653 Fax: 1-574-256-5222 Email: info@electronics-inc.com www.electronics-inc.com
EP	Everhard Products Tele: 1-330-453-7786 Tele: 1-800-298-2832 Fax: 1-330-453-7449 www.everhard.com

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ER	Ervin Industries Tele: 1-734-769-4600 (US) Tele: 1-800-748-0055 Tele: +49 30 400 37846 (International) sales@ervinindustries.com www.ervinindustries.com
HA	Hammond Manufacturing Tele: 1-716-630-7030 Fax: 1-716-630-7042 www.hammondmfg.com
HM	Hemco Gage Co. Tele: 1-616-396.4604 Fax: 1-616-396-0413 Email: sales@hemcogages.com www.hemcogages.com
HP	Hartzell Propeller LLC Tele: 1-800-942-7767 (US) Tele: 1-937-778-4200 (International) Fax: 1-937-778-4321 https://hartzellprop.com
IP	IPS (Innovative Peening System) Tele: 1-770-246-9883 Fax: 1-770-246-9860 Email: info@ipsmachines.com www.ipsmachines.com
JL	J & L Metrology Division Tele: 1-802-885-7100 Fax: 1-802-885-2404 Email: sales@jlmetrology.com www.jlmetrology.com
LC	Locally procured from any distributor
MA	Matco Tools Tele: 1-866-289-8665 Tele: 1-330926-4949 Fax: 1-330-926-5323 www.matcotools.com
MC	McMaster-Carr Supply Co. Tele: 1-330-995-5500 Fax: 1-330-995-9600 Email: cle.sales@mcmaster.com www.mcmaster.com

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MF	Magnaflux Corp. Tele: 1-847-657-5300 Email: cs@magnaflux.com www.magnaflux.com
MG	Triad Magnetix Tele: 1-951-277-0757 Fax: 1-951-277-2757 Email: info@triadmagnetix.com www.triadmagnetix.com
MH	Mahr Federal Inc. Tele: 1-401-784-3100 Fax: 1-401-784-3246 Email: information@mahr.com www.mahr.com
MI	Metal Improvement Co. Tele: 1-513-489-6484 Fax: 1-513-489-6899 Email: info@cwst.com www.cwst.com
MT	Mitutoyo America Corp. Tele: 1-888-648-8869 Email: customer.service@mitutoyo.com www.mitutoyo.com
MV	Micro-Vu Corp. Tele: 1-707-838-6272 Email: sales@microvu.com www.microvu.com
NT	N.T. Ruddock Co. Tele: 1-440-439-4976 Fax: 1-440-439-8728 Email: sales@ntruddock.com www.ntruddock.com
OL	Olympus NDT Inc. Tele: 1-800-225-8330 www.olympus-ims.com
OT	OTC Tools Inc. Tele: 1-800-533-6127(US) Tele: 1-507-455-7223 (International) Fax: 1-800-283-8665 Email: inquiry@service-solutions.com (US) Email: intl.inquires@service-solutions.com (International) www.otctools.com

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PG	PPG Industries Inc. Tel: 1-317-290-1600 Fax: 1-317-290-1300 Email: inco@ppgaerospacestore.com www.ppgaerospacestore.com
PH	Parker Hannifin Co. Tele: 1-800-272-7537 Tele: 00800 27 27 5374 (International) Email: cparker@support.parker.com www.parker.com
PM	Panametrics, Inc. Tele: 1-781-899-2719 Email: panametricscontact@bakerhughes.com www.bakerhughes.com/panametrics
RC	Locally procured from any distributor
SA	Steinel America Tele: 1-800-852-4343 Email: sales@steinel.net www.steinel.net
SC	Stancor Tele: 1-602-275-3800 Email: sales@stancor.com www.stancor.com
SI	Dorsey Metrology International Formerly known as S-T Industries Inc. Tele: 1-845-454-3111 Fax: 1-845-454-3888 www.dorseymetrology.com
SM	Steelman Tools Tele: 1-855-706-1550 Email: support@steelmantools.com www.steelmantools.com
SO	Snap-On Tools Inc. Tele: 1-877-762-7664 www.snapon.com
SP	SAE Products Tele: 1-800-588-8480 Fax: 1-843-349-0738 Email: sales@saeproducts.com www.saeproducts.com

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SQ	Schneider Electric Tele: 1-513-755-5000 www.se.com/us/en/
ST	Stanley Engineered Fastening Tele: 1-877-364-2781 Fax: 1-800-225-5614 www.stanleyengineeredfastening.com/en
TM	Thexton Manufacturing Co. Tele: 1-800-328-6277 Tele: 1-952-831-4171 Fax: 1-952-831-5938 Email: customerservice@thexton.com www.thexton.com
US	SurfacePrep Tele: 1-888-873-1066 www.surfaceprep.com
VK	PMC Gage Inc. (Van Keuren) Tele: 1-440-953-3300 sales@pmclonestar.com www.pmcgagecompanies.com/pages/van-keuren
WI	Palmer Wahl Instruments, Inc. Tele: 1-800.421-2853 Tele: 1-828-658-3131 Fax: 1-828-658-0728 Email: wahltemplates@palmerwahl.com www.wahltemplates.com
WH	White Hawk Machine & Tool Tele: 1-903-741-7183

Tooling Vendors
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3. “TE” Reference Number

A. Important Information

- (1) In other Hartzell Propeller publications, tooling references appear with the prefix “TE” directly following the tool name to which they apply.
 - (a) For example, a template which is reference number 133 will appear as: template TE133.

4. Ordering Tooling

A. Important Information

- (1) When ordering vendor tooling from the vendor or a distributor, use the number as specified in the manual.
- (2) For some vendor tooling there is an associated Hartzell Propeller part number. This part number may be used when ordering the tooling direct from Hartzell Propeller.

5. General/Common, Product Application, and Special Process Tool Lists

A. Important Information

- (1) This section provides tool lists that are grouped by tools that are used across multiple applications (General Tool List) and tools that are part of a specific application (i.e. Bantam, Steel Reciprocating, etc.) or a specific process (i.e. Eddy Current, Shot Peen, Rolling Machine, etc.).
- (2) In the tool group of each application, tools are split up by Line Maintenance or Overhaul Tools. Some tools can be used for both Line Maintenance and Overhaul.

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B. General/Common Tool List

Line Maintenance Tools

<u>Tool Number</u>	<u>Description</u>	<u>Tool Number</u>	<u>Description</u>
TE96	Bench Top Blade Angle Protractor	TE359	Audio Generator Model 3001
TE97	Digital Protractor	TE457, TE655	Torque Wrench Adapter
TE138	Wedge	TE502	Fitting Wrench
TE354	Megohm Meter	TE559	Right Angle Grease Coupler
TE355	Milliohm Meter		

Overhaul Tools

<u>Tool Number</u>	<u>Description</u>	<u>Tool Number</u>	<u>Description</u>
TE8	Balance Arbor	TE209	Applicator Gun
TE33 - TE39	Crowfoot Wrench, 1/2" Drive	TE214	Crowfoot Wrench, 3/8" Drive
TE40	Crowfoot Wrench, 3/8" Drive	TE256	Crowfoot Wrench, 3/8" Drive
TE41	Crowfoot Wrench, 1/2" Drive	TE303	Heat Gun
TE42	Crowfoot Wrench, 3/8" Drive	TE332	Tie Strap Gun
TE43	Crowfoot Wrench, 3/8" Drive	TE354	Megohm Meter
TE44	Apex Torq-set® Bit	TE355	Milliohm Meter
TE48	Adjustable Riser Fixture	TE360	Crowfoot Wrench, 3/8" Drive
TE50	Chamfering Tool	TE365	Slide Hammer Assembly
TE59	Spring Compressor Assembly	TE389-()	Slimsert® Installation and Removal Tool
TE66-()	Heli-coil Insert Installation Tool	TE409	Slimsert® Repair Kit
TE67	Threaded Insert Installation Tool	TE421	Slimsert® Repair Kit
TE75, TE76	Drill Jig	TE445	Insert Installation Tool
TE83	Safety Nozzle	TE448	Bolt Alignment Fixture
TE96	Bench Top Blade Angle Protractor	TE457	Torque Wrench Adapter
TE97	Digital Protractor	TE502	Fitting Wrench
TE111	Heli-coil Removal Tool	TE645	E-Z Out Kit (Screw Extractor)
TE125	Building Buck Components	TE646	Hole Location Gauge (True Position Indicator)
TE126	Blade Assembly Support Stand	TE647	Thread Tap
TE129	Propeller Assembly Table	TE648	Bushing Removal Tool
TE138	Wedge	TE649	Thread Plug
TE143	Double End Wrench	TE652	Cylinder Leak Check Fixture
TE144-(1)	Crowfoot Wrench, 1/2" Drive	TE654	Insert Removal Tool
TE192	Crowfoot Wrench, 3/8" Drive		
TE207-(1)	Ball Nose Reamer		
TE208-(1)	Ball Nose Reamer		

C. Compact, Lightweight Compact, Raptor Reciprocating Tool List

Line Maintenance Tools

<u>Tool Number</u>	<u>Description</u>
TE139, TE139-1, TE150	Torque Wrench Adapter

Overhaul Tools

<u>Tool Number</u>	<u>Description</u>	<u>Tool Number</u>	<u>Description</u>
TE6	Torque Wrench Adapter	TE383	Feathering Tool
TE9	Spring Assembly Tool	TE384	Centering Rod
TE24	Blade Retention Components Clamp	TE403	Reamer
TE30	Spring Compressor Assembly	TE404	Stud Installation/Torque Check Tool
TE31	Spring Compressor Assembly	TE413	Blade Angle Locating Fixture
TE93	Blade Bearing Press	TE443-1	Blade Seal Probe
TE98	2 Ton Puller	TE487	Stud Fixture Plate
TE153-(1)	Torque Wrench Adapter	TE533	Leak Detector Kit
TE298	Dummy Pitch Change Rod	TE540	Preload Stud Plate
TE319	Assembly Guide	TE625	Spring Compressor Assembly
TE380	Cylinder Cap	TE627	Spring Assembly Tool
TE381	T-handle Wrench		

D. Lightweight Turbine, Raptor Turbine Tool List

Line Maintenance Tools

<u>Tool Number</u>	<u>Description</u>	<u>Tool Number</u>	<u>Description</u>
TE5, TE155,	Torque Wrench Adapter	TE100	Beta Ring Puller
TE432, TE551,		TE316	Unfeathering Tool
TE642		TE615	Plate Kit

Overhaul Tools

<u>Tool Number</u>	<u>Description</u>	<u>Tool Number</u>	<u>Description</u>
TE24, TE25	Blade Retention Components Clamp	TE393, TE394	Pressure Check Adapter
TE32	Portable Spring Compressor	TE404-1	Stud Installation/Torque Check Tool
TE60	Counterweight Location Gauge	TE413	Blade Angle Locating Fixture
TE62	Hoist Ring	TE427	Sleeve Installation Tool
TE68-	Threaded Staked Insert Installation Tool	TE429	Pressure Check Adapter
(1,3,4,5,6,7,8,9)		TE440-(1)	Blade Seal Alignment Tool
TE86	Pitch Angle Stop Plug	TE441-7	Pitch change rod bushing pressure check
TE93	Blade Bearing Press		
TE112-	Threaded Staked Insert Removal Tool	TE443-1	Blade Seal Probe
(1,3,4,5)		TE459	Ring
TE120	Modified Deep Well Socket	TE486	212-8 Driver
TE148-1	Strap Wrench	TE487	Stud Fixture Plate
TE153-(1)	Torque Wrench Adapter	TE547	Valve Assembly Check Tool
TE159	Headless Pin	TE567	Extended Socket
TE228-(1)	Socket - Assembly	TE616	Piston ring Clamp kit
TE247	Peening Tool	TE656	Assembly Alignment Tool
TE382-(1)	Thread Gauge Airflow kit	TE657	Torque Test Tool
TE390	Pressure Check Adapter	TE658	Spring Installation Tool
TE391, TE392	Pitch Change Bore Plug	TE660	Air leak check tool

E. Bantam Tool List

Overhaul Tools

<u>Tool Number</u>	<u>Description</u>	<u>Tool Number</u>	<u>Description</u>
TE403-(1)	Reamer	TE518	Torque Unit Adapter
TE404-2	Stud Installation/Torque Check Tool	TE536	Hub Flange Spindle
TE441-6	Pressure Check Tool	TE548	Bantam Spring Compressor
TE504	Bearing Assembly Tool	TE550	F-flange Bantam Adapter Ring
TE505	Bearing Assembly Clamp	TE568	Air Check Block
TE508	Check Cylinder	TE570	Tube Nut
TE510	Plug Assembly	TE644	Leak Check Kit
TE517	Torque Unit Adapter	TE653	Bantam Flange Bushing Plug

F. Steel Reciprocating Tool List

Line Maintenance Tools

<u>Tool Number</u>	<u>Description</u>	<u>Tool Number</u>	<u>Description</u>
TE100	Beta Ring Puller	TE149, TE152,	Torque Wrench Adapter
TE146	Shaft Nut Wrench	TE154	
		TE615	Plate Kit

Overhaul Tools

<u>Tool Number</u>	<u>Description</u>	<u>Tool Number</u>	<u>Description</u>
TE17	Ring Centering Tool	TE108	Retention Bearing Puller
TE29	Spring Compressor Assembly Tool	TE148-1	Strap Wrench
TE52	Pilot Tube Press Fixture	TE241-(1)	Pilot Tube Installation Tool Kit
TE53	Pilot Tube Removal Fixture	TE308	A-972 Ring Press Tool
TE54, TE55,	Piston Fixture	TE311	Pilot Tube Removal Stop
TE56, TE57		TE321	Flatness Gauge
TE64-(1)	Bearing Installation Tool	TE420	Spacer
TE65	Retainer Installation Tool	TE537	Shank Spacer Puller
TE73	Pilot O-ring Installation Tool	TE538	Shank Spacer Puller
TE107	Pilot Tube Removal Tool	TE634	Assembly Low Pitch Spacer

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G. Steel Turbine Tool List

Line Maintenance Tools

<u>Tool Number</u>	<u>Description</u>	<u>Tool Number</u>	<u>Description</u>
TE100	Beta Ring Pulle	TE615	Plate Kit
TE142	Clamp Nut Wrench		

Overhaul Tools

<u>Tool Number</u>	<u>Description</u>	<u>Tool Number</u>	<u>Description</u>
TE11	Spinner Mounting Plate Bender	TE131	Blade Wall Thickness Template
TE29	Spring Compressor Assembly Tool	TE142	Clamp Nut Wrench
TE51	Piston Drill Fixture	TE148-1	Strap Wrench
TE52	Pilot Tube Press Fixture	TE181 - TE184	Ream Fixture
TE53	Pilot Tube Removal Fixture	TE241-(1)	Pilot Tube Installation Tool Kit
TE61	Thickness Gauge	TE309	A-1852 Ring Press Tool
TE64-(1)	Bearing Installation Tool	TE311	Pilot Tube Removal Stop
TE65	Retainer Installation Tool	TE321	Flatness Gauge
TE107	Pilot Tube Removal Tool	TE404-1	Stud Installation/Torque Check Tool
TE108	Retention Bearing Puller	TE487	Stud Fixture Plate
TE113	Plug-Lifting Ring	TE538	Shank Spacer Puller
TE114	Alignment Rod	TE659	Bonding Fixture

H. Falcon Reciprocating Tool List

Line Maintenance Tools

<u>Tool Number</u>	<u>Description</u>
n/a	

Overhaul Tools

<u>Tool Number</u>	<u>Description</u>	<u>Tool Number</u>	<u>Description</u>
TE661	Bearing Installation Tool	TE662	Spring Installation Tool

I. Dual Acting Tool List

Line Maintenance Tools

<u>Tool Number</u>	<u>Description</u>	<u>Tool Number</u>	<u>Description</u>
TE23	Check Box Assembly	TE262	Wire Rope
TE26	Control Rod Alignment Tool	TE318	Ground Hydraulic Power Unit
TE69	Transfer O-ring Installation Tool	TE320	Transfer Tube and Plug Removal/ Installation Tool
TE79, TE276	Dual Acting Line Maintenance Kit	TE492	Chip Detector Fitting
TE84	Rigging Pin	TE493	Chip Detector Fitting Cover
TE155	Torque Wrench Adapter		
TE214	Crowfoot Wrench		

Overhaul Tools

<u>Tool Number</u>	<u>Description</u>	<u>Tool Number</u>	<u>Description</u>
N/A	Dual Acting Tool List	TE258	Apex Torque Set Bit (1/4 inch)
TE3	Pitch Lock Wrench Adapter	TE259	Replaceable Head Drive Bit
TE10	Dual Acting Building Buck	TE260	Nylon Jack Screw
TE26	Control Rod Alignment Tool	TE261	Ball Hex Head, Hex Wrench
TE74	Spacer Ring Installation Tool	TE263	Installation & Extraction Tool
TE84	Rigging Pin	TE264	Installation & Extraction Tool
TE109	6-point 3/8 Drive Socket	TE265	Crimping Tool
TE141	Clamp Wrench	TE266	Lee Plug Installation Tool
TE155	Torque Wrench Adapter	TE267	Lee Plug Extraction Tool
TE159	Headless Pin	TE268	Lee Plug Installation Tool
TE166	12-point 1/4 Drive Socket	TE269	Lee Plug Extraction Tool
TE176	1/8 Pin Spanner Wrench	TE270	Lee Plug Installation Tool
TE202	12-point 3/8 Drive Deep Well Socket	TE271	Lee Plug Extraction Tool
TE229	5/32 Hex Head 3/8 Drive Socket	TE272	Lee Plug Installation Tool
TE248	3/8 Drive Breaker Bar	TE273	Lee Plug Extraction Tool
TE249	Open End Wrench	TE299 - TE301	E13890 Master Balance Tube
TE250	12-point 3/8 Drive Socket	TE305	Dial Calipers (0 - 6inch)
TE252	Thickness Gauge	TE323	Lee Plug Installation Tool
TE253	Adjustable Torque Wrench (5-75 ft/lb)	TE324	Lee Plug Extraction Tool
TE254	Adjustable Torque Wrench (30-200 in/lb)	TE330	Rubber Roller
TE255	3/8 Extension Drive	TE361	Bolt Alignment Tool
TE257	Miniature Pick Set	TE430	No-Go Gauge
		TE431, TE460	E13890 Master Balance Tube

J. Hovercraft Tool List

Overhaul Tools

<u>Tool Number</u>	<u>Description</u>	<u>Tool Number</u>	<u>Description</u>
TE439	Ball Hex Driver	TE519	5-blade Hovercraft Adapter
TE495	Torque Wrench Adapter	TE520	6-blade Hovercraft Adapter
TE509	Check Cylinder		

K. Governor/PCU Tool List

Overhaul Tools

<u>Tool Number</u>	<u>Description</u>	<u>Tool Number</u>	<u>Description</u>
TE3	Pitch Lock Wrench Adapter	TE274	Bonding Clamp
TE58	Rigging Cover	TE296	Removal Drill Jig
TE63	Piston Installation Cone	TE297	PCU Stand
TE70, TE71	PCU Bushing Installation Tool	TE310	Drive Coupling Centering Tool
TE72	PCU Manifold Installation Tool	TE356, TE357	PCU Filter Removal Tool
TE99	Pitch Lock Bearing Removal Tool	TE362	Pitch Lock Roller Fixture
TE117	Beta Valve Freeze Sleeve	TE363	Roller Assembly Tool
TE136	Flight Idle Set Fixture	TE364	Go-No-Go Gauge
TE157	Beta Switch Tester	TE369	Pin Extractor
TE185, TE186	PCU Bearing Installation Tool	TE370	Branson Benchtop Cleaner
TE238	Bearing Press Tool Kit	TE395 - TE402	Gear Inspection Wire
TE251	Modified Deep Well Socket	TE499	Crimp Tool

L. Composite/Aluminum Blade Tool List

Overhaul Tools

<u>Tool Number</u>	<u>Description</u>	<u>Tool Number</u>	<u>Description</u>
TE82	Leading Edge Replacement Tooling Kit	TE452	Tube Puller Assembly
TE275, TE328 thru TE331	Roller	TE454	Plug Puller
TE302, TE304	Tail Edge Blanket	TE455	Blade Spud Adapter
TE306, TE307	Standard 4-position Temp-Plate® Recorder	TE456	Mandrel
TE333, TE334	Balance Tube Positioner	TE531	Balance Adapter
TE438	Blade Pitch Fixture	TE532	Bantam Blade Spud Adapter
TE442	Composite Balance Tube Puller	TE534, TE539	Blade Inspection Adapter
TE449-(1)	E-shank Form Tool	TE535	Drill jig
TE450	E-shank Potting Mold	TE641	Sealant Gun Assembly
		TE651	Blade Boot Alignment Tool

M. Special Process Tool List

Eddy Current Test Tools

<u>Tool Number</u>	<u>Description</u>	<u>Tool Number</u>	<u>Description</u>
TE94-(), TE434, TE501	Eddy Current Probe	TE315	Probe Holder
TE95	Eddy Current Probe Unit	TE435, TE500	Calibration Standard
TE121	Eddy Current Test Block	TE516	Double Shoulder Blade Eddy Current Kit
TE128	Probe Support	TE643	Eddy Current Test Shank
TE133, TE134	Eddy Current Test Instrument		

Shot Peen Tools

<u>Tool Number</u>	<u>Description</u>	<u>Tool Number</u>	<u>Description</u>
TE12	Shot Peen Cabinet	TE379	Shot Peen Gun Assembly
TE46	Screwdriver, for TE118-()	TE405	Shot Peen Protection Kit
TE49	Almen Strip Fixture	TE428	Mask Screw
TE87 - TE92, TE371, TE372, TE458	Shot Peen Plug	TE446	Shot Peen Machine Assembly
TE110	Plug Removal Tool	TE447	Blade Shank Knob - Shot Peen Kit
TE118-(1,2,3)	Shot Peen Masking Screw	TE494- (1,2,3,4)	Shot Nozzle Unit
TE137	Shot Peen Tube Assembly	TE601, TE602	Shot Peen Mask Tool

Surface Finish Tools

<u>Tool Number</u>	<u>Description</u>	<u>Tool Number</u>	<u>Description</u>
TE436-(1,2)	Profilometer	TE497	Drive Housing
TE437	Probe Housing	TE498	Roughness Standard
TE496	Mounting Bracket		

Paint/Cadmium Plate Tools

<u>Tool Number</u>	<u>Description</u>	<u>Tool Number</u>	<u>Description</u>
TE414 thru TE419	Paint Mask Cap	TE636	Mask
TE444	Cadmium Plate Masking Fixture		

Blade Retention Inspection Tools

<u>Tool Number</u>	<u>Description</u>	<u>Tool Number</u>	<u>Description</u>
TE18-()	Optical Comparator Overlay	TE28	Optical Comparator
TE27	Hub Bearing Radius Comparator		

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Ultrasonic Flaw Detection Tools

<u>Tool Number</u>	<u>Description</u>	<u>Tool Number</u>	<u>Description</u>
TE277	Ultrasonic Calibration Standard	TE374	Transducer Assembly
TE285	Ultrasonic Flaw Detector Kit	TE375	Ultrasonic Flaw Detector

Blade Shank Rolling Tools

<u>Tool Number</u>	<u>Description</u>	<u>Tool Number</u>	<u>Description</u>
TE116-3	Shank Rolling Machine	TE638	Force Gauge
TE116-5	Automated Rolling Machine	TE639	Position Gauge
TE503	Spacer Blank	TE640	Torque Wrench Adapter
TE594	C-shank Rolling Conversion Kit	TE650	Roller Press
TE637	Hardware Kit		

Shipping/Receiving Tools

<u>Tool Number</u>	<u>Description</u>	<u>Tool Number</u>	<u>Description</u>
TE13 - TE16	Shank Protection Cap	TE119	Shipping Sleeve

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TE439	Ball Hex Driver	2-112
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TE518	Torque Unit Adapter	2-140
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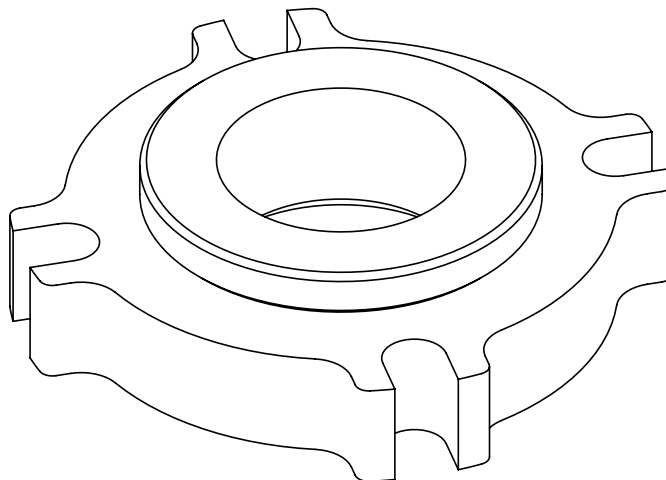
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TE636	Mask	2-158
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TE661	Bearing Installation Tool	2-175
TE662	Spring Installation Tool	2-176
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A-flange Adapter

Part Number: BST-2912-9 (TE2)

Description: Tool used to mount A-flange single acting propellers to the propeller assembly table CST-2901(-) (TE129). Refer to the building buck components (TE125).

Vendor: Hartzell Propeller (HP)



TPI-BST-2912-9

Pitch Lock Wrench Adapter

Part Number: BST-3035 (TE3)

Description: Adapter to remove or install the front bearing nut in the HD-E6C-3 propeller.

Vendor: Hartzell Propeller (HP)



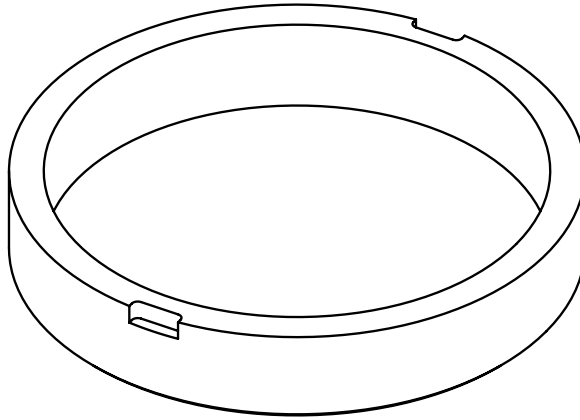
TPI-BST3035

N-flange Adapter Ring

Part Number: BST-2912-4 (TE4)

Description: Tool used to mount N-flange propellers on the propeller assembly table CST-2901(-) (TE129). Refer to the building buck components (TE125).

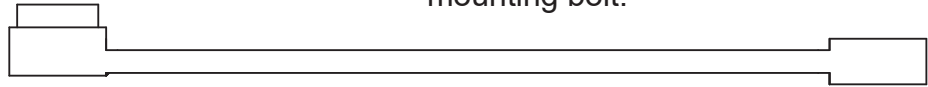
Vendor: Hartzell Propeller (HP)



TPI-BST-2912-4

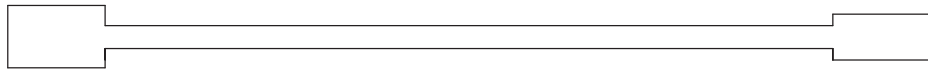
Torque Wrench Adapter

Part Number: AST-2877 (TE5) 5/8 inch Used for lightweight turbine propellers that use 5/8, 12 point propeller mounting bolt.



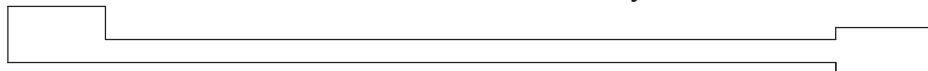
TPI-JM-000143

AST-2877-1 (TE155) 11/16 inch Used for dual acting and light weight turbine propellers that use a 9/16-18, 12 point mounting nut.



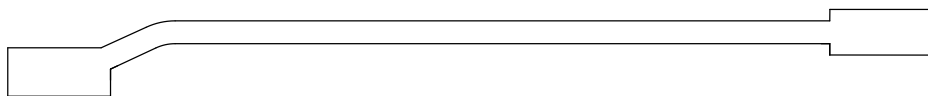
TPI-JM-000144

AST-2877-2 (TE551) 11/16 inch Used for HC-E4P-3K and HC-E5P-3 installation only.



TPI-JM-000145

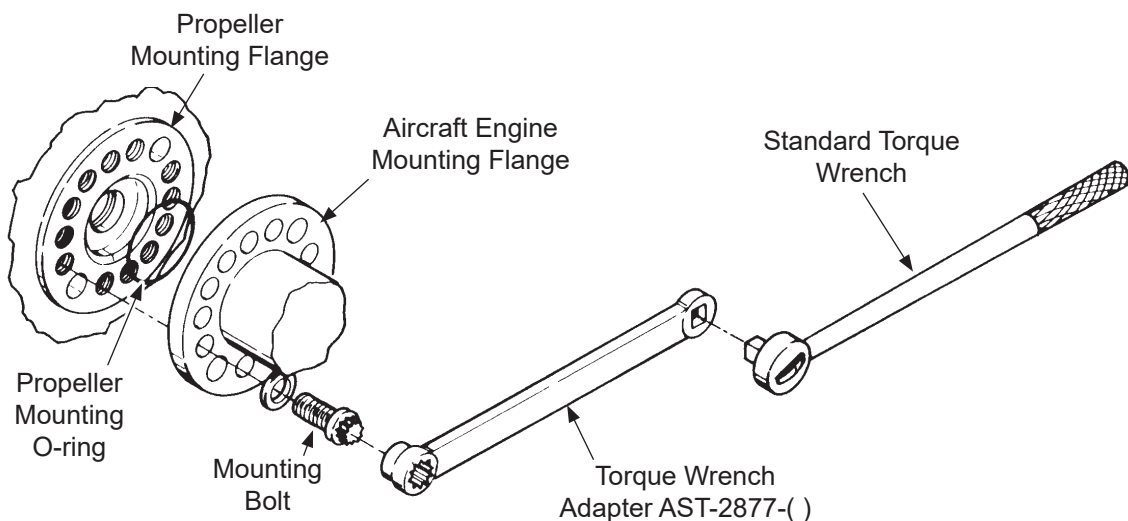
AST-2877-3 (TE642) 11/16 inch Used for Raptor propeller models ()D3()-()K().



TPI-JM-000146

Description: Wrench adapter to install and torque mounting bolts. Used in conjunction with a standard 1/2 inch square drive torque wrench.

Vendor: Hartzell Propeller (HP)



TPI-APS0543

Torque Wrench Adapter

Part Number: BST-2837 (TE6)
Supersedes BT-2837

Description: Used to torque the pitch change rod in compact aluminum -2 propellers.
Used with a standard 1/2 inch square drive torque wrench.

Vendor: Hartzell Propeller (HP)

Components:

Hartzell P/N

BST-2837+1+3 (TE385)

Replaced by BST-2837+1 (TE385-1)

BST-2837+1 (TE385-1)

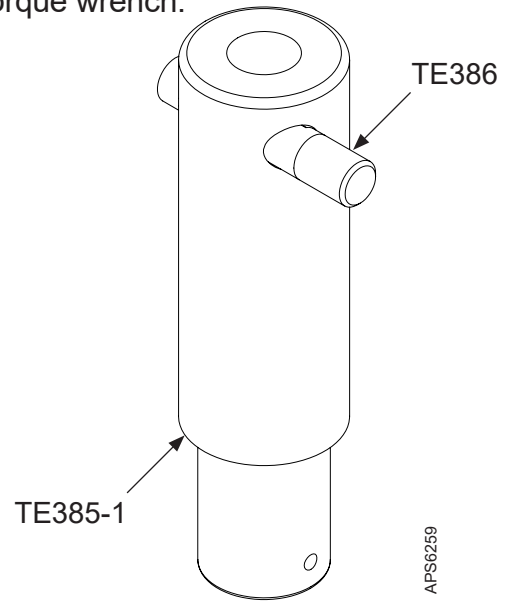
BST-2837+2 (TE386)

Description

Modified Socket

Socket

Anti-Rotation Pin

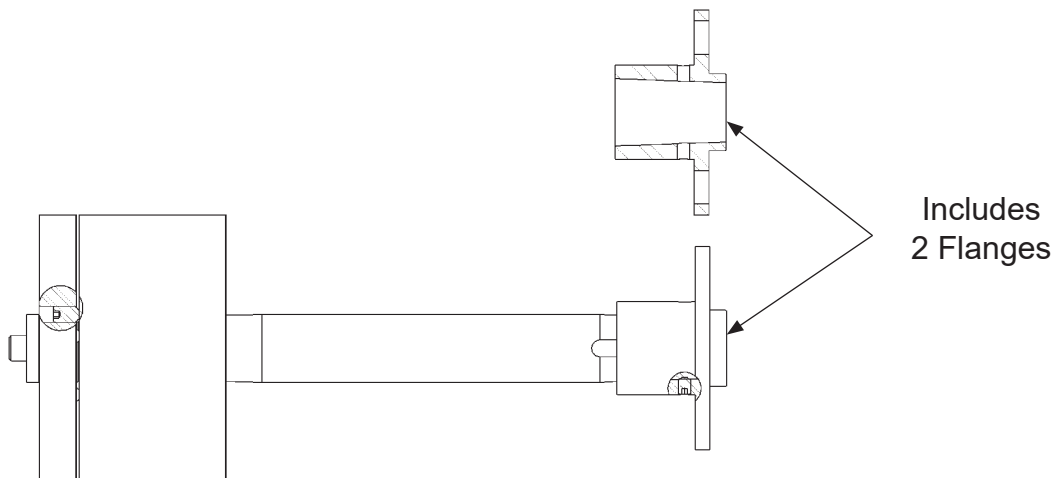


Balance Arbor

Part Number: CST-2919 (TE8)
Supersedes CT-2210 and CSK-155

Description: Used to determine the location of the static balance weights on a completed propeller assembly. Used with customer supplied balance units. Works with 2 to 5 bladed propellers with F, K, L, N, and R-flange hubs.

Vendor: Customer Supplied (CS)



Spring Assembling Tool

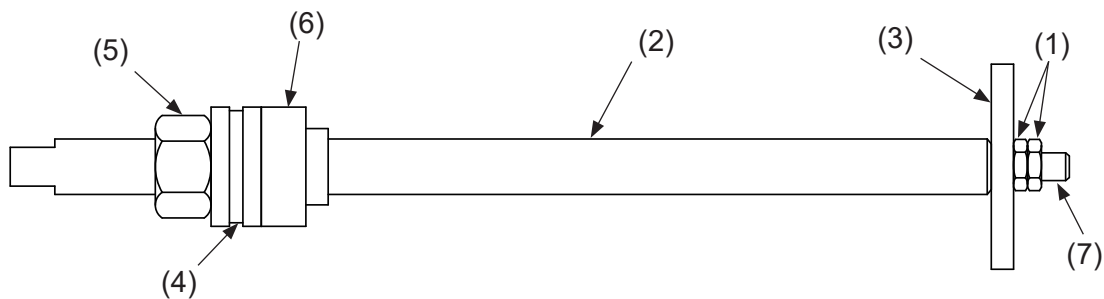
Part Number: BST-2853 (TE9)

Description: Tool to assemble and disassemble the feather assist spring assembly on feathering aluminum compact/Bantam -2 propellers. Used with AST-2981 (TE319) assembly guide.

Vendor: Hartzell Propeller (HP)

Components:

<u>Figure No.</u>	<u>Hartzell P/N</u>	<u>Vendor</u>	<u>Vendor P/N</u>	<u>Description</u>	<u>Quantity</u>
(1)	B-3368	n/a	n/a	5/16-24 Thin Hex Nut	1
(2)	BST-2850	n/a	n/a	Threaded Rod	1
(3)	AST-2852	n/a	n/a	Drilled Washer	1
(4)	BST-3152	Aetna Consolidated INA USA Corp.	F-3 GT-3 GT-3	Thrust Ball Bearing	1
(5)	BST-3151	n/a	n/a	5/8 Hex Nut	1
(6)	AST-2851	n/a	n/a	Guide Washer	1
(7)	A-3204	n/a	n/a	5/16-24 Set Screw	1



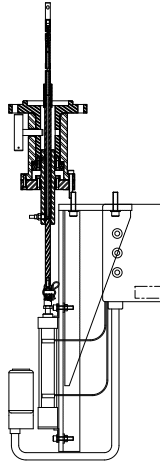
TPI-BST2853

Dual Acting Building Buck

Part Number: CST-3021 (TE10)

Description: An add-on package compatible with CST-2901(-) propeller assembly tables. Permits the ability to control HD-E6C type propellers. The add-on package includes a mounting bracket, electric actuator, push button control box, BST-2912-10 C-flange spindle adapter, and the hardware to interface with the propeller. Requires 105-125V AC, 50/60 Hz or 208-245V AC, 50/60 Hz source. Hole drilling and some assembly required.

Vendor: Hartzell Propeller (HP)



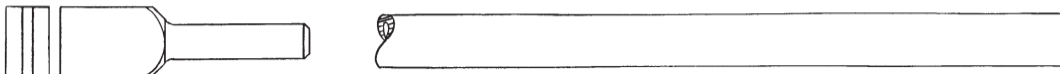
CST-3021.AI

Spinner Mounting Plate Bender

Part Number: BST-2823 (TE11)
Supersedes B-2823

Description: Spinner mounting plate bender to achieve acceptable deice slip ring runout.

Vendor: Customer Supplied (CS)



TPI-BST2823

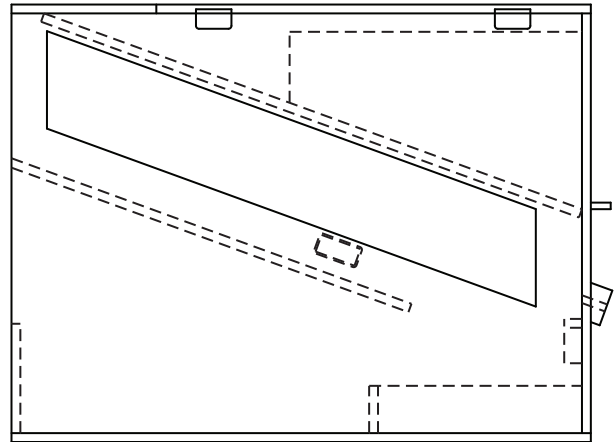
Shot Peen Cabinet

Part Number: CT-1311 (TE12)

Description: Cabinet to house and support the blade during lead hole shot peening. Used with BT-1271 (TE137), BT-1312 (TE49), BT-1271-() (TE494-[]) and 02643 (TE379).

NOTE: This part number can be used to order the drawing for local fabrication.

Vendor: Customer Supplied (CS)



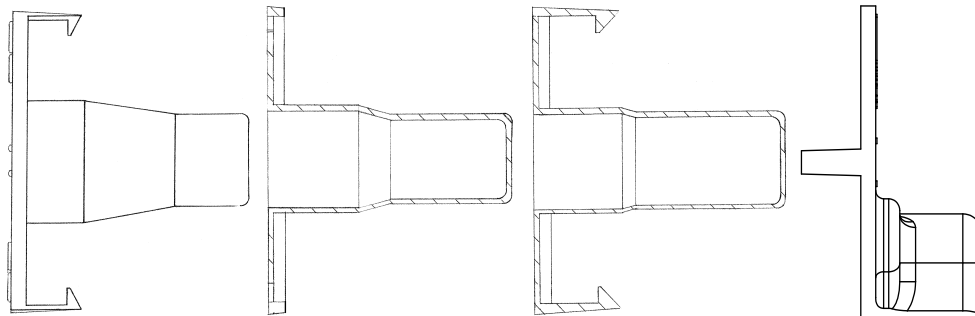
TPI-APS-180A

Shank Protection Cap

<u>Part Number:</u> BST-2942 (TE13)	T, S, and M-shanks
BST-2943 (TE14)	V, MV, N, and X-shanks
BST-2944 (TE15)	W, R, Z, and P-shanks
BST-2945 (TE16)	D and Y-shanks

Description: Cap to protect blade shank and bore during shipping and storage. BST-2942 is shown.

Vendor: Hartzell Propeller (HP)



BST-2942

BST-2943

BST-2944

BST-2945

TPI-BST2942

Optical Comparator Overlay

Part Number: TE18-()

Description: Clear plastic sheet with lines representing the required shape of the retention radius. Used with a locally procured optical comparator (TE28).
All of the revision levels listed in the table are permitted.

Vendor: Hartzell Propeller (HP)

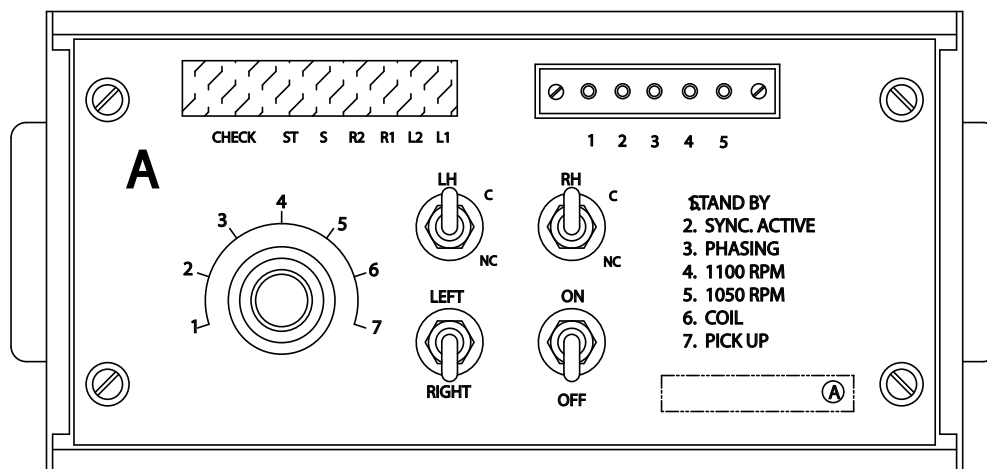
<u>Hartzell P/N</u>	<u>Shank Type</u>	<u>Revision Level</u>	<u>Used With</u>	<u>Blade Type</u>
CST-2923 (TE18-1)	D, Y	B, C, D		Aluminum
CST-2924 (TE18-2)	X, V, and V with an N modification	C, D, E		Aluminum
CST-2925 (TE18-3)	Z, W, T, S	B, C, D		Aluminum
CST-2926 (TE18-4)	M, R, P	B, C, D		Aluminum
CST-2989 (TE18-5)	E	E		Aluminum
CST-10050 (TE18-6)	MV with N modification	Orig., A, B		Aluminum
GT-3669 (TE18-7)	E	A	TE449 and TE450	Composite
106415 (TE18-8)	D	---		Composite
106554 (TE18-9)	C, G	---		Composite
106784 (TE18-10)	N	---		Composite

Check Box Assembly

Part Number: DST-10014 (TE23)

Description: Check box to perform functional check of synchrophaser computer and related air frame components.

Vendor: Hartzell Propeller (HP)



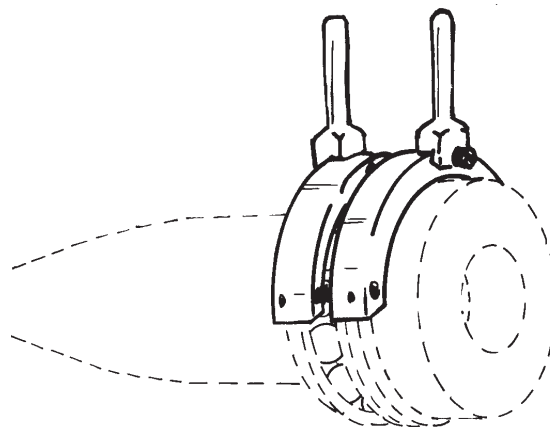
TPI-DST-10014

Blade Retention Components Clamp

Part Number: CST-2800 (TE24)

Description: Clamp to hold the blade retention components onto the blade shank for installation into the hub. Designed to fit D and Y-shank blades.

Vendor: Customer Supplied (CS)



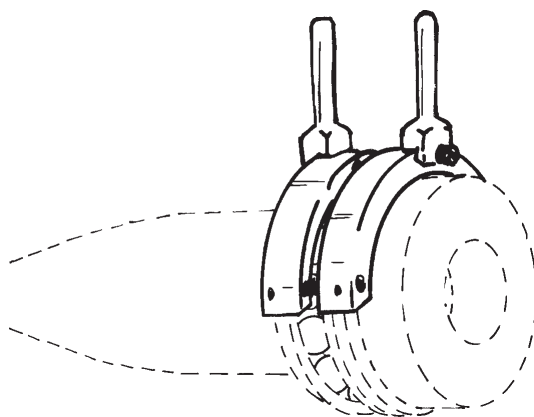
TPI-APS0162

Blade Retention Components Clamp

Part Number: CST-2929 (TE25)

Description: Clamp to hold the blade retention components onto the blade shank for installation into the hub. Designed to fit A and E-shank blades, and N-shank composite blades in lightweight compact hubs.

Vendor: Customer Supplied (CS)



TPI-APS0162

Control Rod Alignment Tool

Part Number: BST-3038 (TE26)

Description: Used to re-align the control rod to control valve in the HD-E6C-3 propeller.

Vendor: Hartzell Propeller (HP)



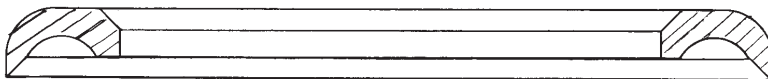
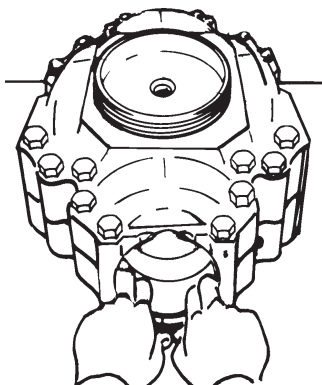
TPI-BST3038

Hub Bearing Radius Comparator

Part Number: AST-2870 (TE27)

■ Description: Comparator to ensure proper fit of blade retention bearing into D or Y-shank hubs.

■ Vendor: Hartzell Propeller (HP)



TPI-APS0155
TPI-AST-2870

Optical Comparator

Part Number: Cust. P/N (TE28)

Description: Device used to verify the accuracy of repair work performed on the blade shank retention area. An optical comparator must meet the following minimum specifications:

- Effective diameter of the protractor screen - 14 inches (356 mm)
- Projection lens - 10x
- X-axis
 - Measuring range - 8 inches (203 mm)
 - Reading - 0.00005 inch (0.001 mm)
- Y-axis
 - Measuring range - 4 inches (102 mm)
 - Reading - 0.00005 inch (0.001 mm)

Refer to the applicable Hartzell Propeller blade overhaul manual for optical comparator procedures.

Vendor

Vendor P/N

S-T Industries, Inc. (SI)

14-8000-SP - (Superseded by part no. 20-3500-07)
20-3500-07 - (Supersedes part no. 14-8000-SP)
20-3500-08 - (Supersedes part no. 20-3500-07)

Micro-Vu Corp. (MV)

H-14

Eastman Kodak Company (EK)

314

J & L Metrology Division (JL)

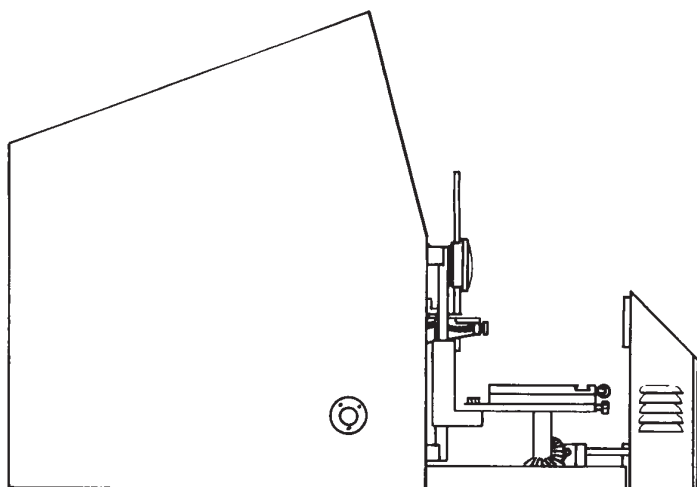
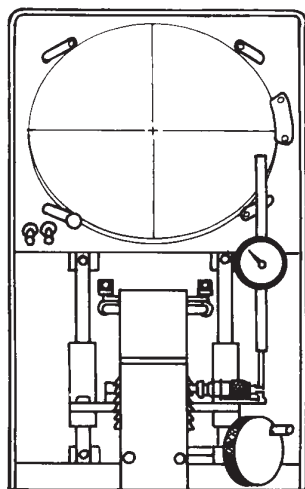
PC-14

Baty International (BI)

R14

Mitutoyo (MT)

PH-A14



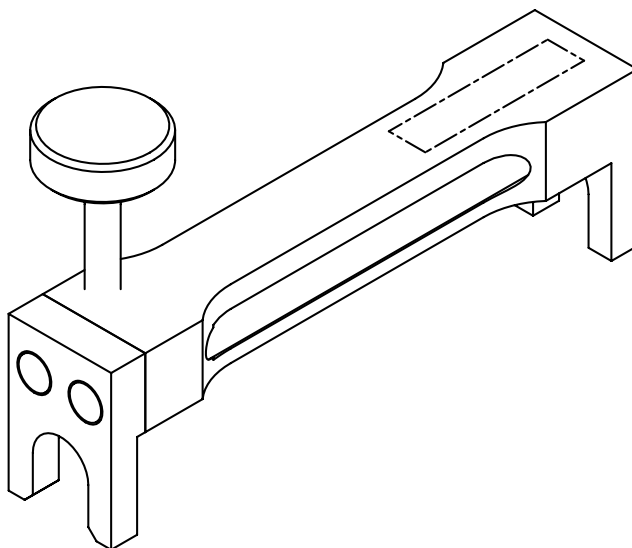
TPI-APS6116

Spring Compressor Assembly Tool

Part Number: AT-725-1 (TE29)

Description: Spring compressor for beta springs during assembly.

Vendor: Hartzell Propeller (HP)



TPI-W10091

Spring Compressor Assembly

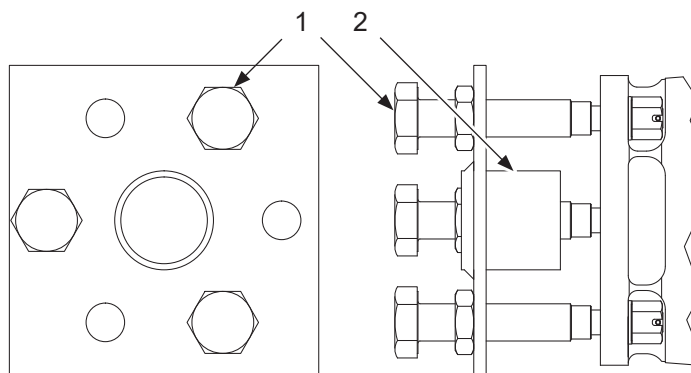
Part Number: BST-2826 (TE30)

Description: Spring compressor to compress or decompress the feathering spring for propeller assembly or disassembly on propeller model HC-E2Y()-2().

Vendor: Hartzell Propeller (HP)

Components:

- 1 AST-2827 (TE282) Spring Compressor Bolt
- 2 BST-2828 (TE283) Spring Compressor Slide



TPI-BST2826

Spring Compressor Assembly

Part Number: BST-2826-1 (TE31)
BST-2826-2 (TE625)

Description: Spring compressor to compress or decompress the feathering spring/flange half spring for the C-clip and split keeper removal.
TE31 used on propeller model HC-E2Y()-2()
TE625 used on propeller model HC-E3YR-7()

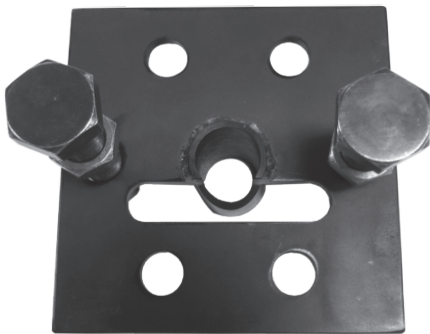
Vendor: Hartzell Propeller (HP)

Components of TE31:

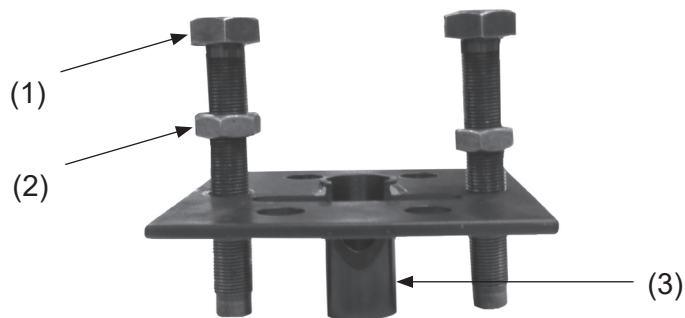
<u>Figure No.</u>	<u>Hartzell P/N</u>	<u>Description</u>	<u>Quantity</u>
(1)	AST-2827-1 (TE284)	Spring Compressor Bolt	3
(2)	AST-4223-12	Thin Hex Nut	3
(3)	BST-2828 (TE283)	Spring Compressor Slide	1

Components of TE625:

<u>Figure No.</u>	<u>Hartzell P/N</u>	<u>Description</u>	<u>Quantity</u>
(1)	AST-2827-1 (TE284)	Spring Compressor Bolt	3
(2)	AST-4223-12	Thin Hex Nut	3
(3)	BST-2828-1 (TE626)	Slide	1



Top view of TE625



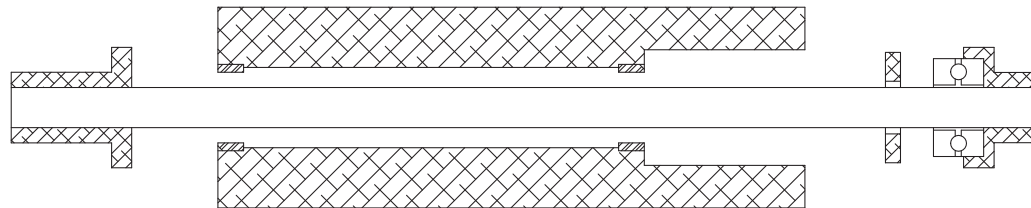
TPI-165A-BST-2826-2,
BST2826A

Portable Spring Compressor

Part Number: CST-3016 (TE32)

Description: Spring compressor for feathering spring assembly during assembly or disassembly of lightweight turbine E-shank 5 and 6 Way propellers.

Vendor: Hartzell Propeller (HP)



TPI-CST3016

Crowfoot Wrench, 1/2" Drive

<u>Part Number:</u>	SC038 (TE33)	1-3/16 inch
	SC040 (TE34)	1-1/4 inch
	SC042 (TE35)	1-5/16 inch
	SC046 (TE144)	1-7/16 inch
	Supersedes B-842, BST-2911	
	SC048 (TE36)	1-1/2 inch
	SC052 (TE37)	1-5/8 inch
	SC056 (TE38)	1-3/4 inch
	SC058 (TE144-1)	1-13/16 inch
	Supersedes B-842-1, BST-2911-1 (TE145)	
	Replaces BST-3030 (TE41)	
	SC060 (TE39)	1-7/8 inch

Description: Used propeller assembly and disassembly.

Vendor: Snap-On Tools Corporation (SO)

Crowfoot Wrench, 3/8" Drive

<u>Part Number:</u>	BST-3027 (TE40)	modified 1-5/16 inch
	BST-3031 (TE42)	modified 1-3/4 inch
	BST-3033 (TE43)	modified 1-7/16 inch
	9943GFC48 (TE192)	1-1/2 inch
	9943FC012 (TE214)	3/8 inch
	GFC60A (TE256)	1-7/8 inch
	BST-10015 (TE360)	modified 1-1/4 inch

Description: Used to loosen, tighten, and/or torque components on a propeller. Can be self procured.

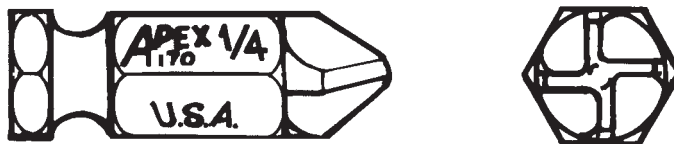
Vendor: Snap-On Tools Corporation (SO)

Apex Torq-set® Bit

Part Number: 170-1/4A (TE44)

Description: Bit to remove, install and torque self-locking mounting screws.

Vendor: APEX Fasteners (AP)



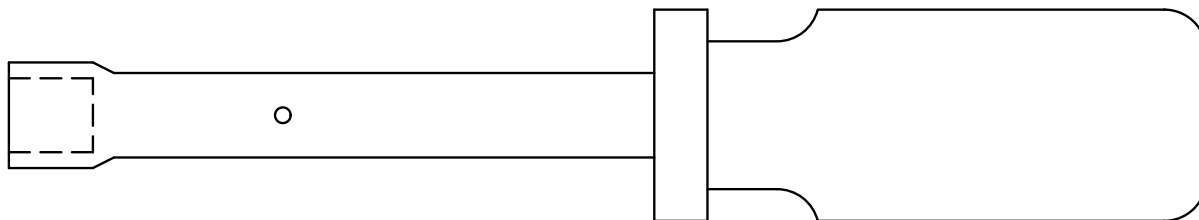
APS-0146

Screwdriver

Part Number: BST-3060-1 (TE46)

Description: Screw driver to install shot peen mask screw TE118-().

Vendor: Hartzell Propeller (HP)



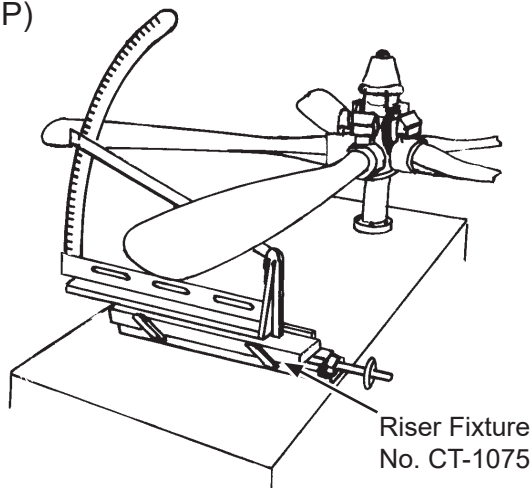
TPI-BST3060A

Adjustable Riser Fixture

Part Number: CT-1075 (TE48)

Description: Fixture to permit blade angle measurements during assembly. Used in conjunction with a bench-top protractor. For propeller models with extended hubs, adjust fixture to raise the mechanical bench top protractor TE96. A fully collapsed to fully raised fixture adds from 2.00 inches (50.8 mm) to 4.1 inches (104.1 mm) of lift.

Vendor: Hartzell Propeller (HP)



Riser Fixture
No. CT-1075

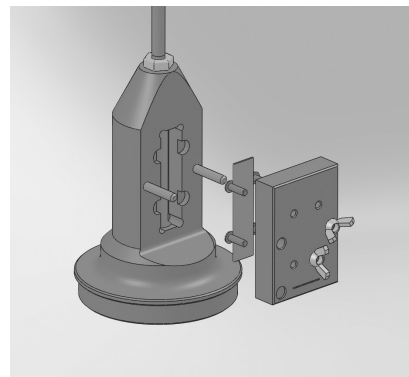
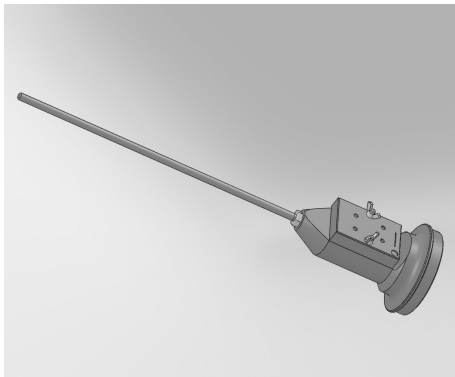
TPI-APS-0159

Almen Strip Fixture

Part Number: 104381 (TE49)
Supersedes BT-1312

Description: Fixture to confirm shot intensity in the lead hole of a blade.

Vendor: Hartzell Propeller (HP)



TPI-TI-165006
TPI-TI-165007

Chamfering Tool

Part Number: BST-5845 (TE50)

Description: A six fluted, 45 degree chamfering tool used to chamfer grease fitting holes in aluminum hubs.

Vendor: Hartzell Propeller (HP)



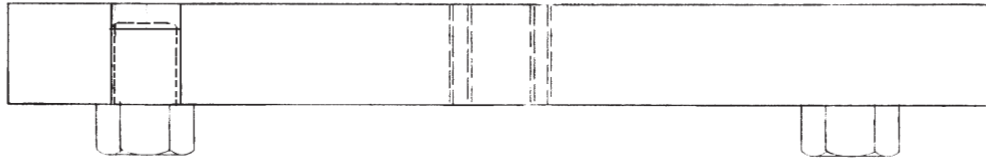
TPI-BST-5845

C-3021-5 Piston Drill Fixture

Part Number: BST-2920 (TE51)

Description: Fixture to modify C-3201 Piston for installation of external feather stop.

Vendor: Hartzell Propeller (HP)



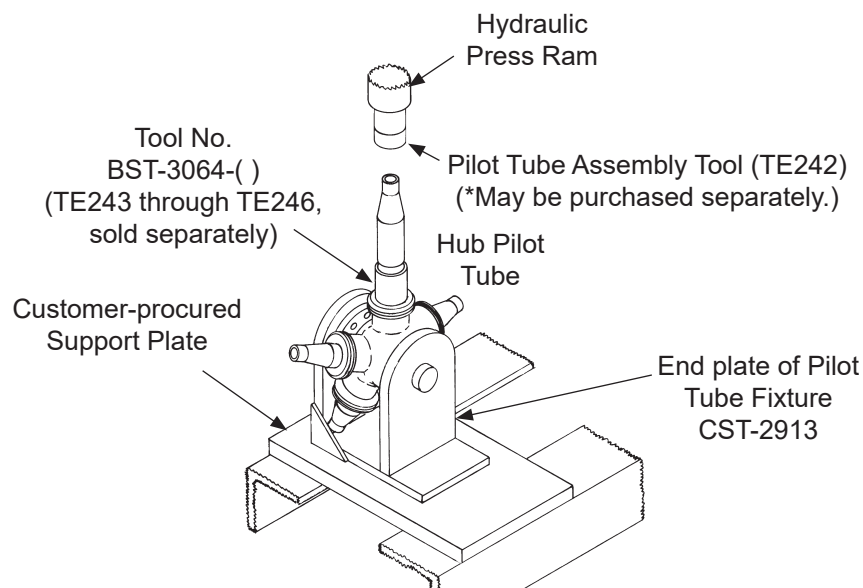
TPI-BST2920

Pilot Tube Press Fixture

Part Number: CST-2913 (TE52)
Supersedes B-843-2

Description: Fixture to securely hold the propeller hub during pilot tube installation. The press is customer procured. Press must be capable of generating up to 25 tons of force, have an adjustable press opening height, and at least 3.5 inches (88.9 mm) of stroke.

Vendor: Hartzell Propeller (HP)



APS197-1

* TE242 can only be used with a hydraulic press that accepts a ram adapter that is 0.75 inch (19.0 mm) diameter by 1.25 inches (31.7 mm) long. For other hydraulic presses, the ram adapter is customer procured.

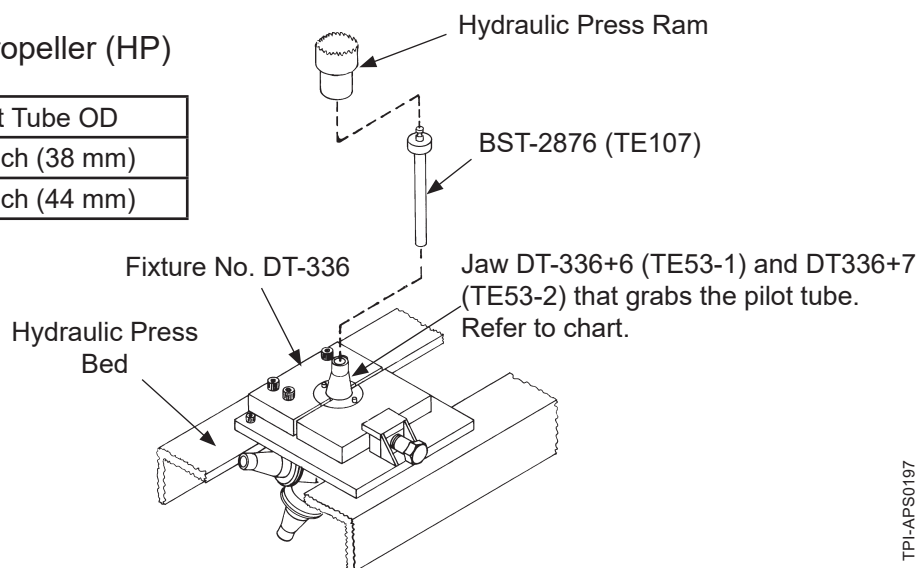
Pilot Tube Removal Fixture

Part Number: DT-336 (TE53)

Description: This part number may be used to order the drawing of the pilot tube removal fixture for local fabrication. Fixture to hold the hub during pilot tube removal. Replacement jaws are available. Used with customer procured hydraulic press.

Vendor: Hartzell Propeller (HP)

Jaw	Pilot Tube OD
DT-336+6 (TE53-1)	1.5 inch (38 mm)
DT-336+7 (TE53-2)	1.7 inch (44 mm)



TPI-APS0197

Piston Fixture

Part Number: BST-2892 (TE54) HC-B3()30-2E

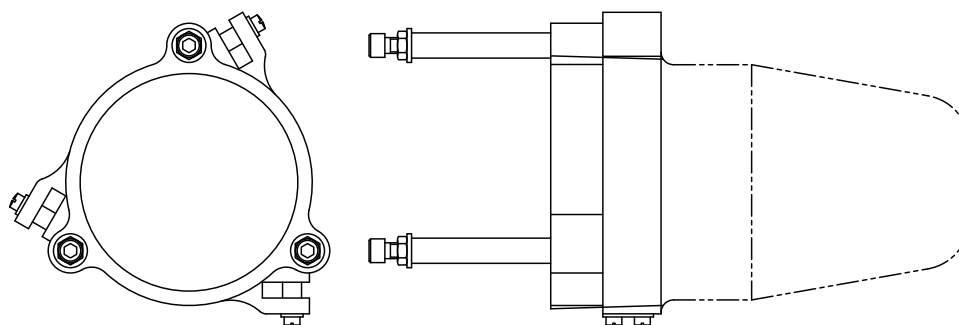
BST-2892-1 (TE55) ALL #20 Spline

BST-2892-2 (TE56) HC-B3()30-2B

Description: Fixture to balance propellers. Used with some models of Marvel Manufacturing Company balancers.

NOTE: For left hand propeller, add an L to the dash number of the fixture.

Vendor: Hartzell Propeller (HP)



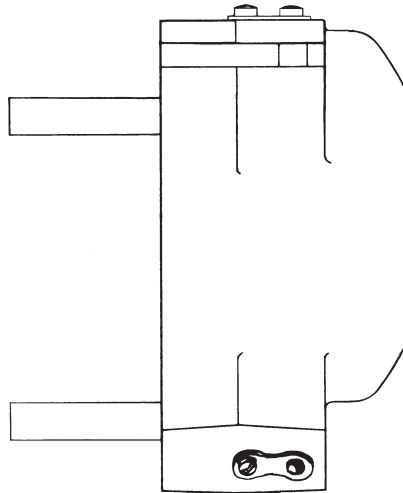
TPI-BST2892

Piston Fixture

Part Number: BST-2908 (TE57)
Supersedes BSK-484

Description: Fixture to balance propeller models ()HC-A3VF-4 and HC-B3WF-4.
Used with some models of Marvel Manufacturing Company balancers.

Vendor: Hartzell Propeller (HP)



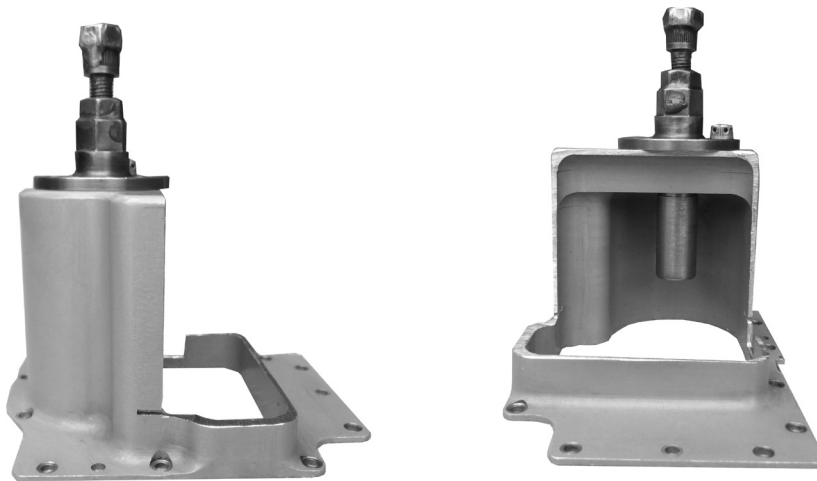
TPI-BST2908

Rigging Cover

Part Number: BST-10006 (TE58)

Description: Cover used to actuate the PCU beta light switch at pre-set position to assist in beta light switch rigging. To be used in conjunction with BST-10005 Beta Light Switch Test Box.

Vendor: Hartzell Propeller (HP)



TPI-BST-10006A
TPI-BST-10006B

Spring Compressor Assembly (page 1 of 2)

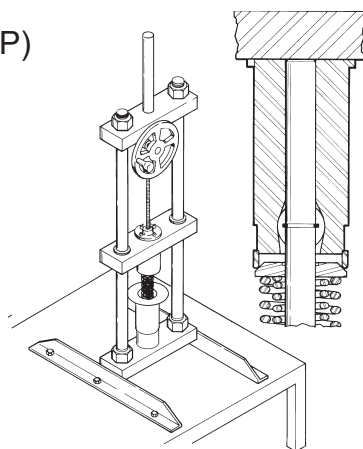
WARNING: USE EXTREME CAUTION DURING DISASSEMBLY. THE FEATHERING SPRING ASSEMBLY MAY BE PRELOADED TO OVER 2000 POUNDS FORCE.

Part Number: CST-2914 (TE59)
Supersedes CSD-4900, C-845-2

Description: Fixture to compress the feathering spring sufficiently to allow assembly or disassembly of the spring assembly. Use the following Spring Assembly tooling in addition to the Spring Compressor Assembly.

NOTE: This fixture is not to be used on 5 and 6 way propellers with an E or A-shank. The fixture to be used for E-shanks is CST-3016 (TE32) and the fixture for A-shanks is customer supplied.

Vendor: Hartzell Propeller (HP)



APS-0545

The following tooling is required in addition to the CST-2914 Spring Compressor Fixture:

<u>Description</u>	<u>Base</u>	<u>Retainer</u>	<u>Guide Rod</u>
HC-E5(A,N,P)-3	106885 (TE488-3)	106884 (TE489-4) BST-2899 (TE489-3)	BST-2905 (TE490-3) (Optional)
<u>Spring Assembly</u>	<u>Base</u>	<u>Retainer</u>	<u>Guide Rod</u>
831-1A	BST-2894 (TE488-2)	BST-2895 (TE489)	BST-2907 (TE490-4)
831-2	BST-2890 (TE488)	BST-2899 (TE489-3)	BST-2905 (TE490-3)
831-3	BST-2894 (TE488-2)	BST-2895 (TE489)	BST-2907 (TE490-4)
831-4	BST-2894 (TE488-2)	BST-2895 (TE489)	BST-2907 (TE490-4)
831-5A, B, C	BST-2894 (TE488-2)	BST-2895 (TE489)	BST-2907 (TE490-4)
831-6	BST-2894 (TE488-2)	BST-2895 (TE489)	BST-2907 (TE490-4)
831-7	BST-2890 (TE488)	BST-2899 (TE489-3)	BST-2905 (TE490-3)
831-8	BST-2890 (TE488)	BST-2895 (TE489)	BST-2904 (TE490-2)
831-9	BST-2890 (TE488)	BST-2899 (TE489-3)	BST-2905 (TE490-3)
831-10	BST-2890 (TE488)	BST-2899 (TE489-3)	BST-2905 (TE490-3)
831-13	BST-2891 (TE488-1)	BST-2899 (TE489-3)	BST-2905 (TE490-3)
831-14	BST-2894 (TE488-2)	BST-2895 (TE489)	BST-2907 (TE490-4)
831-15	BST-2891 (TE488-1)	BST-2899 (TE489-3)	BST-2905 (TE490-3)

Spring Compressor Assembly (page 2 of 2)

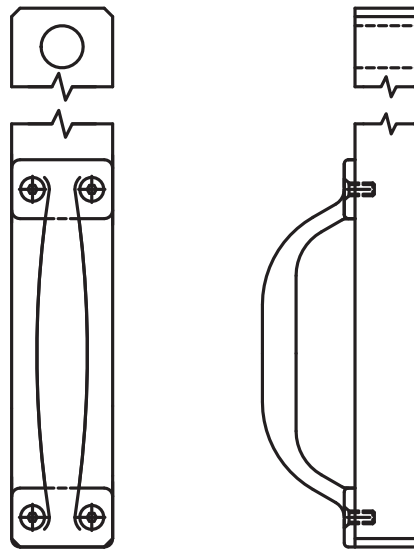
<u>Spring Assembly</u>	<u>Base</u>	<u>Retainer</u>	<u>Guide Rod</u>
831-16	BST-2890 (TE488)	BST-2899 (TE489-3)	BST-2905 (TE490-3)
831-16A	BST-2890 (TE488)	BST-2899 (TE489-3)	BST-2905 (TE490-3)
831-17	BST-2890 (TE488)	BST-2899 (TE489-3)	BST-2905 (TE490-3)
831-18	BST-2890 (TE488)	BST-2899 (TE489-3)	BST-2905 (TE490-3)
831-19	BST-2890 (TE488)	BST-2895 (TE489)	BST-2902 (TE490)
831-20	BST-2894 (TE488-2)	BST-2895 (TE489)	BST-2903 (TE490-1)
831-21	BST-2894 (TE488-2)	BST-2896 (TE489-1)	BST-2903 (TE490-1)
831-22	BST-2890 (TE488)	BST-2896 (TE489-1)	BST-2902 (TE490)
831-23	BST-2894 (TE488-2)	BST-2895 (TE489)	BST-2902 (TE490)
831-23A	BST-2890 (TE488)	BST-2895 (TE489)	BST-2902 (TE490)
831-24	BST-2890 (TE488)	BST-2895 (TE489)	BST-2903 (TE490-1)
831-25	BST-2890 (TE488)	BST-2895 (TE489)	BST-2903 (TE490-1)
831-26	BST-2890 (TE488)	BST-2895 (TE489)	BST-2903 (TE490-1)
831-27	BST-2890 (TE488)	BST-2895 (TE489)	BST-2903 (TE490-1)
831-28	BST-2894 (TE488-2)	BST-2896 (TE489-1)	BST-2904 (TE490-2)
831-29	BST-2890 (TE488)	BST-2895 (TE489)	BST-2904 (TE490-2)
831-30	BST-2894 (TE488-2)	BST-2895 (TE489)	BST-2904 (TE490-2)
831-31	BST-2890 (TE488)	BST-2895 (TE489)	BST-2904 (TE490-2)
831-33	BST-2890 (TE488)	BST-2895 (TE489)	BST-2904 (TE490-2)
831-34	BST-2894 (TE488-2)	BST-2895 (TE489)	BST-2904 (TE490-2)
831-35	BST-2891 (TE488-1)	BST-2899 (TE489-3)	BST-2905 (TE490-3)
831-36	BST-2890 (TE488)	BST-2895 (TE489)	BST-2903 (TE490-1)
831-38	BST-2894 (TE488-2)	BST-2895 (TE489)	BST-2904 (TE490-2)
831-39	BST-2894 (TE488-2)	BST-2895 (TE489)	BST-2904 (TE490-2)
831-40	BST-2894 (TE488-2)	BST-2895 (TE489)	BST-2904 (TE490-2)
831-41	BST-2890 (TE488)	BST-2896 (TE489-1)	BST-2902 (TE490)
831-42	BST-2890 (TE488)	BST-2896 (TE489-1)	BST-2902 (TE490)
831-43	BST-2894 (TE488-2)	BST-2896 (TE489-1)	BST-2903 (TE490-1)
831-44	BST-2890 (TE488)	BST-2896 (TE489-1)	BST-2903 (TE490-1)
831-45	BST-2894 (TE488-2)	BST-2895 (TE489)	BST-2904 (TE490-2)
831-46	BST-2890 (TE488)	BST-2895 (TE489)	BST-2903 (TE490-1)
831-47	BST-2890 (TE488)	BST-2895 (TE489)	BST-2902 (TE490)
831-48	BST-2894 (TE488-2)	BST-2895 (TE489)	BST-2904 (TE490-2)
831-50	BST-2894 (TE488-2)	BST-2895 (TE489)	BST-2903 (TE490-1)
831-51	BST-2894 (TE488-2)	BST-2896 (TE489-1)	BST-2903 (TE490-1)
831-52	BST-2890 (TE488)	BST-2899 (TE489-3)	BST-2905 (TE490-3)
831-53	BST-2894 (TE488-2)	BST-2895 (TE489)	BST-2907 (TE490-4)
831-54	BST-2894 (TE488-2)	BST-2896 (TE489-1)	BST-2904 (TE490-2)
831-55	BST-2890 (TE488)	BST-2896 (TE489-1)	BST-2903 (TE490-1)
831-56	BST-2890 (TE488)	BST-2897 (TE489-2)	BST-2902 (TE490)
831-57	BST-2890 (TE488)	BST-2895 (TE489)	BST-2903 (TE490-1)
831-58	BST-2890 (TE488)	BST-2896 (TE489-1)	BST-2903 (TE490-1)
831-59	BST-2890 (TE488)	BST-2895 (TE489)	BST-2904 (TE490-2)

Counterweight Location Gauge

Part Number: BST-2812 (TE60)
Supersedes BG-3445

Description: Gauge to locate D-1209() Counterweight Clamp on A10460E() Composite Blade.

Vendor: Hartzell Propeller (HP)



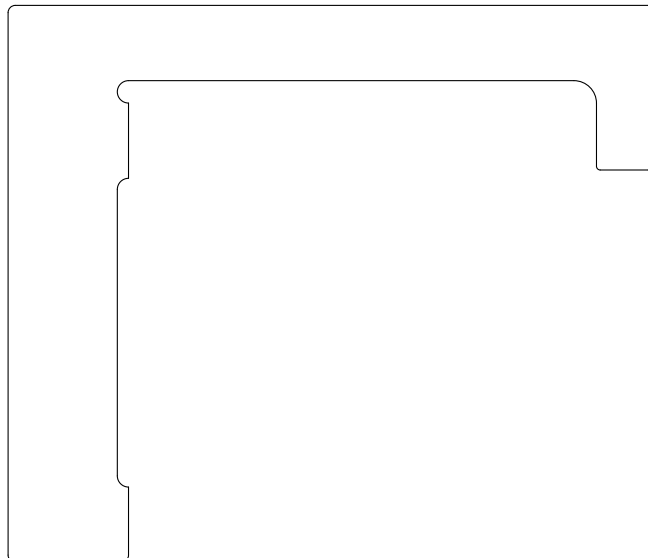
TPI-165A-BST-2812

Thickness Gauge

Part Number: BST-2964 (TE61)

Description: Gauge to inspect thickness of 1-3/4 I.D. on M10876 Blade.

Vendor: Hartzell Propeller (HP)



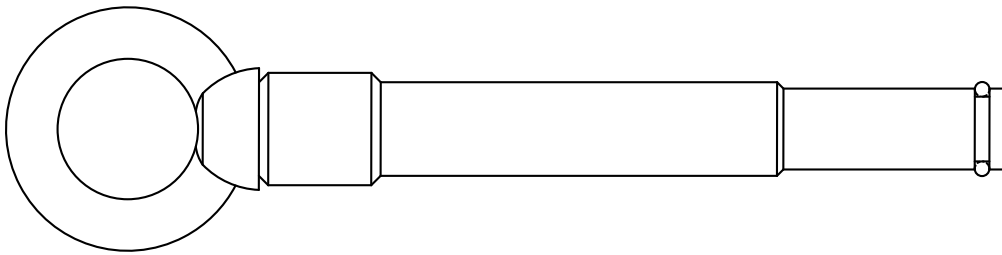
TPI-BST2964

Hoist Ring

Part Number: BST-2958L (TE62)

Description: Combination tool to lift and move propellers. Also, to seal the end of pitch change rods and actuation of propellers on the bench.

Vendor: Hartzell Propeller (HP)



TPI-BST2958L

Piston Installation Cone

Part Number: BST-3036 (TE63)

Description: Cone used to compress O-rings and seals installed on PCU servo piston to allow ease of installation into PCU servo column.

Vendor: Hartzell Propeller (HP)

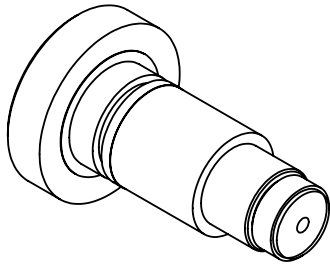


TPI-BST3036

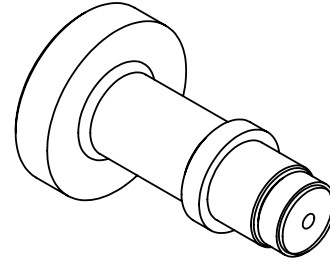
Bearing Installation Tool

<u>Part Number</u>	<u>TE Number</u>	<u>Description</u>
BST-2985	TE64	Tool to install the blade alignment bearings in T and M-shank blades with N modification. Used in conjunction with customer supplied hydraulic or pneumatic press.
BST-2985-1	TE64-1	Tool to install the blade alignment bearings in R and W-shank blades with N modification. Used in conjunction with customer supplied hydraulic or pneumatic press.

Vendor: Hartzell Propeller (HP)



BST-2985



BST-2985-1

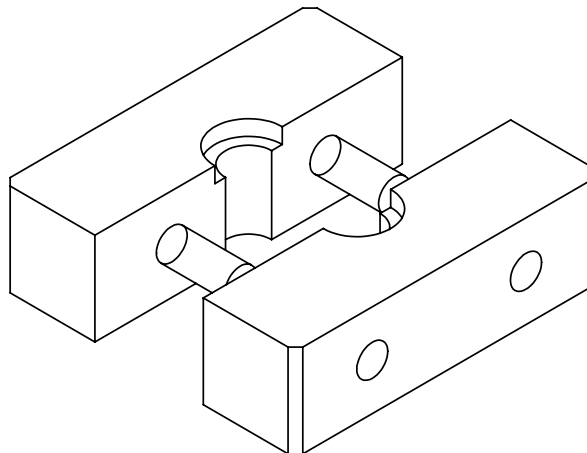
TPI-APS0744

Retainer Installation Tool

Part Number: AST-2849 (TE65)

Description: Tool to crimp the beta rod retainers onto the beta rod. Used in conjunction with a standard vise.

Vendor: Hartzell Propeller (HP)



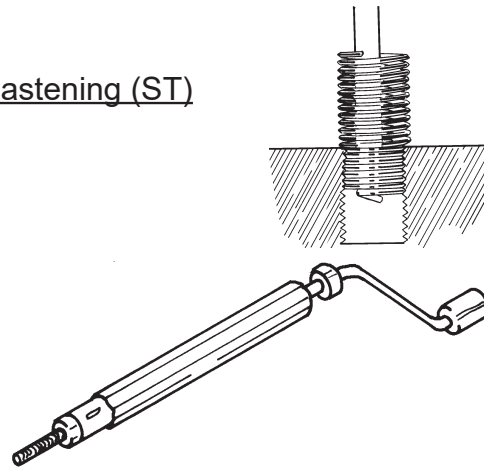
TPI-APS0201

Heli-Coil Insert Installation Tool

Part Number: 791975524 (TE66) for 1/4-28 unified fine thread heli-coil inserts
791975525 (TE66-1) for 5/16-24 unified fine thread heli-coil inserts
791975527 (TE66-2) for 7/16-20 unified fine thread heli-coil inserts
791975523 (TE66-3) for 10-32 unified fine thread heli-coil inserts

Description: Tool to pre-wind the insert to a smaller diameter for installation into the prethreaded hole.

<u>Vendor/Part Number</u>	
<u>Hartzell Propeller (HP)</u>	<u>Stanley Engineered Fastening (ST)</u>
791975523	7552-3
791975524	7552-4
791975525	7552-5
791975527	7552-7



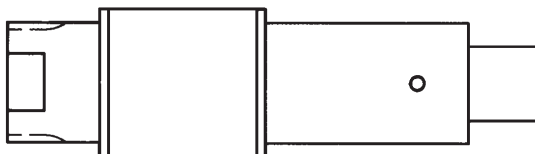
APS-0144, APS-0147

Threaded Staked Insert Installation Tool

<u>Part Number:</u>	BST-3047 (TE68)	For B-1243 threaded staked insert. Replaces 791990009, KHT9000-9 (TE67)
	BST-3047-1 (TE68-9)	For B-6143 threaded staked insert.
	BST-3047-2 (TE68-8)	For B-6143-4(L)/108575-4L threaded staked insert.
	BST-3047-3 (TE68-3)	For B-6143-4H threaded staked insert.
	BST-3047-4 (TE68-4)	For B-6143-5 threaded staked insert.
	BST-3047-5 (TE68-5)	For B-6143-7 threaded staked insert.
	BST-3047-6 (TE68-6)	For B-6143-8 threaded staked insert.
	BST-3047-7 (TE68-7)	For B-6143-8H threaded staked insert.
	BST-3047-8 (TE68-1)	For B-1243-1 threaded staked insert.

Description: Tool used to install threaded staked inserts.

	<u>Vendor/Part Number</u>		
<u>Hartzell Propeller (HP)</u>	<u>Fairchild</u>	<u>ACME Industrial</u>	<u>Howmet Aerospace</u>
BST-3047	THD918L	217-072604	HDS-9
BST-3047-1	THD524L	217-072596	HDS-5
BST-3047-2	TD428L	217-072571	LDS-4
BST-3047-3	THD428L	217-072594	HDS-4
BST-3047-4	TD524L	217-072573	LDS-5
BST-3047-5	TD720L	217-072577	LDS-7
BST-3047-6	TD820L	217-072579	LDS-8
BST-3047-7	THD820L	217-072602	HDS-8
BST-3047-8		217-072641	



TPI-BST3047

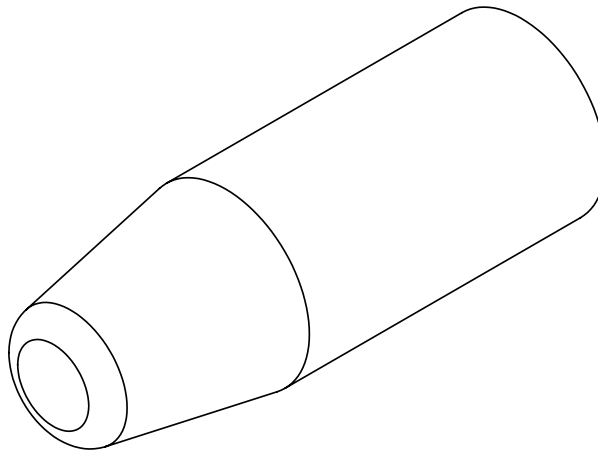
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Transfer O-ring Installation Tool

Part Number: BST-10001 (TE69)

Description: Tool to protect O-ring when it is installed over the HD-E6C-3 propeller oil transfer tube.

■ Vendor: Hartzell Propeller (HP)



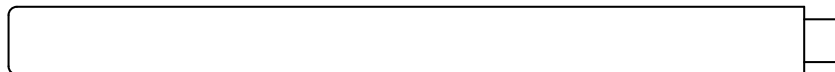
TPI-BST10001

PCU Bushing Installation Tool

Part Number: BST-3056 (TE70)

Description: Tool used in conjunction with customer supplied press to install oil lite bushings into PCU manifold.

■ Vendor: Hartzell Propeller (HP)



TPI-BST3056

PCU Bushing Installation Tool

Part Number: BST-3057 (TE71)

Description: Tool used in conjunction with customer supplied press to install oil lite bushings into PCU manifold.

Vendor: Hartzell Propeller (HP)



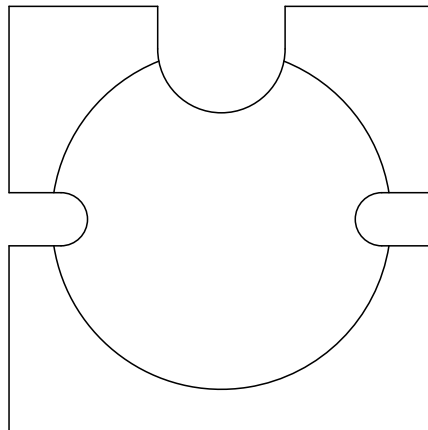
TPI-BST3057

PCU Manifold Installation Tool

Part Number: BST-3054 (TE72)

Description: Tool used to align and install PCU manifold insert into PCU manifold/servo column.

Vendor: Hartzell Propeller (HP)



TPI-BST3054

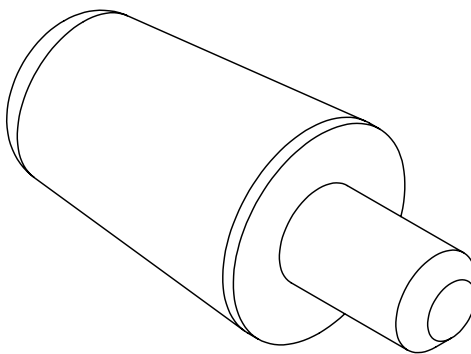
Pilot O-ring Installation Tool

Part Number: AST-2856 (TE73)

Description: Installation tool for A-217-1, -2 Plug. For use with A-224-3, -4 Oil Transfer Unit.

NOTE: This part number can be used to order the drawing for local fabrication.

Vendor: Hartzell Propeller (HP)



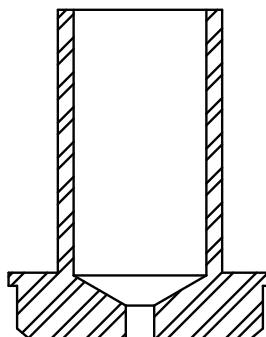
TPI-AST2856

Spacer Ring Installation Tool

Part Number: BST-3037 (TE74)

Description: Tool to be used in conjunction with customer supplied press to push against spacer in order to compress aft spring of HD-E6C-3 propeller. This allows installation of spacer retaining ring.

Vendor: Hartzell Propeller (HP)



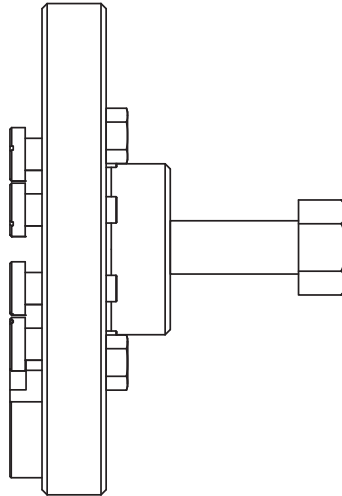
TPI-BST3037

Drill Jig

Part Number: BST-2982 (TE75)

Description: Drill jig for N-flange slimsert installation.

Vendor: Hartzell Propeller (HP)



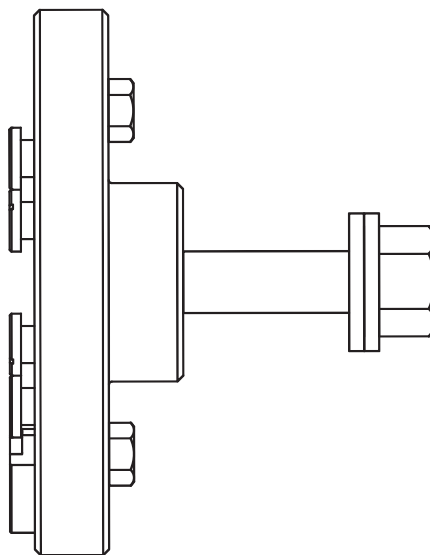
TPI-BST2982

Drill Jig

Part Number: BST-2983 (TE76)

Description: Drill jig for F-flange slimsert installation.

Vendor: Hartzell Propeller (HP)



TPI-BST2983

Dual Acting Line Maintenance Kit

Part Number: CST-3028-1 (TE79)

Description: Tools required for line maintenance of HD-E6C-3 propeller and PCU.

Vendor: Hartzell Propeller (HP)

Components:

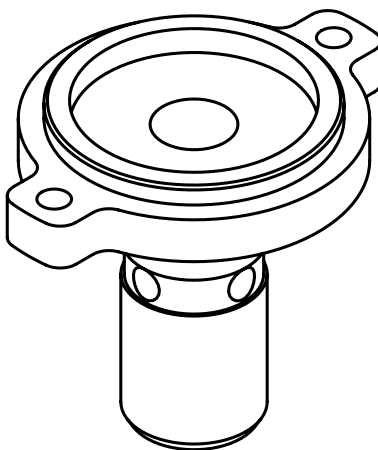
<u>Hartzell P/N</u>	<u>Vendor</u>	<u>Vendor P/N</u>	<u>Description</u>	<u>Quantity</u>
AST-2877-1 (TE155)	n/a	n/a	Torque Wrench Adapter	1
BST-3048 (TE320)	n/a	n/a	Transfer Tube and Plug Removal/Installation Tool	1
BST-3041 (TE84)	n/a	n/a	Rigging Pin	2
BST-10001 (TE69)	n/a	n/a	Transfer O-ring Installation Tool	1
9943EN1901 (TE262)	Leschen Wire Rope (LC)	EN1-601	Leschen Nylon Web Sling, 6 feet	2
9943FC012 (TE214)	Snap-On Tools Corp. (SO)	GFC012	3/8 inch Open End Crowfoot Wrench	1
BST-3038 (TE26)	n/a	n/a	Control Rod Alignment Tool	1

C-flange Spindle

Part Number: BST-2912-10 (TE80)

Description: Tool used to mount C-flange HD-E6C-3 propellers to the propeller assembly table CST-2901(-) (TE129).

Vendor: Hartzell Propeller (HP)



TPI-BST-2912-10

Leading Edge Replacement Tooling Kit

Part Number: A-2334 (TE82)

Description: Kit to prepare facilities for erosion shield replacement on composite blades.

Components:

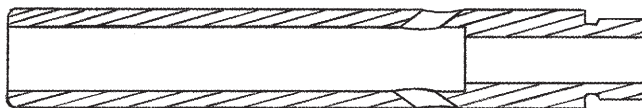
<u>Hartzell P/N</u>	<u>Vendor</u>	<u>Description</u>	<u>Quantity/Size</u>
796514021 (TE81)	Customer Supplied (CS)	Vacuum Pump	1
79651417A (TE132)	Customer Supplied (CS)	Filter	1
79656547A (TE135)	Customer Supplied (CS)	Timer, 12-hour	2
79651407K (TE147)	Customer Supplied (CS)	Vacuum Pump Oil	5 gallons (flash point 450°)
796540702 (TE156)	Customer Supplied (CS)	Vacuum Hose	(6 ea.) 10 feet
79651009A (TE158)	Customer Supplied (CS)	Vacuum Gauge	2
7965639221 (TE160)	Customer Supplied (CS)	Vacuum Fitting	1

Safety Nozzle

Part Number: AST-2833 (TE83)

Description: Fitting to ensure safe use of air nozzle.

Vendor: Hartzell Propeller (HP)



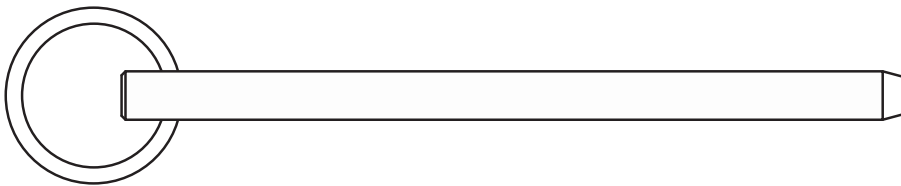
TPI-AST2833

Rigging Pin

Part Number: BST-3041 (TE84)

Description: Rigging pin, 3/16 inch diameter, to hold PCU and CSU power and condition levers in the correct position for rigging. (Two required)

Vendor: Hartzell Propeller (HP)



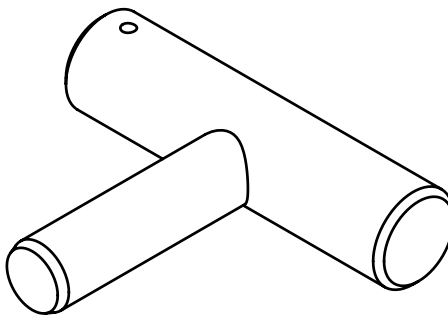
TPI-BST3041

Anti-Rotation Pin

Part Number: BST-2912-11 (TE85)

Description: Tool used to hold building buck components in position while the propeller is mounted on the propeller assembly table CST-2901(-) (TE129).

Vendor: Hartzell Propeller (HP)



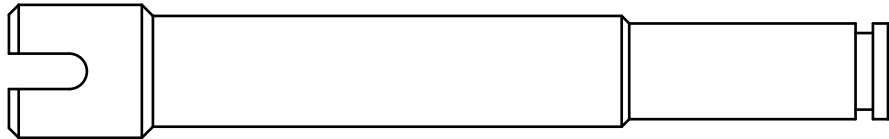
TPI-BST-2912-11

Pitch Angle Stop Plug

Part Number: BST-2958 (TE86)

Description: Plug to block the end of the pitch change rod to allow actuation of the propeller on the bench.

Vendor: Hartzell Propeller (HP)



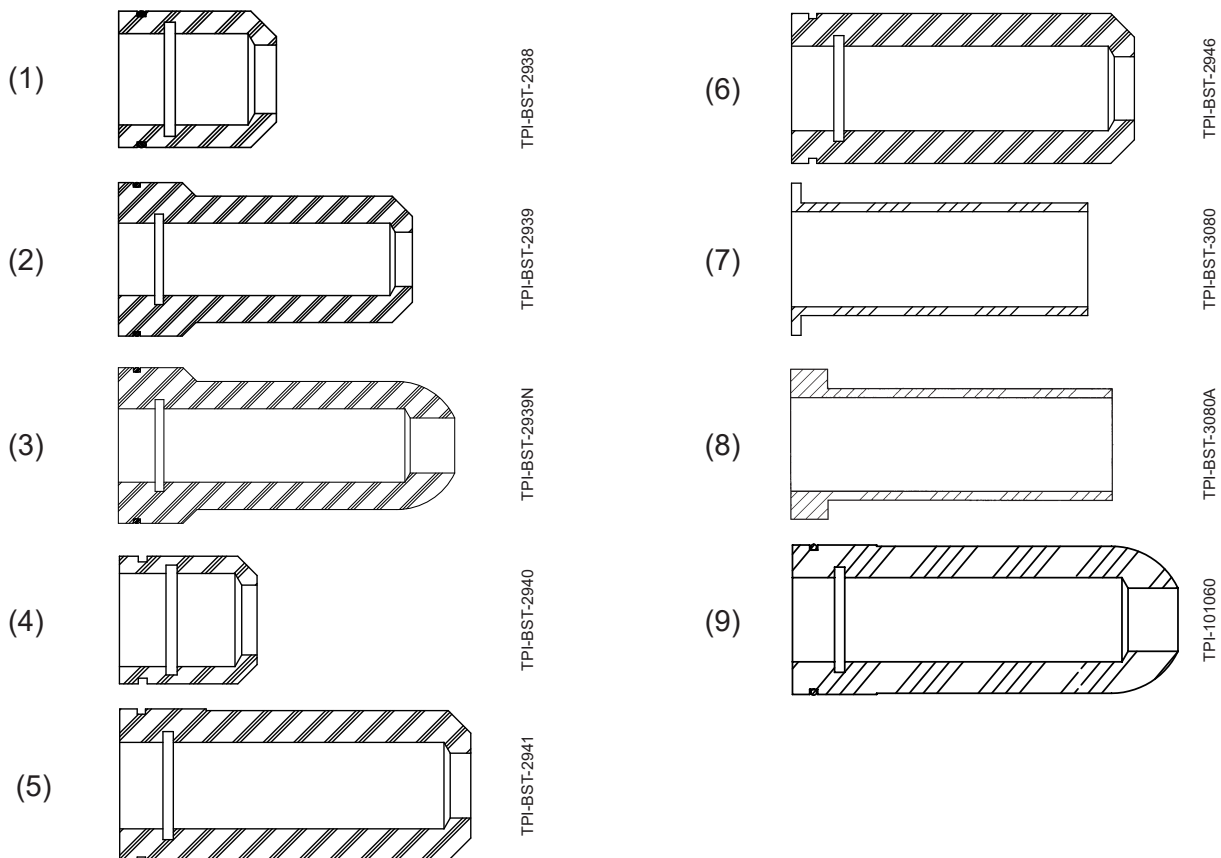
TPI-BST2958

Shot Peen Plug

Description: Plug to mask the blade bore prior to shot peening.

Vendor: Hartzell Propeller (HP)

<u>Item No.</u>	<u>Hartzell P/N</u>	<u>Blade Shank</u>	<u>Used With</u>
(1)	BST-2938 (TE87)	Y	
(2)	BST-2939 (TE88)	M, T	
(3)	BST-2939N (TE89)	M with N modification, T with N modification	
(4)	BST-2940 (TE90)	E	
(5)	BST-2941 (TE91)	W	
(6)	BST-2946 (TE92)	P, Z	
(7)	BST-3080 (TE371)	X, V X with V modification, MV with N modification, V with N modification	
(8)	BST-3080-1 (TE372)	M with N modification, V with N modification	TE371
(9)	101060 (TE458)	P with N modification, R with N modification, W with N modification, Z with N modification	



Blade Bearing Press

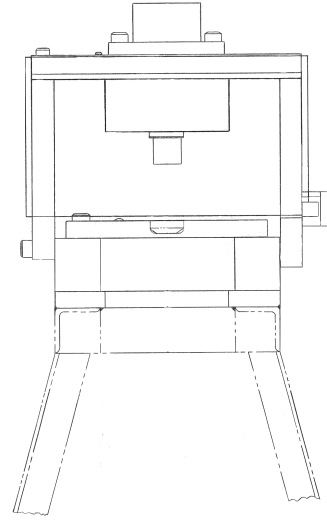
Part Number: DST-2934 (TE93)

Description: Press to install the inboard split bearing races and retaining rings onto single shoulder blades. The press also installs the needle roller bearings inside Y, D, and E-shank blade bores.

NOTE: Does not include the hydraulic power unit.

Vendor: Hartzell Propeller (HP)

<u>Locator Plate</u>	<u>Reference Ball Size</u>	<u>Use With</u>
DST-2934+1	3/8 inch	C-792-() D-7745-()
DST-2934+2	1/2 inch	A-2202-() C-7438-() C-7075-() C-2882-()



Eddy Current Probe

Part Number: n/a, TE94-()

NOTE: Eddy current probes come with a Hartzell Propeller certification.

Description: Used to inspect aluminum blade retention radius.

Vendor: Hartzell Propeller (HP)

<u>Hartzell P/N</u>	<u>Used On</u>	<u>Wire Lead Description</u>
AST-2857 (TE94)	Y-shank blades	121-SC Conrad Jack 30-402 Conrad Jack
107514 (TE94-1)	Y-shank blades	16p Lemo/Triax Bridge
AST-3857 (TE94-2)	C-shank Raptor blades	16p Lemo/Triax Bridge
AST-3858 (TE94-3)	C-shank Raptor blades	16p Lemo/4p Fischer
AST-3859 (TE94-4)	C-shank Raptor blades	16p Lemo/Triax Bridge
AST-3860 (TE94-5)	C-shank Raptor blades	16p Lemo/Triax Bridge

Eddy Current Probe Unit

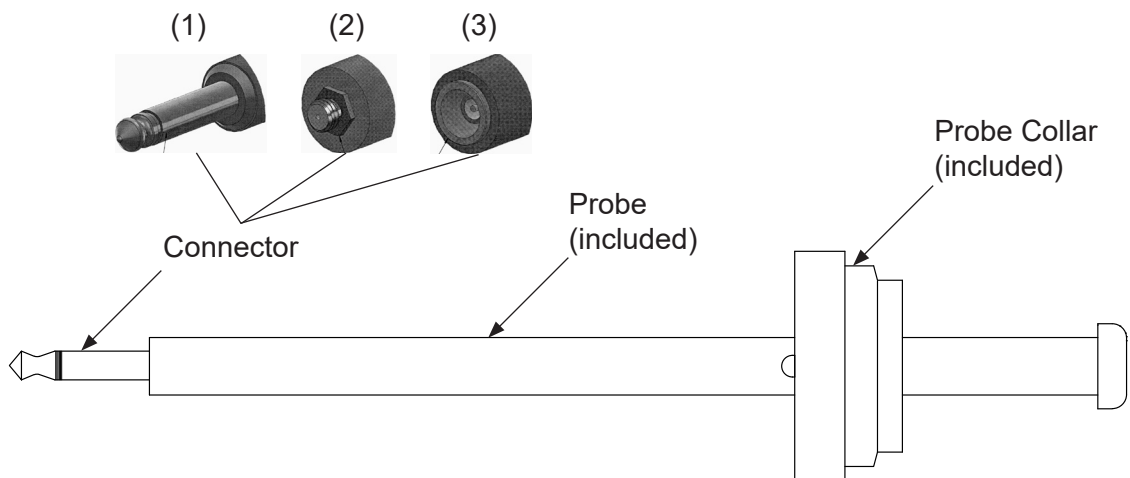
Part Number: BT-1313 (TE95)
Supersedes TE295

Description: Probe for Eddy Current inspection of blade balance hole.

NOTE: There are three connector types for the probe unit available from Olympus NDT Inc. Refer to the chart.

Components:

<u>Figure No.</u>	<u>Vendor</u>	<u>Vendor P/N</u>	<u>Connector Type</u>
(1)	Olympus NDT Inc. (OL)	BT-1313	1/4" Headphone Connector
(2)	Olympus NDT Inc. (OL)	BT-1313-1	Microdot Connector
(3)	Olympus NDT Inc. (OL)	BT-1313-2	Triax Fischer/Lemo Connector



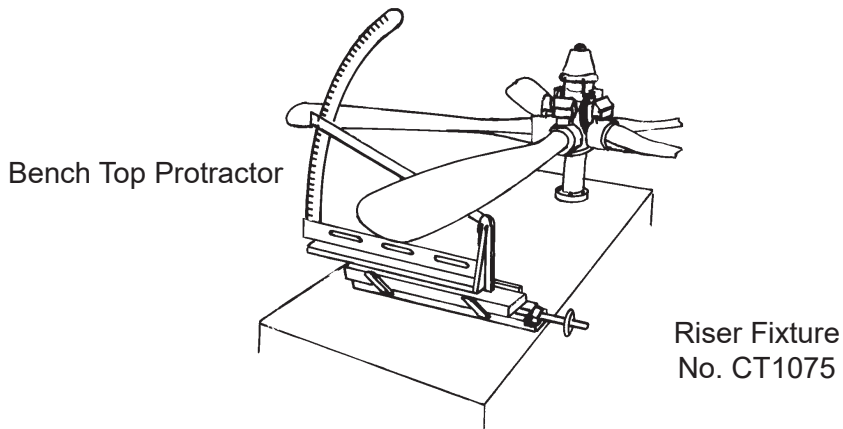
TP-BT-1313

Bench Top Blade Angle Protractor

Part Number: 799200105 (TE96) - no longer available
Superseded by TE97

Description: Protractor to measure the blade angles of an assembled propeller while installed on the bench. Used in conjunction with the CT-1075 Riser Fixture.

NOTE: Locally procured and calibrated bubble protractor accurate to within 0.1 degree may be used and is considered equivalent.



APS-0159

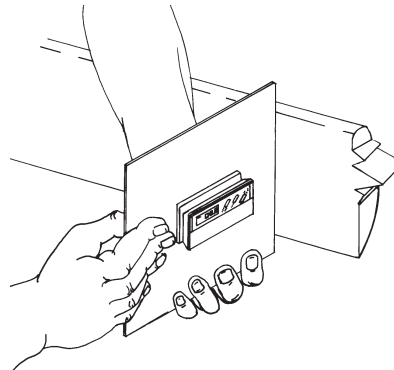
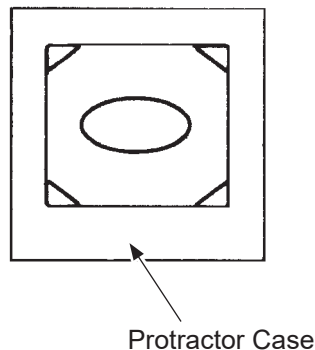
Digital Protractor

Part Number: BST-2960-3 (TE97)
Supersedes BST-2960-1, BST-2960-2, BST-2820, PE 105 (TE96),
799200105 (TE96), and CST-2880

Description: Protractor to measure blade angles. May be used to check angles with propeller installed on engine. Protractor includes protractor case.

NOTE: Locally procured and calibrated bubble protractor accurate to within 0.1 degree may be used and is considered equivalent.

Vendor: Hartzell Propeller (HP)



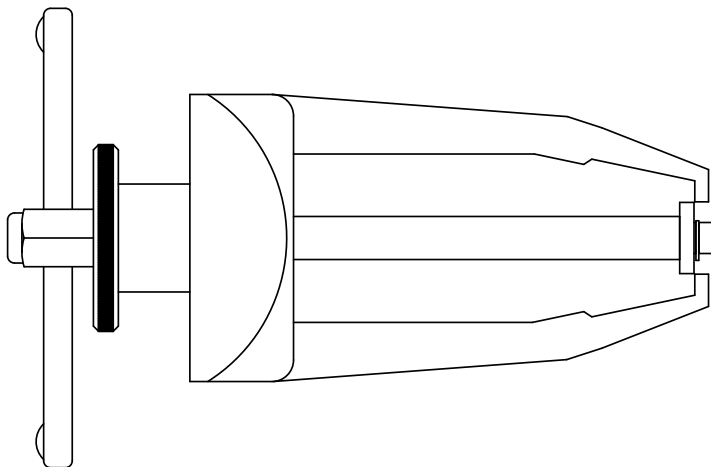
TPI-BST2960
TPI-APS0336

2 Ton Puller

Part Number: BST-3045 (TE98)

Description: Puller to remove bearings from pitch change brackets, O-ring plugs from extended hub compact propellers, etc.

Vendor: Hartzell Propeller (HP)



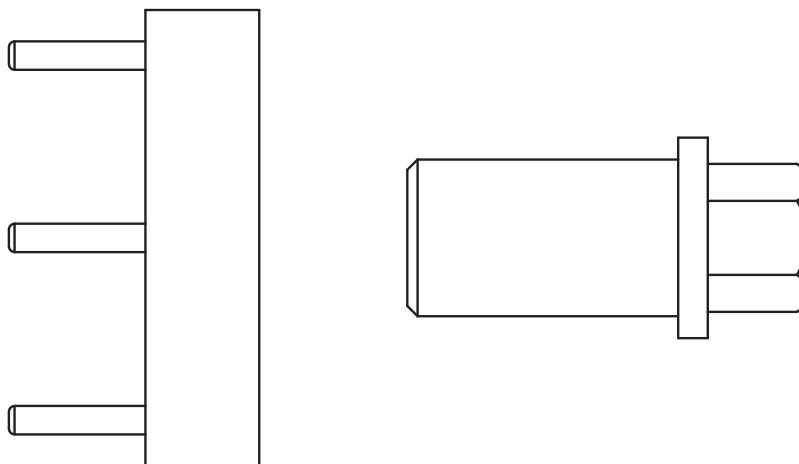
TPI-BST3045

Pitch Lock Bearing Removal Tool

Part Number: BST-3039 (TE99)

Description: Puller to remove pitch lock bearing and carrier from pitch lock bearing housing of HD-E6C-3 propeller.

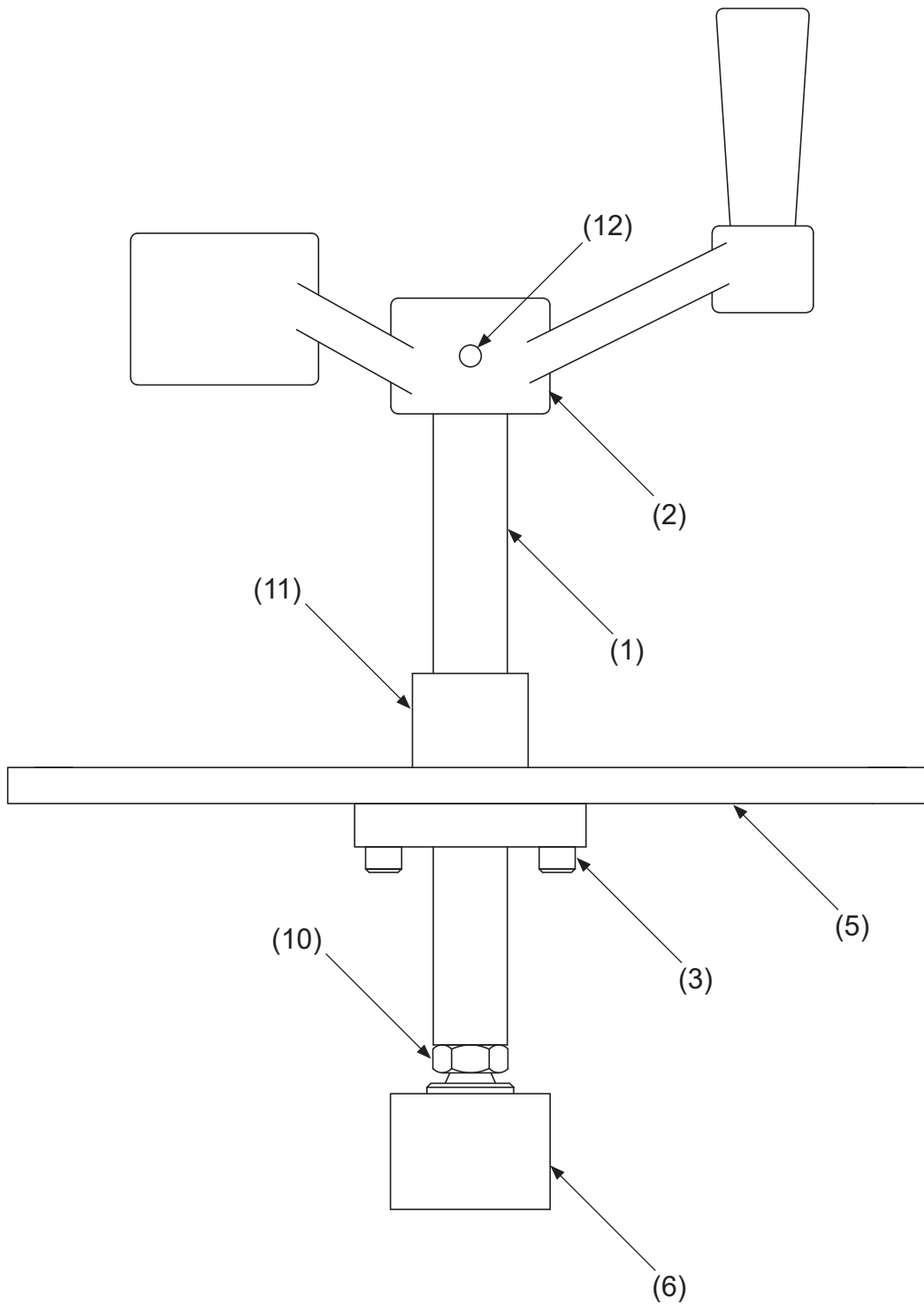
Vendor: Hartzell Propeller (HP)



TPI-BST3039

Beta System Puller Base Kit (page 1 of 2)

Part Number: CST-2987 (TE100)



TPI-CST-2987_b

Beta System Puller Base Kit (page 2 of 2)

Part Number: CST-2987 (TE100)
Supersedes CST-2834, CST-2834-()

Description: Base kit used in conjunction with beta system pullers (TE100-(1,2) and TE615 for propeller removal and installation. CST-2987 includes all parts listed below.

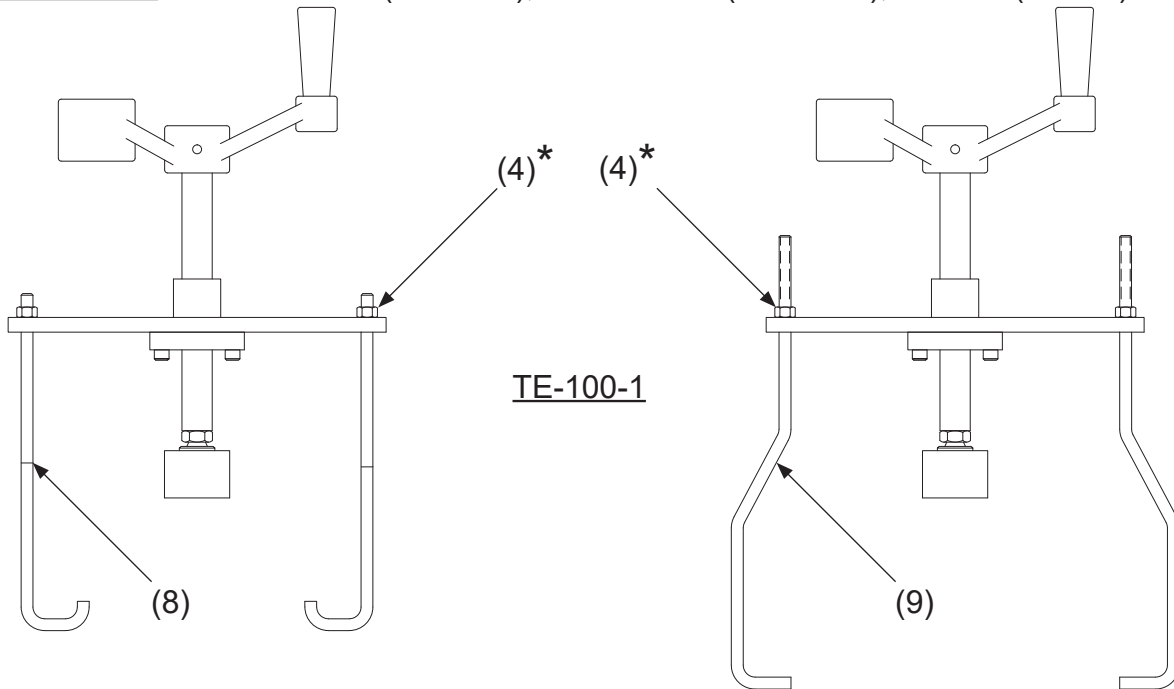
Vendor: Hartzell Propeller (HP)

Components:

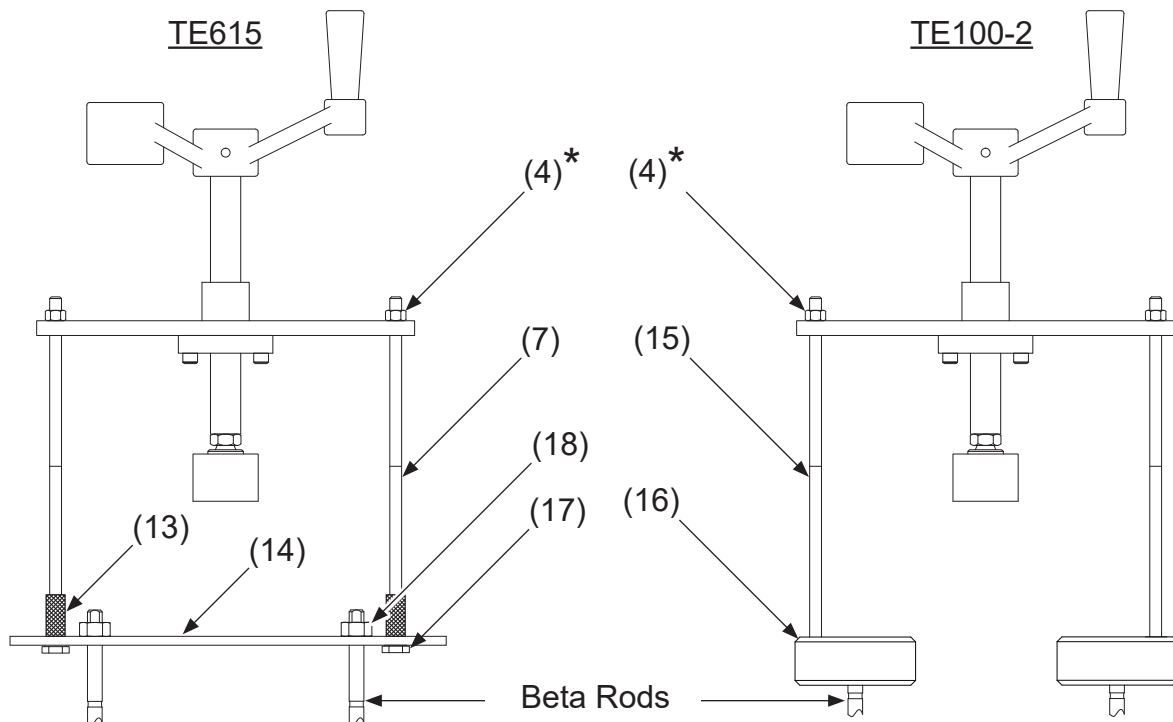
<u>Figure No.</u>	<u>TE No.</u>	<u>Hartzell P/N</u>	<u>Description</u>	<u>Quantity</u>
(1)	TE100+1	CST-2987+1	Screw	1
(2)	TE100+2	CST-2987+2	Handle	1
(3)	TE100+3	n/a	Cap Screw, Socket Head, 1/4-20 x 5/8	4
(4)	TE100+4	n/a	Nut, Hex, 1/4-20 [use with TE100+(7,8,9,15) - Refer to TE100-(1,2) and TE615]	4
(5)	TE100+5	CST-2987+5	Plate	1
(6)	TE100+6	CST-2987+6	Screw Pad	1
(10)	TE100+10	CST-2987+10	Swivel Pad	1
(11)	TE100+11	CST-2987+11	Nut	1
(12)	TE100+12	n/a	Dowel Pin 0.1875 dia. x 1.00 in	1

Beta System Puller (page 1 of 2)

Part Number: CST-2987-1 (TE100-1), CST-2987-2 (TE-100-2), 106804 (TE615)



* - Not included. Shown for illustrative purposes only.



TPI-CST-2987_b

Beta System Puller (page 2 of 2)

Part Number: CST-2987-1 (TE100-1)

Description: Puller to compress the beta system on all -3 turbine propellers for propeller removal and installation. Use with beta system puller base kit CST-2987 (TE100).

Vendor: Hartzell Propeller (HP)

Components:

<u>Figure No.</u>	<u>TE No.</u>	<u>Hartzell P/N</u>	<u>Description</u>	<u>Quantity</u>
(8)	TE100+8	CST-2987+8	Finger Adapter	4
(9)	TE100+9	CST-2987+9	Finger Adapter	3

Part Number: CST-2987-2 (TE100-2)

Description: Puller to compress the beta system on 5-blade Raptor and 5-blade Lightweight Turbine for propeller removal and installation. Use with beta system puller base kit CST-2987 (TE100).

Vendor: Hartzell Propeller (HP)

Components:

<u>Figure No.</u>	<u>TE No.</u>	<u>Hartzell P/N</u>	<u>Description</u>	<u>Quantity</u>
(15)	TE100+15	CST-2987+15	Threaded Rod	3
(16)	TE100+16	CST-2987+16	Adapter	3

Part Number: 106804 (TE615)

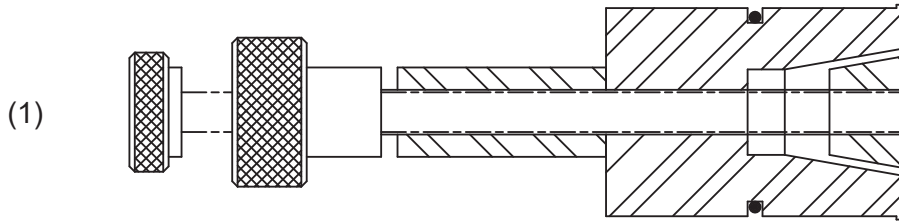
Description: Puller to compress the beta system on Lightweight Turbine w/ Cylinder Mounted Start Locks. Use with beta system puller base kit CST-2987 (TE100).

Vendor: Hartzell Propeller (HP)

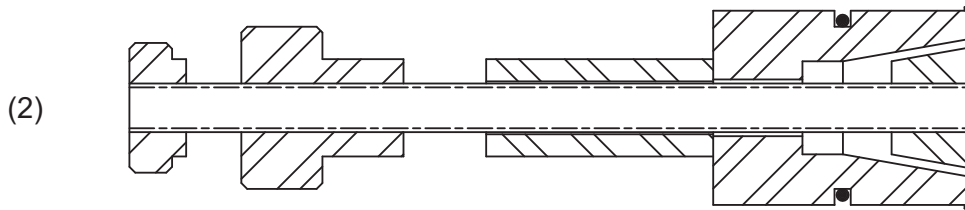
Components:

<u>Figure No.</u>	<u>TE No.</u>	<u>Hartzell P/N</u>	<u>Description</u>	<u>Quantity</u>
(7)	TE100+7	CST-2987+7	Threaded Shaft	4
(13)	TE100+13	CST-2987+13	Adapter Nut	4
(14)	TE100+14	106788	Plate	1
(17)	TE100+17	n/a	Bolt, Hex Head, 5/16-24 x 3/4	4
(18)	TE100+18	n/a	Nut, Hex, 5/16-24	4

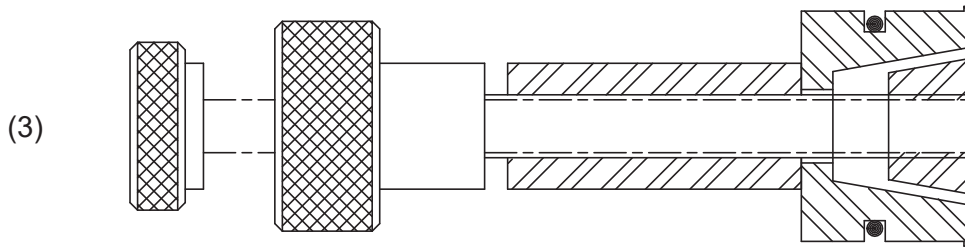
Bushing/Bearing Puller (page 1 of 2)



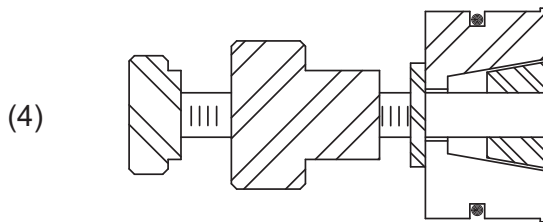
TPI-BST2947



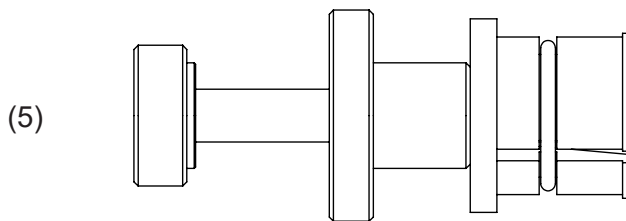
TPI-BST2948



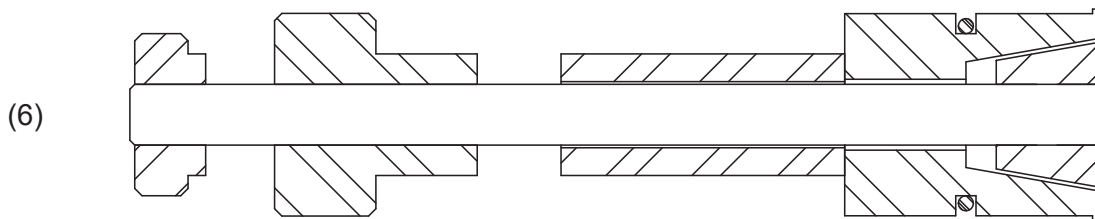
TPI-APS0494A



TPI-JM-000191



BST2951



TPI-APS0494B

Bushing/Bearing Puller (page 2 of 2)

Description: Puller to remove bushings. Used in conjunction with customer supplied hydraulic or pneumatic puller. Refer to figures on previous page.

Vendor: Hartzell Propeller (HP)

<u>Item No.</u>	<u>Hartzell P/N</u>	<u>Used On</u>
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(1)	BST-2947 (TE101)	A-1347 and A-1309 bushings
-----	------------------	----------------------------

(2)	BST-2948 (TE102)	A-127, A-127-1, and A-1497 bearings
-----	------------------	-------------------------------------

(3)	BST-2949 (TE103)	M, S, T, and W-shanks
-----	------------------	-----------------------

(4)	BST-2950 (TE104)	M and T-shanks
-----	------------------	----------------

(5)	BST-2951 (TE105)	E-shanks
-----	------------------	----------

NOTE: Use only with bearings having a cage and a flat bottomed closed end. This puller will not work on bearings with a full complement of needles and a dimpled closed end.

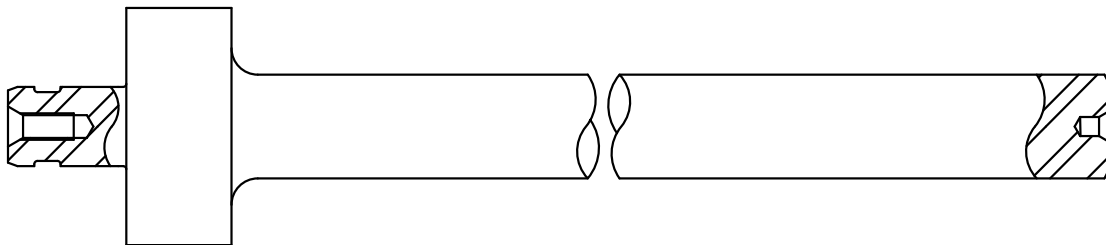
(6)	BST-2952 (TE106) Supersedes CST-283	D, Y, and V-shanks
-----	--	--------------------

Pilot Tube Removal Tool

Part Number: BST-2876 (TE107)
Supersedes CST-2831

Description: This part number may be used to order the drawing of the pilot tube puller for local fabrication. Puller to remove pilot tubes from steel hub propellers. Used in conjunction with DT-336 (TE53) or customer supplied fixture.

Vendor: Hartzell Propeller (HP)



TP-BST2876

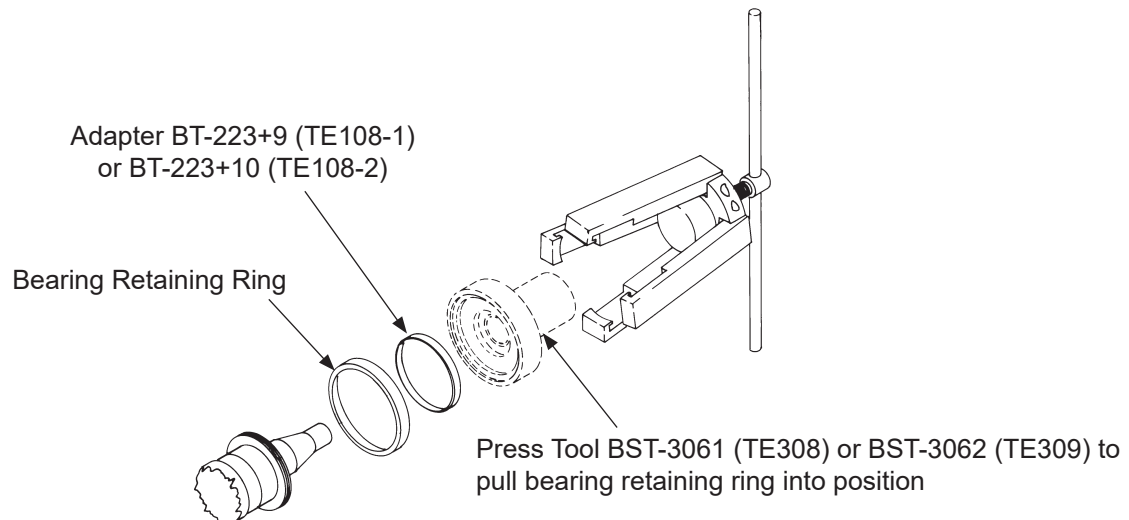
Retention Bearing Puller

Part Number: BT-223 (TE108)

Description: Puller to remove and install the bearing retaining ring on steel hubs. Used in conjunction with BST-3061 (TE308) press tool and BST-3062 (TE309) press tool. Use adapter rings as listed.

Components:

<u>Hartzell P/N</u>	<u>Vendor</u>	<u>Description</u>
BT-223+9 (TE108-1)	Customer Supplied (CS)	Adapter ring used when removing or installing the A-1852 bearing retaining ring. Use with BST-3062 (TE309) press tool. <u>NOTE:</u> This part number can be used to order the drawing for local fabrication.
BT-223+10 (TE108-2)	Customer Supplied (CS)	Adapter ring used when removing or installing the A-972 bearing retaining ring. Use with BST-3061 (TE308) press tool. <u>NOTE:</u> This part number can be used to order the drawing for local fabrication.



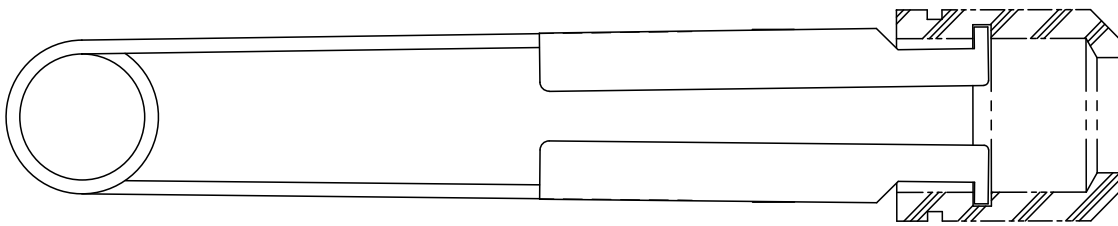
TPI-APS0189

Plug Removal Tool

Part Number: BST-3065 (TE110)

Description: Tool to remove shot peen plugs.

Vendor: Hartzell Propeller (HP)



TP1-BST3065

Heli-Coil Removal Tool

Part Number: 791912276 (TE111)

Description: Tool to remove 10-24, 1/4-20, and 5/16-18 unified coarse thread heli-coil inserts and 10-32, 1/4-28, and 5/16-24 unified fine thread heli-coil inserts.

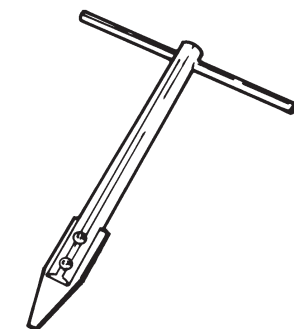
Vendor

Hartzell Propeller (HP)

Part Number

791912276

Heli-Coil Division, Emhart
Fastening Systems Group (HE)



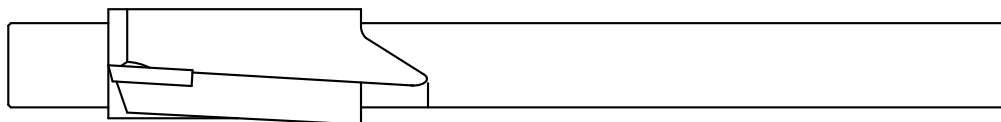
APS-0178

Threaded Staked Insert Removal Tool

Part Number: BST-3019 (TE112) For B-1243 threaded staked insert.
BST-3019-3 (TE112-1) For B-1243-1 threaded staked insert.
BST-3019-4 (TE112-3) For B-6143-4 threaded staked insert.
BST-3019-7 (TE112-5) For B-6143-7 threaded staked insert.
BST-3019-8 (TE112-4) For B-6143-8 threaded staked insert.

Description: Tool used to remove threaded staked inserts.

Vendor: Hartzell Propeller (HP)



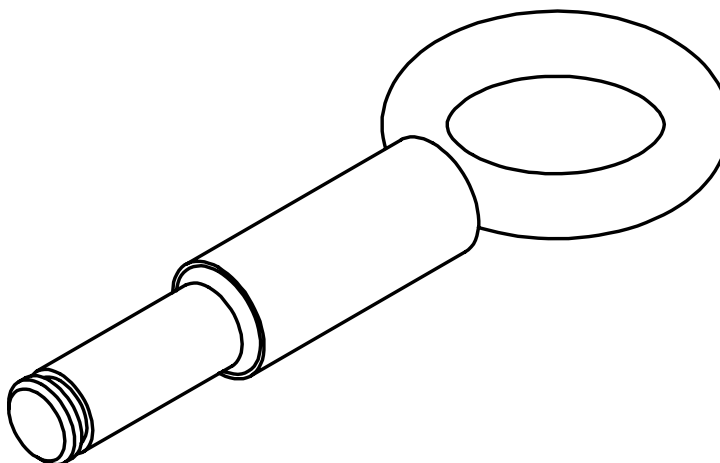
TPI-BST3019

Plug-Lifting Ring

Part Number: BST-2884 (TE113)

Description: Tool to thread into the pitch change rod of turbine propellers for lifting and moving.

Vendor: Hartzell Propeller (HP)



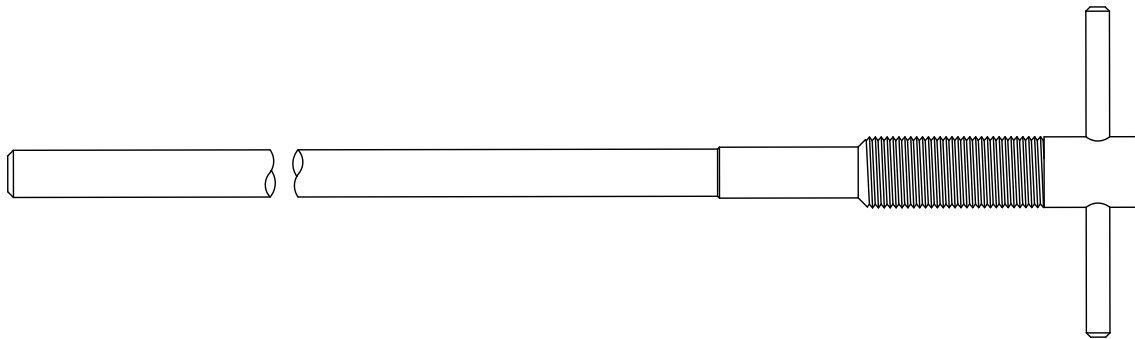
TPI-BST2884

Alignment Rod

Part Number: BST-2959 (TE114)
Supersedes B-1509

Description: Tool to check concentricity of internal threads of B-3018 and B-1948 pitch change rods.

Vendor: Hartzell Propeller (HP)



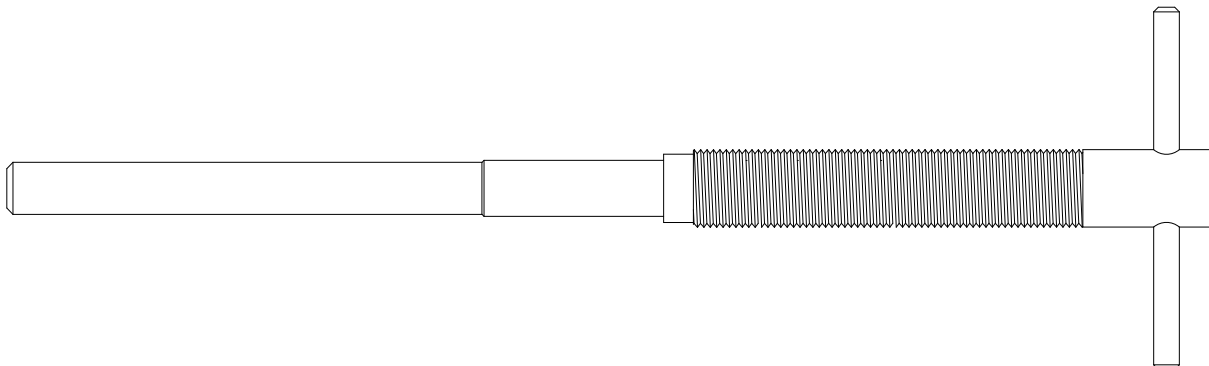
TPI-BST2959

Alignment Rod

Part Number: BST-2984 (TE115)

Description: Tool to check concentricity of internal threads of D-494 pitch change rods.

Vendor: Hartzell Propeller (HP)



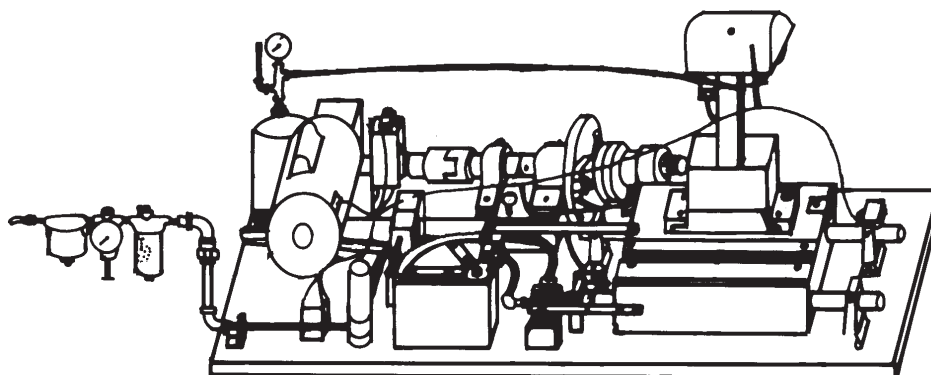
TPI-BST2984

Shank Rolling Machine

Part Number: DT-1724-3() (TE116-3)
(Electrical Specifications: AC, 110 V, 60 Hz)
Superseded by DT-1724-5 (TE116-5)

Description: Complete machine to cold compression roll single shoulder aluminum blade shanks. For operating instructions and adapter listing, refer to Hartzell Propeller Aluminum Blade Overhaul Manual 133C (61-13-33).

Vendor: Hartzell Propeller (HP)



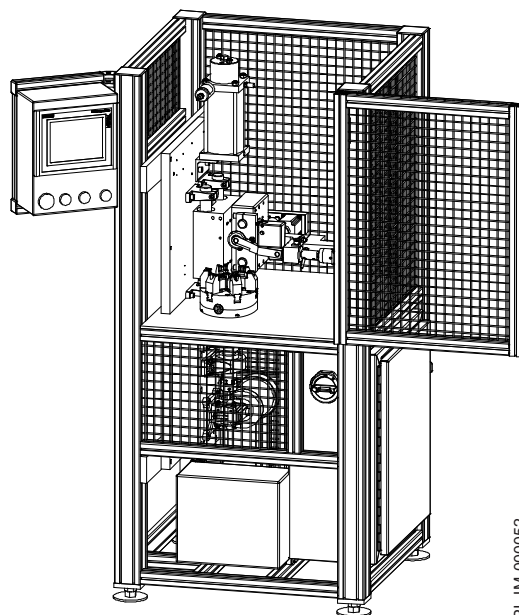
APS-925

Automated Rolling Machine

Part Number: DT-1724-5 (TE116-5)
(Electrical Specifications: AC, 100-240 V, 50/60 Hz)
Supersedes DT-1724-3 (TE116-3)

Description: Complete automated machine to cold compression roll single shoulder aluminum blade shanks. For operating instructions refer to Hartzell Propeller Aluminum Blade Overhaul Manual 133C (61-13-33).

Vendor: Hartzell Propeller (HP)



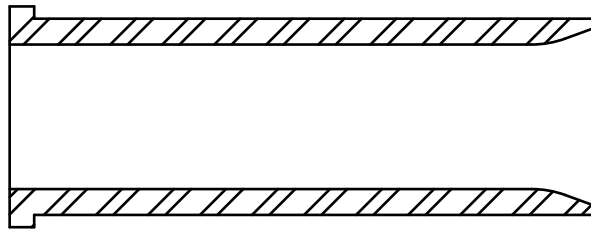
TPI-JM-000052

Beta Valve Freeze Sleeve

Part Number: BST-10002 (TE117)

Description: Installation of beta valve assembly in the PCU.

Vendor: Hartzell Propeller (HP)



TPI-BST10002

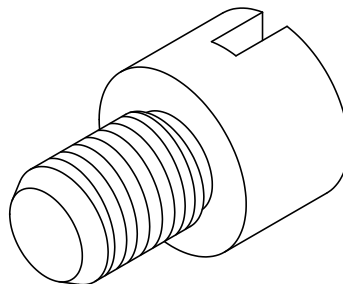
Shot Peen Masking Screw

Part Number: BST-3060(N) (TE118) Mask 1/4-28 heli-coil holes
BST-3060-2(N) (TE118-1) Mask 1/4-28 heli-coil holes (Bantams **only**)
BST-3060-3(N) (TE118-2) Mask 10-32 heli-coil holes
BST-3060-4(N) (TE118-3) Mask 5/16-24 heli-coil holes

NOTE: Part number ending in "N" denotes tool is made of nylon material.

Description: Screw to mask heli-coil holes during shot peening.

Vendor: Hartzell Propeller (HP)



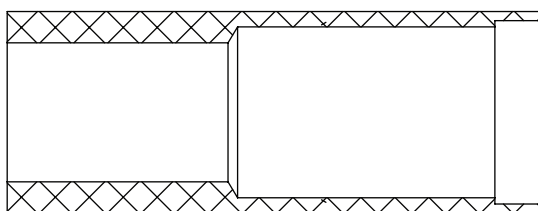
TPI-BST3060

Shipping Sleeve

Part Number: AST-2961 (TE119)

Description: Sleeve to prevent damage to air valves on feathering compact propellers during shipping and handling.

Vendor: Hartzell Propeller (HP)



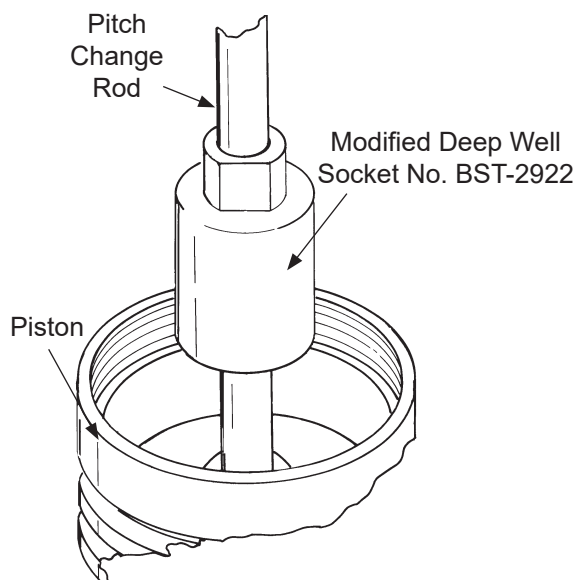
TPI-AST2961

Modified Deep Well Socket

Part Number: BST-2922 (TE120)

Description: Modified socket to remove, install and torque piston mounting nuts on light-weight turbine propellers.

Vendor: Hartzell Propeller (HP)



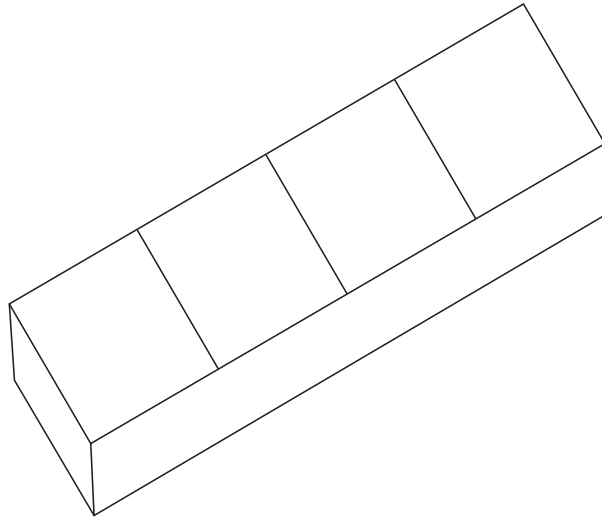
TPI-BST-2922

Eddy Current Test Block

Part Number: AST-2979 (TE121)

Description: Test specimen to calibrate an eddy current instrument before its use.

Vendor: Hartzell Propeller (HP)



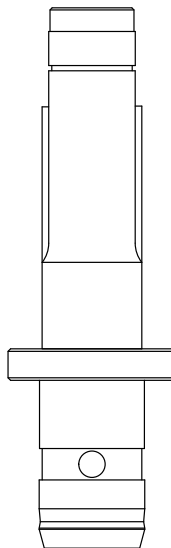
TPI-AST-2979

#20 Spline Spindle

Part Number: BST-2912-2 (TE122)
Supersedes TE325

Description: Tool used to mount #20 spline steel hub propellers to the propeller assembly table CST-2901(-) (TE129). Refer to the Building Buck Components (TE125).

Vendor: Hartzell Propeller (HP)



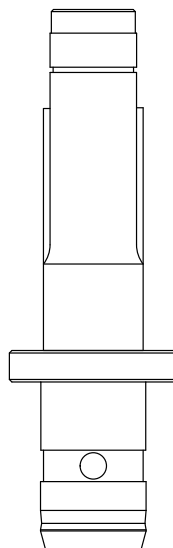
TPI-BST-2912-2

#30 Spline Spindle

Part Number: BST-2912-3 (TE123)
Supersedes TE326

Description: Tool used to mount #30 spline steel hub propellers to the propeller assembly table CST-2901(-) (TE129). Refer to the Building Buck Components (TE125).

Vendor: Hartzell Propeller (HP)



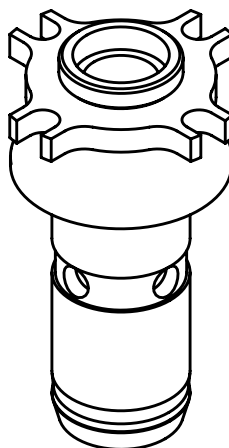
TPI-BST-2912-2

Hub Flange Spindle

Part Number: BST-2912-1 (TE124)

Description: Tool used to mount propellers to the propeller assembly table CST-2901(-) (TE129). Refer to the Building Buck Components (TE125).

Vendor: Hartzell Propeller (HP)



TPI-BST-2912-1

Building Buck Components

Part Number: BST-2912 (TE125)

Description: Spindle mounts to propeller assembly table CST-2901(-) (TE129) to permit pressurizing of propeller to change pitch. Also permits rotating of the propeller.

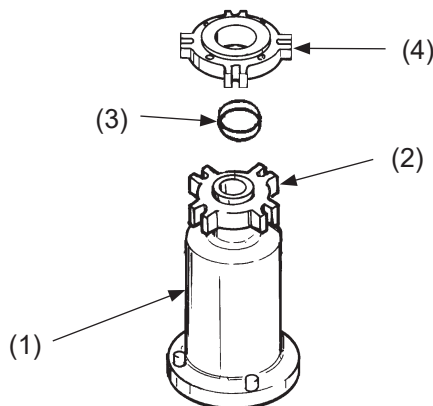
Vendor: Hartzell Propeller (HP)

Components:

<u>Figure No.</u>	<u>Hartzell P/N</u>	<u>Description</u>
(1)	BST-2912+ (TE125-1) Supersedes B-843-2	Spindle Base
(2)	BST-2912-1 (TE124) Supersedes BST-2912	Hub Flange Spindle
(3)	BST-2912-4 (TE4)	N-flange Adapter Ring; to mount N-flange propellers
(4)	BST-2912-9 (TE2) BST-2912-11 (TE85)	A-flange Adapter; to mount A-flange single acting propellers Anti-rotation Pin; not shown

Also available, as needed (not a part of BST-2912 (TE125)):

BST-2912-2 (TE122)	#20 Spline Spindle; not shown
BST-2912-3 (TE123)	#30 Spline Spindle; not shown
BST-2912-10 (TE80)	C-flange Spindle, to mount C-flange HD-E6C-3 propellers; not shown
BST-2912-17 (TE433)	A-flange Spindle; to mount A-flange HC-E5A-2 propellers; not shown
BST-2912-19 (TE536)	H, T, Q, and G-flange Spindle; to mount H, T, Q, and G-flange propellers
BST-2912-22 (TE550)	F-flange Bantam Adapter Ring



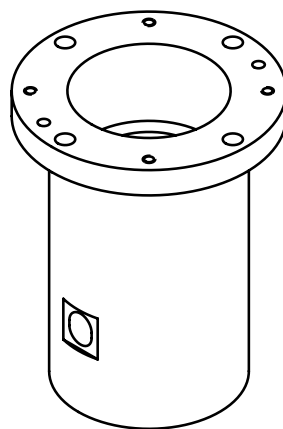
APS-546

Spindle Base

Part Number: BST-2912+ (TE125-1)

Description: Tool used to mount propellers to the propeller assembly table CST-2901(-) (TE129). Refer to the building buck components (TE125).

Vendor: Hartzell Propeller (HP)



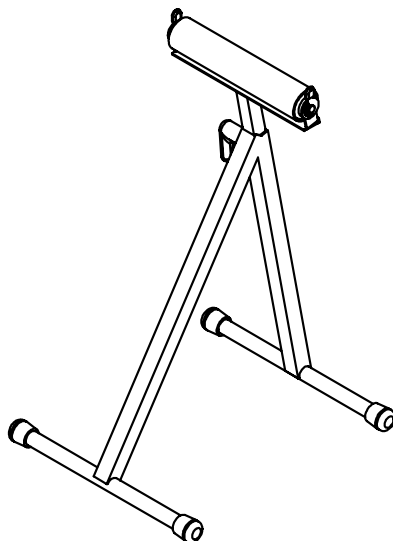
TPI-BST-2912+

Blade Assembly Support Stand

Part Number: BST-3024 (TE126)

Description: Stand to support blade in hub during HD-E6C-3 or HC-E4N-3A propeller assembly.

Vendor: Hartzell Propeller (HP)



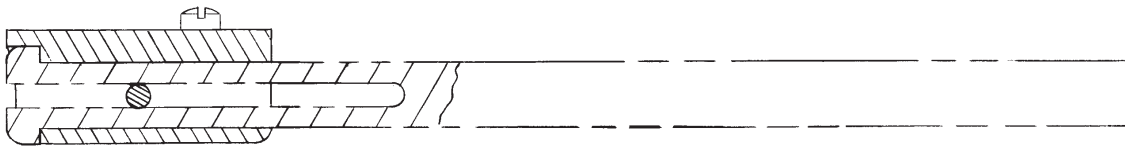
TPI-BST3024

Probe Support

Part Number: BST-2847 (TE128)
Supersedes BT-2847

Description: Probe support to ensure accurate contact of probe to blade surface during Eddy Current Inspection.

Vendor: Hartzell Propeller (HP)



TPI-BST2847

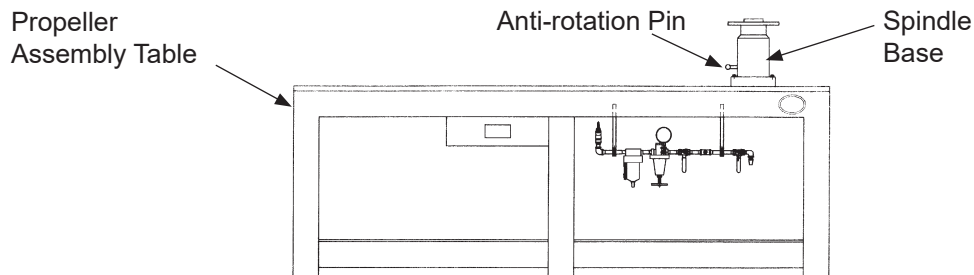
Propeller Assembly Table

Part Number: CST-2901-() (TE129)

Description: Table used to assemble/disassemble propellers. Can order a complete propeller assembly table or contact Hartzell Propeller Product Support Department for information to fabricate. The CST-2901 includes the propeller assembly table and the items listed in the chart below.

PROPELLER ASSEMBLY TABLE (TE129)						Hartzell Table Component Part Number and Description	
CST-2901-5 (Short Table w/ Building Buck Components)	CST-2901-4 (Full Table w/ Building Buck Components)	CST-2901-3 (Full Table w/ Spindle Base, Anti-rotation Pin)	CST-2901-2 (Short Table w/ Spindle Base, Anti-rotation Pin)	CST-2901-1 (Short Table)	CST-2901 (Full Table)		
	1		1		1	CST-2901+1	Base (Full Table)
1		1		1		CST-2901-1+1	Base (Short Table)
2	2	2	2	2	2	106947	Blade Decal, HP Oval
1	1					BST-2912-10 (TE80)	C-flange Adapter
1	1					BST-2912 (TE125)	Building Buck Components
(1)	(1)					BST-2912-1 (TE124)	Flanged Hub Spindle
(1)	(1)					BST-2912-4 (TE4)	Adapter Ring N-flange
(1)	(1)					BST-2912-9 (TE2)	A-flange Adapter, C-flange Adapter
(1)	(1)	1	1			BST-2912+ (TE125-1)	Spindle
(1)	(1)	1	1			BST-2912-11 (TE85)	Anti-Rotation Pin
(1)	(1)					BST-2912-2 (TE122)	#20 Spline Spindle
(1)	(1)					BST-2912-3 (TE123)	#30 Spine Spindle
1	1	1	1	1	1	CST-2901+5	Pneumatics

NOTE: Pressure gauges included with the propeller assembly table TE129 must be re-calibrated on arrival at the final destination.



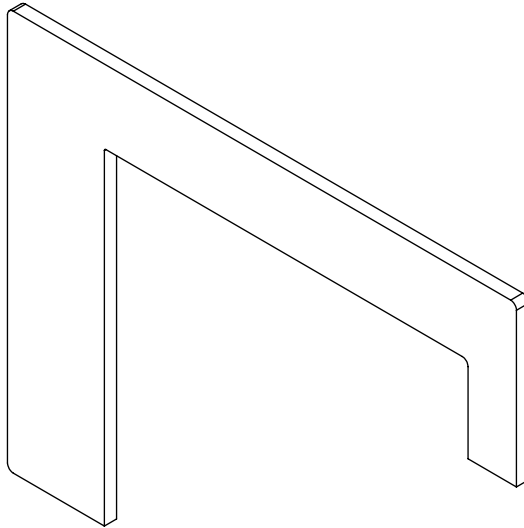
TPI-CST2901

Blade Wall Thickness Template

Part Number: BST-2825 (TE131)
Supersedes B-2825

Description: Template to check minimum wall thickness of T10176() Blade bore.

Vendor: Hartzell Propeller (HP)



TPI-BST-2825

Eddy Current Test Instrument

Part Number: ED-520 (TE133), ED-530 (TE134)

Description: Instrument to locate cracks and flaws in non-magnetic material. Used in conjunction with the following:

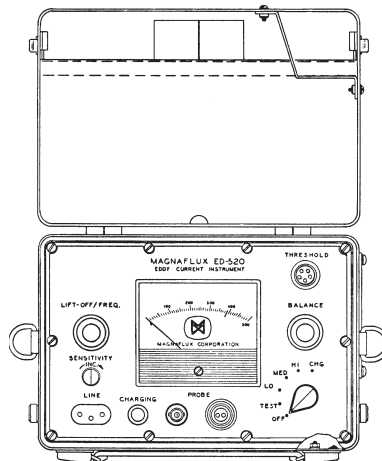
Vendor: Magnaflux Corporation (MF)

Single Shoulder Test Equipment:

<u>Hartzell P/N</u>	<u>Description</u>
AST-2857 (TE94) Superseded by (TE94-1)	Probe for Y-shank Blade Inspection
107514 (TE94-1) Supersedes (TE94)	Probe for Y-shank Blade Inspection
AST-2979 (TE121)	Eddy Current Test Block
BST-2847 (TE128)	Probe Support
BT-1313(-)() (TE95)	Eddy Current Probe Unit for Blade Balance Hole Inspection
107518 (TE463)	Eddy Current Test Shank

Double Shoulder Test Equipment

<u>Hartzell P/N</u>	<u>Description</u>
BST-3069 (TE315)	Probe Holder
BST-3076 (TE500)	Calibration Standard
BST-3077-1 (TE501)	Eddy Current Probe
BST-3078	Teflon Tape
BST-3075+1	Protective Case



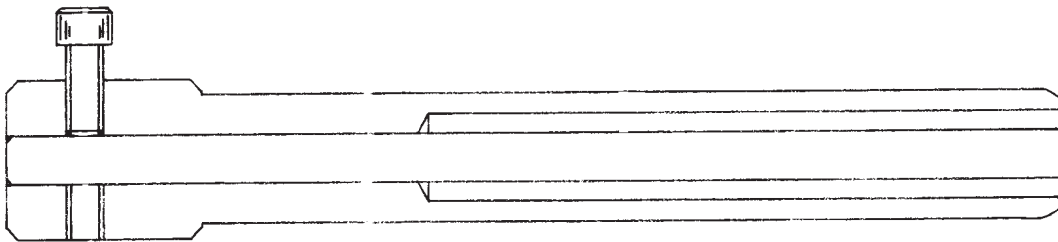
TP-EDDYCUR

Flight Idle Set Fixture

Part Number: BST-10003 (TE136)

Description: Fixture to set PCU piston indicating rod at the pre-set flight idle position.

Vendor: Hartzell Propeller (HP)



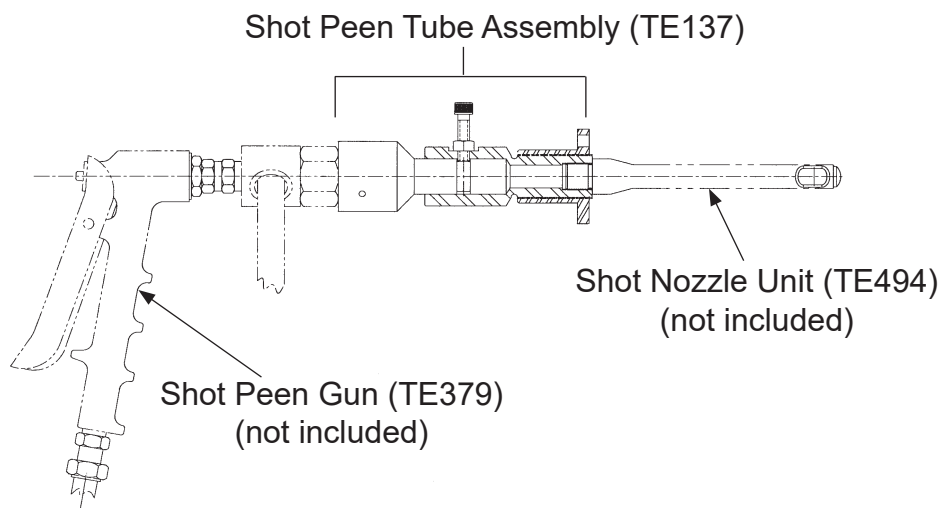
TP-BST-10003

Shot Peen Tube Assembly

Part Number: BT-1271-1 (fine threads) or BT-1271-2 (corse threads) (TE137)
Supersedes BT-1271

Description: Adapter assembly to shot peen blade balance bores. Used with CT-1311 (TE12).

Vendor: Hartzell Propeller (HP)



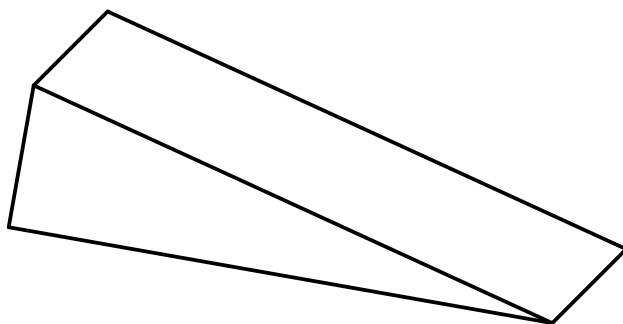
TP-BT-1271

Wedge

Part Number: AST-2802 (TE138)

Description: Wedge to aid in separating the hub halves of an aluminum hub propeller without scarring the mating surfaces.

Vendor: Hartzell Propeller (HP)



TPI-AST2802

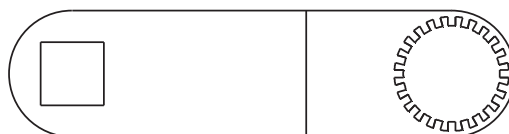
Torque Wrench Adapter

Part Number: AST-2805 (TE139) K-flange steel hub propellers

AST-2805-2 (TE139-2) D-flange propellers

Description: Wrench to tighten and torque mounting bolts on propellers. Used in conjunction with a standard 1/2 inch square drive torque wrench.

Vendor: Hartzell Propeller (HP)



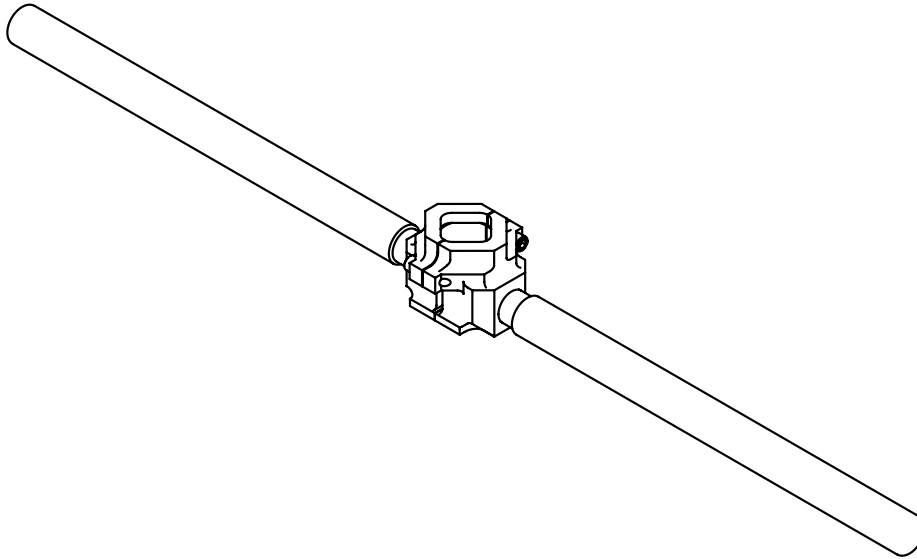
TPI-AST2805

Clamp Wrench

Part Number: BST-3044 (TE141)

Description: Wrench to remove the pitch change rod or hydraulic assembly from the pitch change fork of an HD-E6C-3 propeller after pitch lock.

Vendor: Hartzell Propeller (HP)



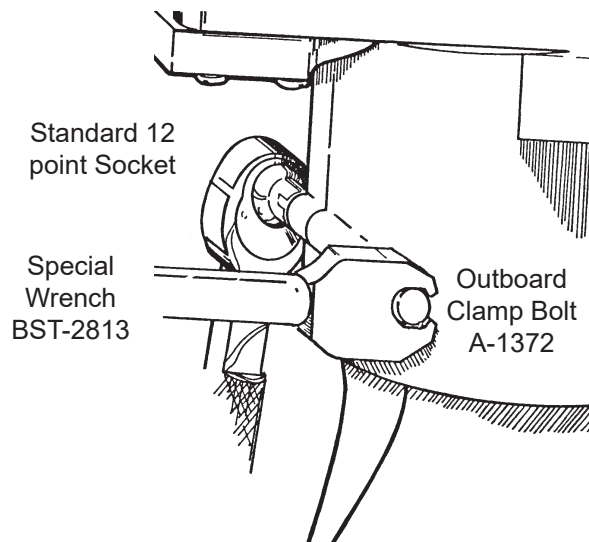
TPI-JM-000272

Clamp Nut Wrench

Part Number: BST-2813 (TE142)
Supersedes B-2813

Description: Wrench to hold A-1373 Clamp Nut while torquing A-1372 Bolt.

Vendor: Hartzell Propeller (HP)



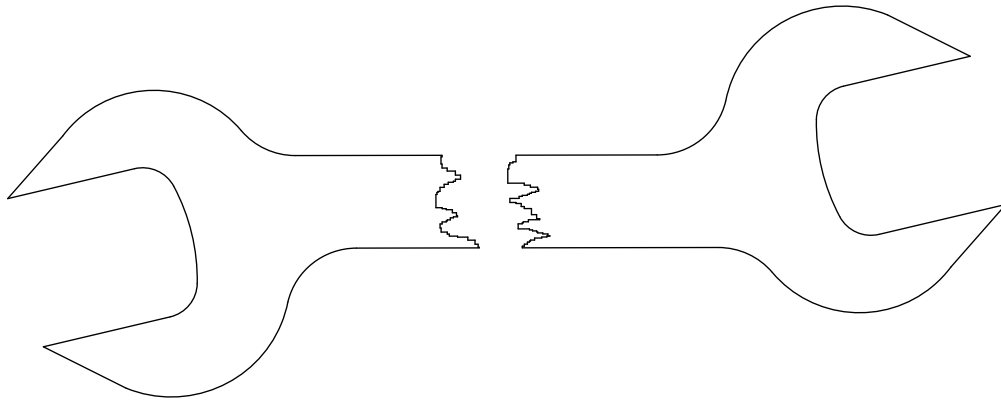
TPI-BST2813

Double End Wrench

Part Number: BST-3032 (TE143)

Description: Modified 1-3/4 inch open end wrench.

Vendor: Hartzell Propeller (HP)



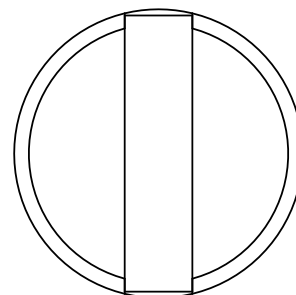
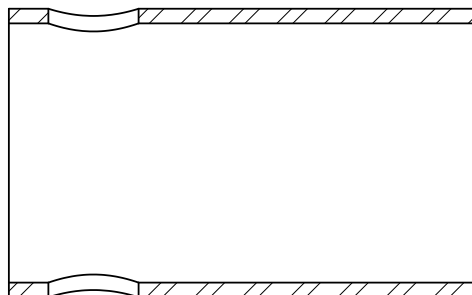
TPI-BST3032

Shaft Nut Wrench

Part Number: BST-2910 (TE146)
Supersedes BT-2804, BT-840, BST-2804 and BST-840

Description: Wrench to tighten the propeller mounting shaft nut on #20, #30 and #40 splined propellers.

Vendor: Hartzell Propeller (HP)



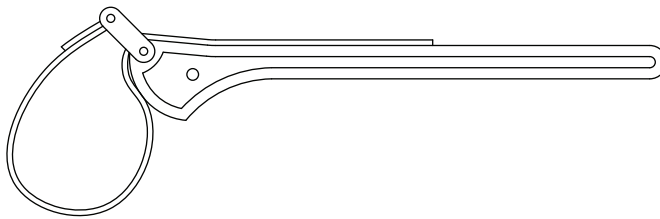
TPI-BST2910

Strap Wrench

Part Number: 100923 (TE148-1)
Supersedes BT-461 (TE148)

Description: Wrench to install/remove feathering spring.

Vendor: Hartzell Propeller (HP)



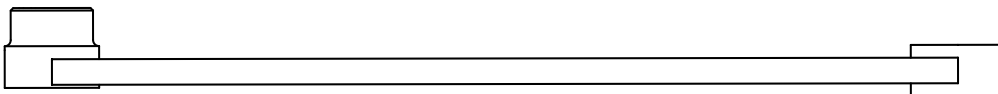
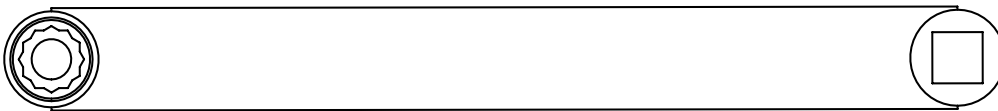
TPI-100923

Torque Wrench Adapter

Part Number: AST-2814 (TE149)
Supersedes A-2814

Description: Wrench to tighten and torque 9/16 inch, 12 point mounting bolt. Used in conjunction with a standard 1/2 inch square drive torque wrench.

Vendor: Hartzell Propeller (HP)



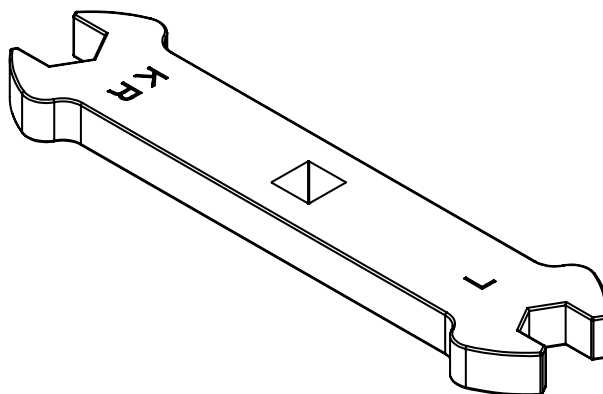
TPI-AST2814

Torque Wrench Adapter

Part Number: BST-2860 (TE150)
Supersedes BST-2835 and BT-2860

Description: Wrench to tighten and torque mounting bolts on K, R, and L-flange propellers. Used in conjunction with a standard 1/2 inch square drive torque wrench.

■ Vendor: Hartzell Propeller (HP)



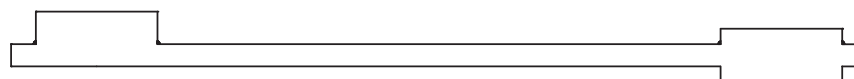
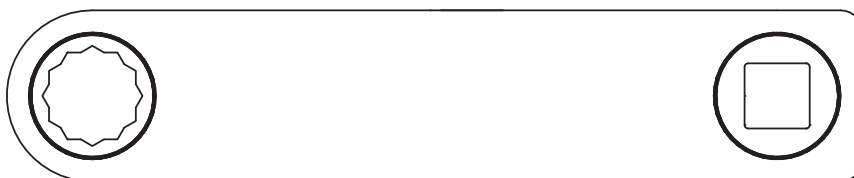
TPI-BST2860

Torque Wrench Adapter

Part Number AST-2917 (TE152)
Supersedes A-1327

Description Wrench to tighten and torque propeller mounting bolts on K-flange propellers. Used in conjunction with a standard 1/2 inch square drive torque wrench.

■ Vendor: Hartzell Propeller (HP)



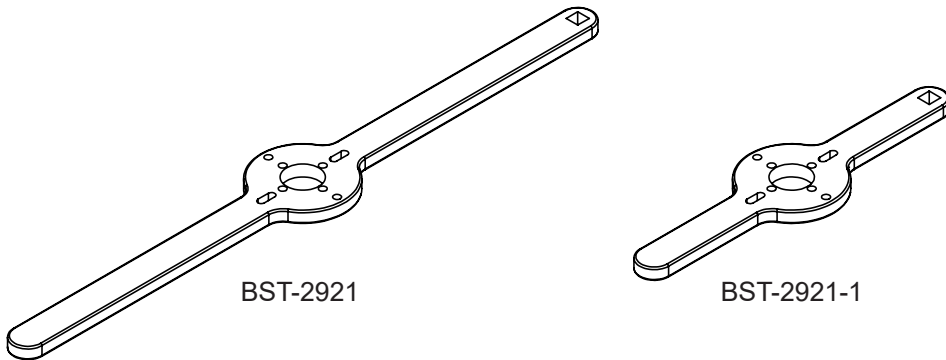
TPI-AST2917

Torque Wrench Adapter

Part Number: BST-2921 (TE153) Standard Length
Supersedes BST-2801
BST-2921-1 (TE153-1) Short Length

Description: Wrench to remove, install, and torque cylinders on aluminum hub propellers.

Vendor: Hartzell Propeller (HP)



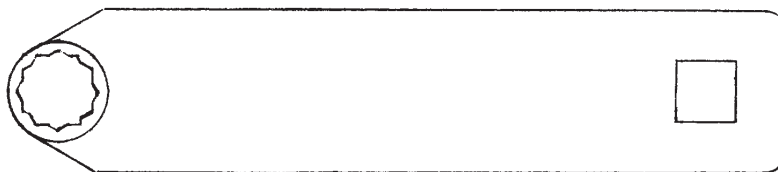
APS-175

Torque Wrench Adapter

Part Number: AST-2953 (TE154)

Description: Wrench to tighten and torque mounting bolts on L-flange propellers. Used in conjunction with a standard 1/2 inch square drive torque wrench.

Vendor: Hartzell Propeller (HP)



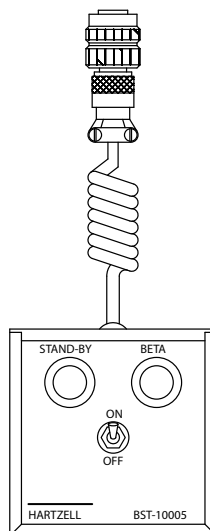
TPI-AST2953

Beta Switch Tester

Part Number: BST-10005 (TE157)

Description: Test box to simulate the cockpit beta light when rigging the PCU beta light switch during PCU assembly. To be used in conjunction with BST-10006 Rigging Cover.

Vendor: Hartzell Propeller (HP)



TPI-BST-10005

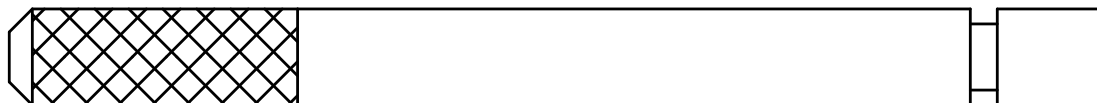
Headless Pin

Part Number: BST-10007 (TE159)

Description: These pins are threaded into the hub's forward mounting ring to hold it in the correct position for:

- 1) Hydraulic unit mounting during HD-E6C-3 propeller assembly (four required).
- 2) Cylinder mounting during the HC-E5A-2 propeller assembly (two required).

Vendor: Hartzell Propeller (HP)



TPI-BST10007

Ream Fixture

Part Number: BST-2966 (TE181) For spinner mounting plate C-3733 A-flange, 5-way
Supersedes BT-2723

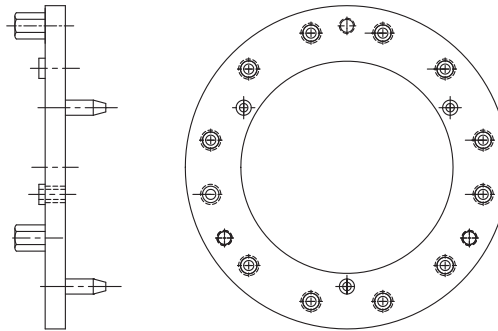
BST-2966-3 (TE182) For spinner mounting plate C-3003-1, 3-way
Supersedes BST-2836 and CT-1472

BST-2966-4 (TE183) For spinner mounting plate C-3404, 4-way
Supersedes CT-1482

BST-2966-5 (TE184) For spinner mounting plate C-4011-1, 5-way
Supersedes BST-2848

Description: Fixture used to locate and drill spinner mounting plates.

Vendor: Hartzell Propeller (HP)



TPI-BST2966

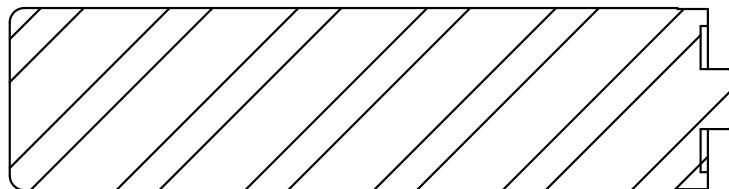
PCU Bearing Installation Tool

Part Number: BST-3055 (TE185) For B-6133-1 Bearing

BST-3055-1 (TE186) For B-6133-2 Bearing

Description: Tool used in conjunction with customer supplied press to install roller bearings into PCU manifold.

Vendor: Hartzell Propeller (HP)



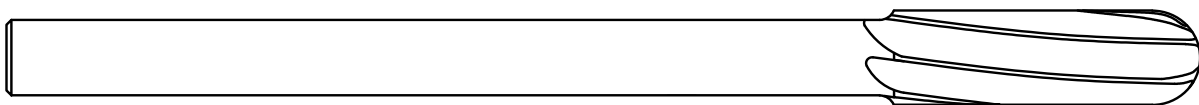
TPI-BST3055

Ball Nose Reamer

Part Number: BT-1465-1 (TE207) 0.766 (19.45 mm) diameter ball nose
BT-1465-3 (TE207-1) 0.758 (19.25 mm) diameter ball nose
BT-1465-2 (TE208) 0.781 (19.83 mm) diameter ball nose
BT-1465-4 (TE208-1) 0.773 (19.63 mm) diameter ball nose

Description: Reamer to repair a blade balance hole.

Vendor: Hartzell Propeller (HP)



TPI-BT1465-1

Applicator Gun

Tool Number: TE209

Description: 1.69 oz. (50.0 ml) manual applicator to apply adhesive at a 1:1 and 2:1 mix ratio.

<u>Vendor</u>	<u>Vendor P/N</u>	<u>Description</u>	<u>Manufacturer</u>
McMaster-Carr Supply Co. (MC)	7467A41	Applicator gun	Loctite®



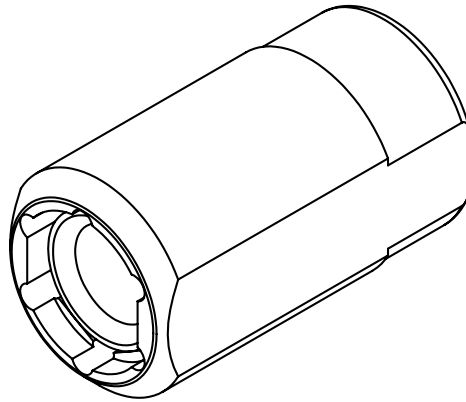
TPI-JM-000269

Socket - Assembly

Part Number: BST-3067 (TE228)/BST-3067+3 (TE228-1)

Description: Modified socket to install and remove a piston on certain pitch change rods. TE228 is used on D-6071 and D-494 pitch change rods. TE228-1 is used on D-3657 and D-7412 pitch change rods

Vendor: Hartzell Propeller (HP)



TPI-BST3067

Bearing Press Tool Kit

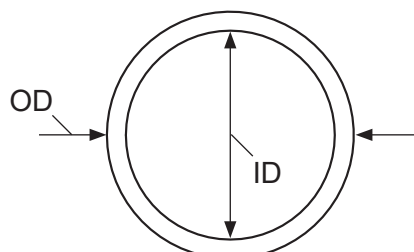
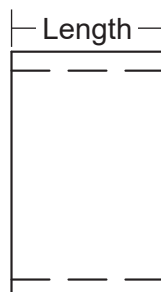
Part Number: BST-3026 (TE238)

Description: Press used to install bearings into bearing carriers or housings during assembly of HD-E6C-3 propeller or PCU.

Vendor: Hartzell Propeller (HP)

Components:

<u>Hartzell P/N</u>	<u>ID</u>	<u>OD</u>	<u>Length</u>
BST-3026-1 (TE238-1)	0.810 inch (20.57 mm)	1.00 inch (25.4 mm)	1.00 inch (25.4 mm)
BST-3026-2 (TE238-2)	1.350 inch (34.29 mm)	1.50 inch (38.1 mm)	1.00 inch (25.4 mm)
BST-3026-3 (TE238-3)	1.375 inch (34.93 mm)	1.625 inch (41.27 mm)	1.00 inch (25.4 mm)



TPI-BST3026

Pilot Tube Installation Tool Kit

Part Number: BST-3064 (TE241)

Supersedes B-844

BST-3064A (TE241-1)

Description: Tool set contains various spacer adapters. Refer to TE52 for the fixture to be used with customer procured hydraulic press.

Vendor: Hartzell Propeller (HP)

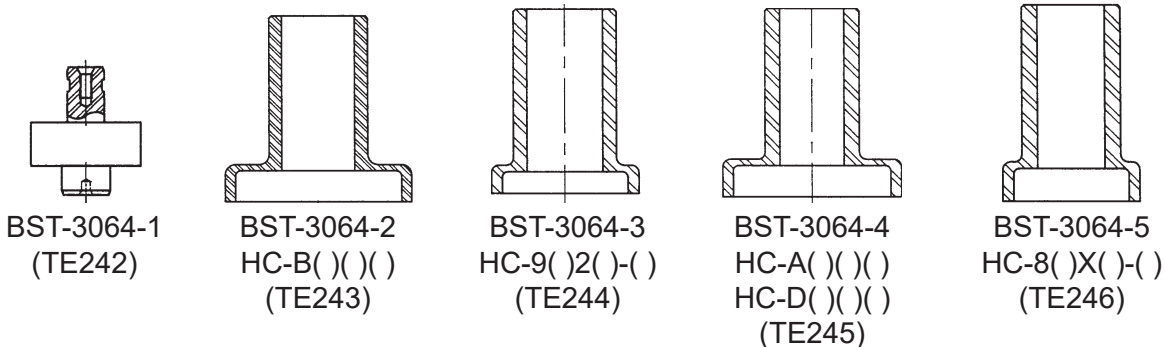
Components:

BST-3064 - Kit with the Pilot Tube Installation Tool:

<u>Hartzell P/N</u>	<u>Description</u>
BST-3064-1 (TE242)	Pilot Tube Installation Tool (may be purchased separately)
	<u>NOTE:</u> Can only be used with a hydraulic press that accepts a ram adapter that is 0.75 inch (19.0 mm) diameter by 1.25 inches (31.7 mm) long. For other hydraulic presses, the ram adapter is customer procured.
BST-3064-2 (TE243)	Pilot Tube Positioner & Stop
BST-3064-3 (TE244)	Pilot Tube Positioner & Stop
BST-3064-4 (TE245)	Pilot Tube Positioner & Stop
BST-3064-5 (TE246)	Pilot Tube Positioner & Stop

BST-3064A - Kit without the Pilot Tube Installation Tool:

<u>Hartzell P/N</u>	<u>Description</u>
BST-3064-2 (TE243)	Pilot Tube Positioner & Stop
BST-3064-3 (TE244)	Pilot Tube Positioner & Stop
BST-3064-4 (TE245)	Pilot Tube Positioner & Stop
BST-3064-5 (TE246)	Pilot Tube Positioner & Stop



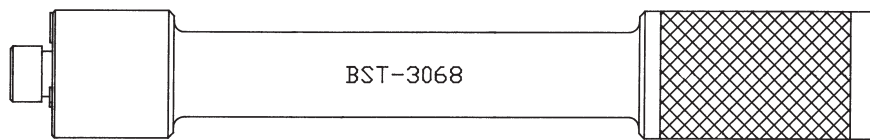
TPI-BST30641
 TPI-BST30642
 TPI-BST30643
 TPI-BST30644
 TPI-BST30645

Peening Tool

Part Number: BST-3068 (TE247)

Description: Tool for peening A-2245-(1) bushings in aluminum hubs.

Vendor: Hartzell Propeller (HP)



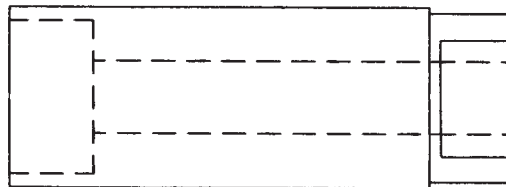
TPI-BST3068

Modified Deep Well Socket

Part Number: BST-10004 (TE251)

Description: Used in the assembly and disassembly of HD-E6C-3 propeller.

Vendor: Hartzell Propeller (HP)



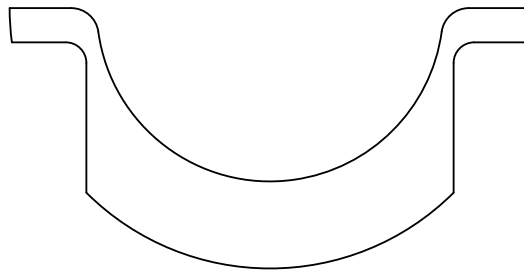
TPI-BST10004

Bonding Clamp

Part Number: BST-2970 (TE274)
Obsolete

Description: Tool for sanding the O.D. bearing seat surface on the PCU.

Vendor: Hartzell Propeller (HP)



3009.TIF

Rollers

<u>Part Number:</u>	MR02030 (TE275)	Roller, Steel 1-1/2" x 2"
	MR01020 (TE328)	Roller, Smooth 1-1/8" x 1/8"
	MR10900 (TE329)	Roller, Gooseneck 1" x 1/16"
	MR05000 (TE330)	Roller, Rubber 2"
	MR05020 (TE331)	Roller, Silicon 1-5/16" x 1-3/4"

Description: Miscellaneous rollers used for installation of propeller de-ice boots.

Vendor: Everhard Products (EP)



MR02030

Dual Acting Line Maintenance Kit (Hartzell Supplied Tools Only)

Part Number: CST-3028-2 (TE276)

Description: Tools required for line maintenance of HD-E6C-3 propeller and PCU.

Vendor: Hartzell Propeller (HP)

Components:

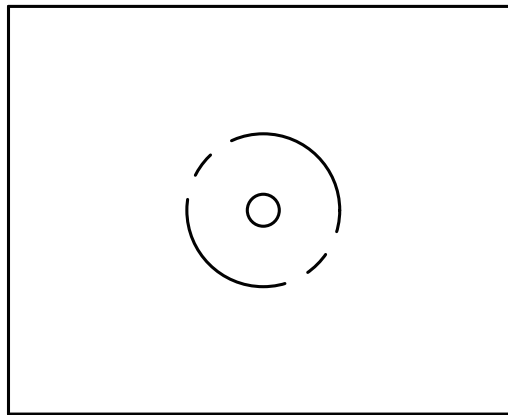
<u>Hartzell P/N</u>	<u>Description</u>	<u>Quantity</u>
AST-2877-1 (TE155)	Torque Wrench Adapter	1
BST-3048 (TE320)	Transfer Tube and Plug Removal/Installation Tool	1
BST-3041 (TE84)	Rigging Pin	2
BST-10001 (TE69)	Transfer O-ring Installation Tool	1
BST-3038 (TE26)	Control Rod Alignment Tool	1

Ultrasonic Calibration Standard

Part Number: CST-3012 (TE277)
Supersedes BST-10009.

Description: Controlled specimen to confirm calibration of ultrasonic test equipment.

Vendor: Hartzell Propeller (HP)



CST3012

Ultrasonic Flaw Detector Kit

Part Number: 791256000 (TE285)

Description: Instrument to locate flaws in non-magnetic material
(composite blade shank area). Not shown.

Components:

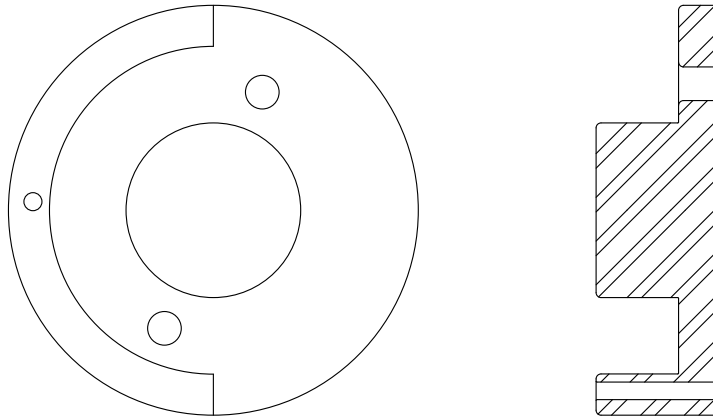
<u>Vendor</u>	<u>Vendor P/N</u>	<u>Description</u>	<u>Quantity</u>
Refer to TE375	Refer to TE375	Ultrasonic Flaw Detector	1
GE Panametrics, Inc. (PM)	23SC	Hard-shell Shipping Case	1
GE Panametrics, Inc. (PM)	23PR	Seiko Printer	1
GE Panametrics, Inc. (PM)	21PP	Printer Paper (5 rolls)	1
GE Panametrics, Inc. (PM)	23BAT-CAM	8 Hour Battery Pack	1
GE Panametrics, Inc. (PM)	M207-RB (Included in TE374)	2.25 MHz Transducer	1
GE Panametrics, Inc. (PM)	DLH-2 (Included in TE374)	Delay Tip (Line)	1
GE Panametrics, Inc. (PM)	BCB-58-6	Transducer Cable	1
■ Hartzell Propeller (HP)	CST-3012 (TE277)	Ultrasonic Inspection Calibration Standard	1

Removal Drill Jig

Part Number: BST-3070 (TE296)

Description: Drill jig for removing the manifold plug from the PCU.

Vendor: Hartzell Propeller (HP)



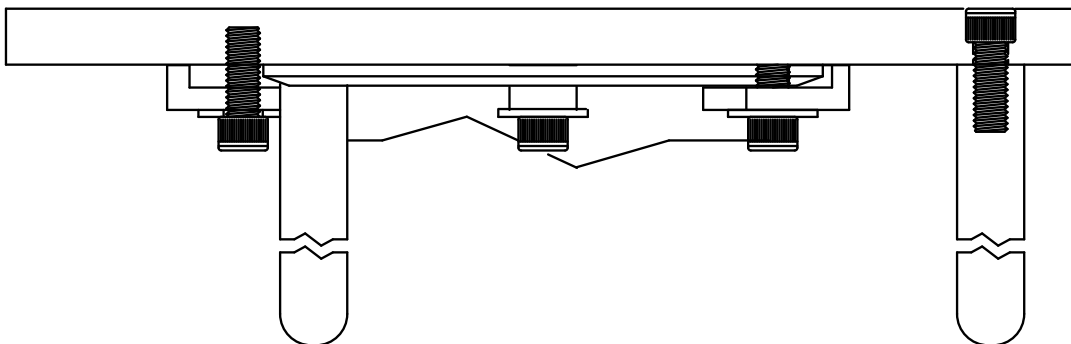
BST-3070.ai

PCU Stand

Part Number: BST-3071 (TE297)

Description: Stand for securing the PCU during maintenance operations.

Vendor: Hartzell Propeller (HP)



BST3071.TIF

Dummy Pitch Change Rod

Part Number: BST-2932 (TE298)

Description: Used during assembly of the HC-A6A-3 propeller.

Vendor: Hartzell Propeller (HP)



TPI-BST2932

E13890 Master Balance Blade

Part Number: BST-3200 (TE431) - Group 0 (-100 in. oz.)

BST-10037 (TE299) - Group 1 (-5 in. oz.)

BST-10038 (TE300) - Group 2 (+100 in. oz.)

BST-10039 (TE301) - Group 3 (+180 in. oz.)

102690 (TE460) - Group 4 (+260 in. oz.)

Description: Used to balance composite blades into balance groups. Not shown.

NOTE: This part number can be used to order the drawing for local fabrication.

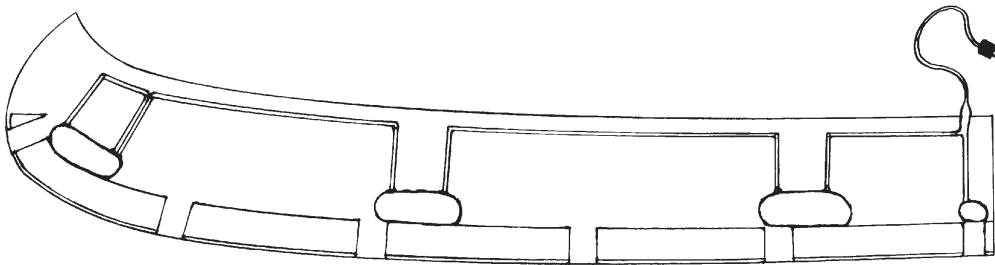
Vendor: Customer Supplied (CS)

Tail Edge Blanket

Part Number: HZP161001 (TE302) E10950 Blade Repair Blanket
HZP161002 (TE304) Blade Repair Blanket (4" x 12")

Description: Heat blankets which provide accelerated cure time when making repairs to composite blades. TE304 Not shown.

Vendor: BriskHeat Corporation (BR)



APS2086

Heat Gun

Part Number: HL1802E (TE303)

Description: Heat Gun for heat shrinking tubing around the wire harness of the de-ice boot for the HD-E6C-3() propeller assembly and the tubing for wires used in an electrically actuated governor.

Vendor: Steinel America (SA)



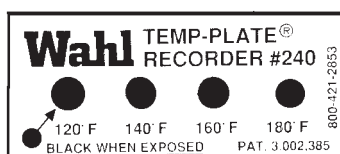
HL1802E

Standard Four-Position Temp-Plate® Recorder

Part Number: 240-120F (TE306) Records temperatures from 120°F to 180°F
240-190F (TE307) Records temperatures from 190°F to 220°F
240-120F (TE358) Records temperatures from 90°F to 120°F

Description: Temperature indicating strips. TE306 and TE307 are to be used when performing composite blade repairs with a blade repair blanket (TE302 or TE304). TE358 is to be used when performing de-ice system static check on HD-E6C-3() () propeller de-ice systems.

Vendor: Wahl Instruments, Inc. (WI)



(TE307 and TE358 not shown)

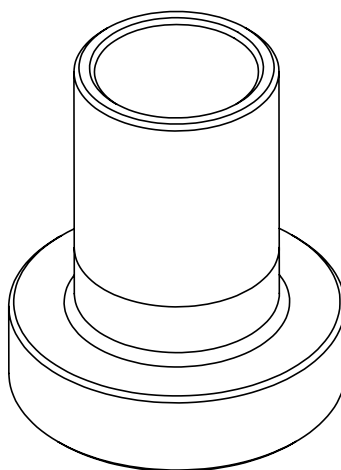
TPI-TEMPPLTE

A-972 Ring Press Tool

Part Number: BST-3061 (TE308)
Supersedes BT-222-1

Description: Used to press split bearings in steel hub propellers.

Vendor: Hartzell Propeller (HP)



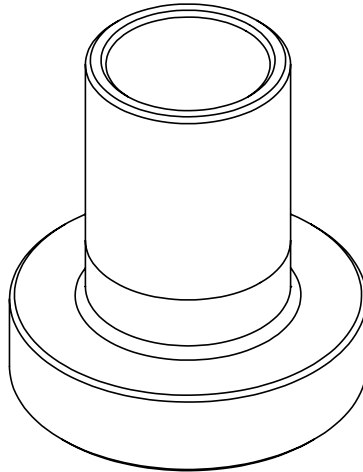
TPI-BST3061

A-1852 Ring Press Tool

Part Number: BST-3062 (TE309)
Supersedes BT-222

Description: Used to press split bearings in steel hub propellers.

Vendor: Hartzell Propeller (HP)



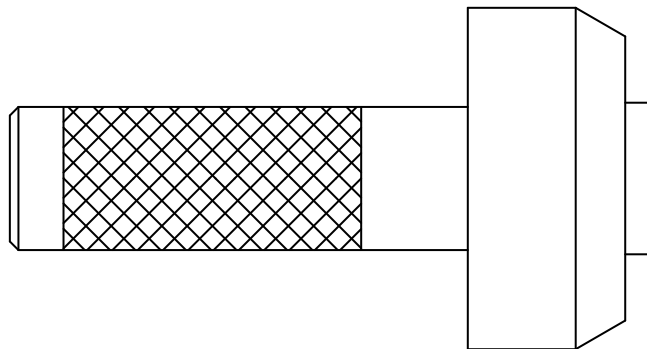
TPI-BST-3062

Drive Coupling Centering Tool

Part Number: BT-3035 (TE310)

Description: Tool for aligning the drive coupling C-5623-2 in the PCU manifold.

Vendor: Hartzell Propeller (HP)



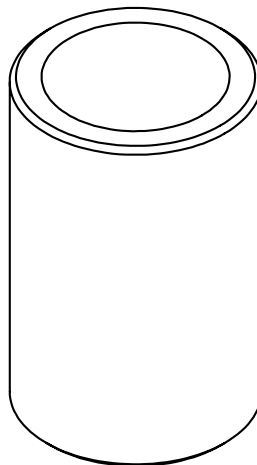
TPI-BT3035

Pilot Tube Removal Stop

Part Number: BST-3066-2 (TE311)

Description: Adapter to push pilot tubes deeper into the hub in order to remove with less force.

Vendor: Hartzell Propeller (HP)



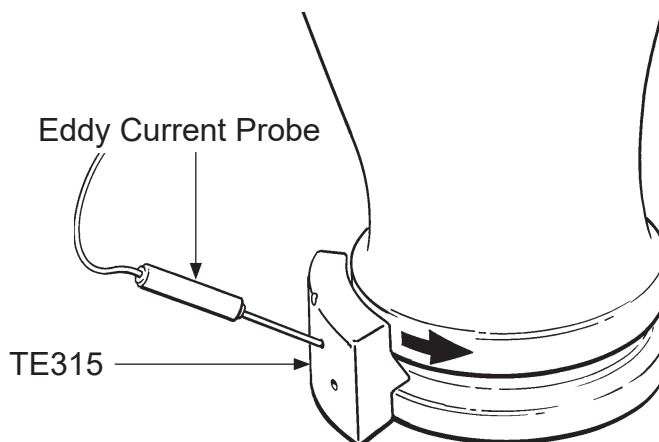
TPI-BST3066

Probe Holder

Part Number: BST-3069 (TE315)

Description: Eddy current probe support fixture for inspecting X and V-shank double shoulder aluminum propeller blades. (Does not include the probe. Standard 1/8 inch pencil probe is recommended.)

Vendor: Hartzell Propeller (HP)



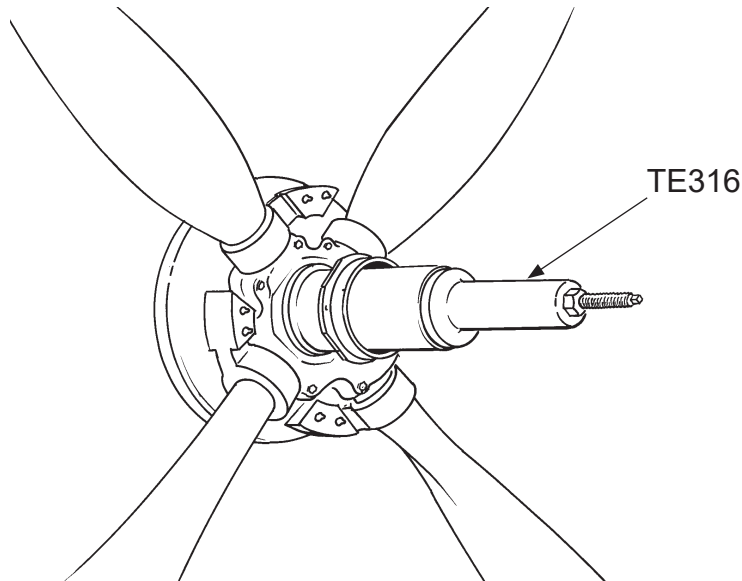
TPI-BST-3069

Unfeathering Tool

Part Number: 9943HART-001 (TE316)

Description: Tool for unfeathering propeller assemblies.

Vendor: Clay-Groomer Machine Shop, Inc. (CG) or Hartzell Propeller (HP)



APS2082

Ground Hydraulic Power Unit (GHPU)

Part Number: DST-3049 (TE318) AC, 110 V

DST-3049-1 (TE318) AC, 220 V

DST-3049-2 (TE318) DC, 28 V

Description: Used to change blade angle on the HD-E6C-3 propeller.

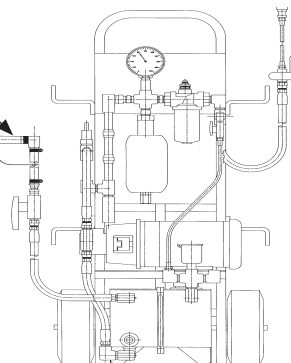
NOTE: Pressure gauges included with this ground hydraulic power unit TE318 are subject to calibration drift during shipping because of vibration, shock, etc., and must be re-calibrated by the customer on arrival at the final destination.

Vendor: Hartzell Propeller (HP)

BST-3050 (TE492) Chip Detector Fitting

BST-3051 (TE493) Chip Detector Fitting Cover

NOTE: A return line fitting composed of DST-3049+69, DST-3049+70, and DST-3049+7 is provided inside a toolbox that is bolted to the GHPU.



TPI-DST3049

Assembly Guide

Part Number: AST-2981 (TE319)

Description: Assembly tool for Spring Assemblies. Used with BST-2853 (TE9) Assembly Tool.

NOTE: One order of Assembly Guide AST-2981 includes a quantity of two (2) guides.

Vendor: Hartzell Propeller (HP)



TPI-AST2981

Transfer Tube and Plug Removal/Installation Tool

Part Number: BST-3048 (TE320)

Description: Installation of transfer tube and removal of transfer tube and plug in HD-E6C-3 propeller.

Vendor: Hartzell Propeller (HP)



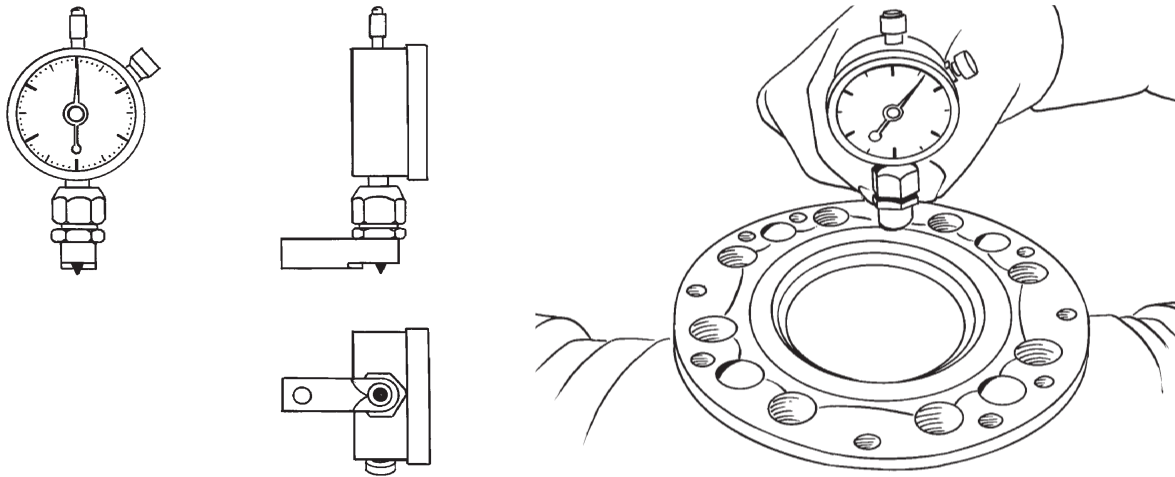
TPI-BST3048A
TPI-BST3048B

Flatness Gauge

Part Number: BST-2811 (TE321)

Description: Flatness gauge for steel hub flanges.

Vendor: Hartzell Propeller (HP)



TPI-APS6330
TPI-APS6331

Tie Strap Gun

Part Number: HS4H (TE332)

Description: Device for securing tie straps used on de-ice boots for propeller assembly HD-E6C-3B.

Vendor: All Phase Electric Supply Co. (AE)



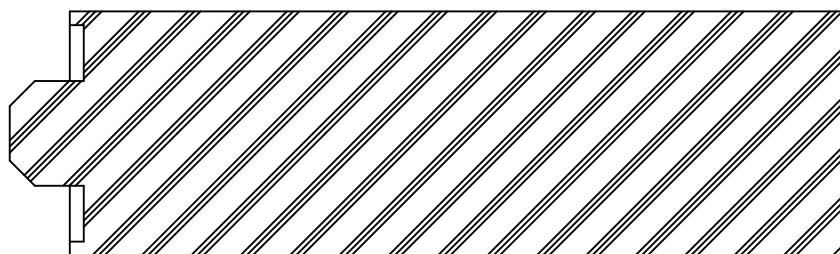
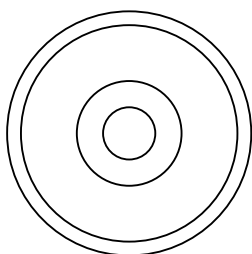
GS4H

Balance Tube Positioner

Part Number: AT-3010 (TE333)

Description: Balance tube positioner used for installing balance tubes in composite blades used in a steel hub turbine propeller.

Vendor: Hartzell Propeller (HP)



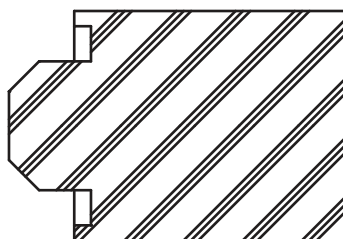
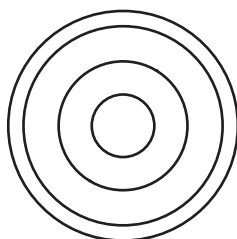
TPI-JM-000185

Balance Tube Positioner

Part Number: AT-3011 (TE334)

Description: Balance tube positioner used for installing balance tubes in composite blades used in an aluminum hub propeller.

Vendor: Hartzell Propeller (HP)



TPI-JM-000186

Megohm Meter

Part Number: Customer P/N (TE354) - A megohm meter meeting the following requirements:
0-20 megohms at 500V DC or equivalent.

Description: Used to measure the ring-to-ring insulation resistance on the A-5635-1 slip ring. Not shown.

Vendor: Customer Supplied (CS)

Milliohm Meter

Part Number: Customer P/N (TE355)

Description: A milliohm meter used to measure the bonding resistance of the HD-E6C-3() () propeller. Not shown. Must meet the following specifications:

		MAXIMUM TEST CURRENT	NON DRY CIRCUIT TEST ACCURACY 1 Year, 18°-28°C ±(%rdg+counts)	
<u>RANGE</u>	<u>RESOLUTION</u>		<u>PULSED</u>	<u>DC</u>
200 mΩ	10 μΩ	100 mA	0.04 +2	0.04 +3

Vendor: Customer Supplied (CS)

PCU Filter Removal Tool

Part Number: CG40-4 (TE356) 1/2-20 Expanding Rod
CG40-7 (TE357) 3/4-7/8 Inch Collet

Description: Used to remove PCU filter B-5840 from the D-1199-2 propeller control unit.

Vendor: Snap-On Tools Corp. (SO)



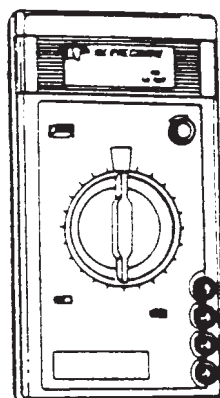
APS6125

Audio Generator Model 3001

Part Number: 90F2312 (TE359)

Description: Provides an output signal to the aircraft Np sensor, allowing the de-ice system to be checked statically.

Vendor: BK Precision (BK)



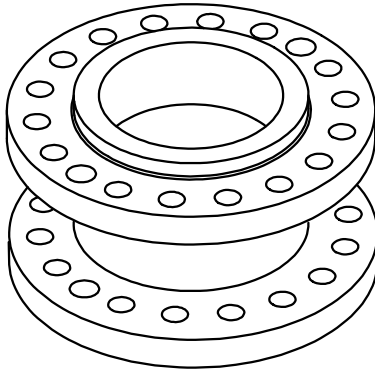
APS6124

Bolt Alignment Tool

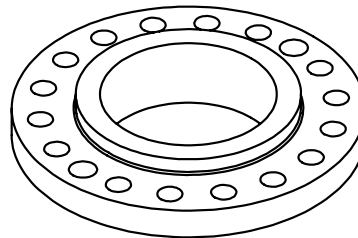
Part Number: DST-10024-(1) (TE361)

Description: Used to align A-5989-() mounting bolts in a D-6168 hub with oversize mounting bolt holes.

Vendor: Hartzell Propeller (HP)



DST-10024



DST-10024-1

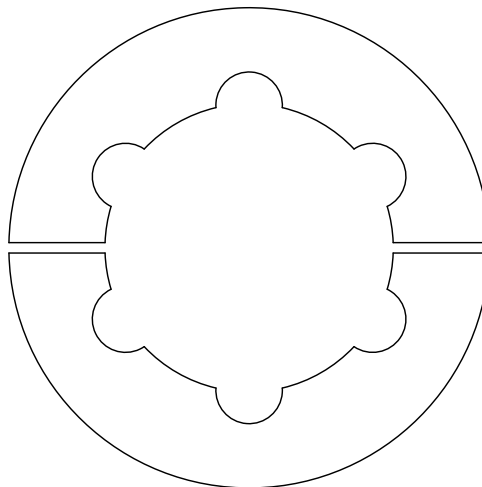
DST10024
TPI-DST-10024-1

Pitch Lock Roller Fixture

Part Number: BST-10026 (TE362)

Description: Used to compress A-5654-1 pitch lock unit to facilitate disassembly/assembly.

Vendor: Hartzell Propeller (HP)



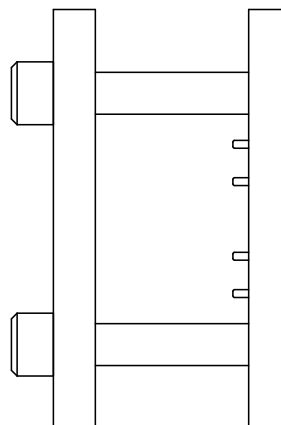
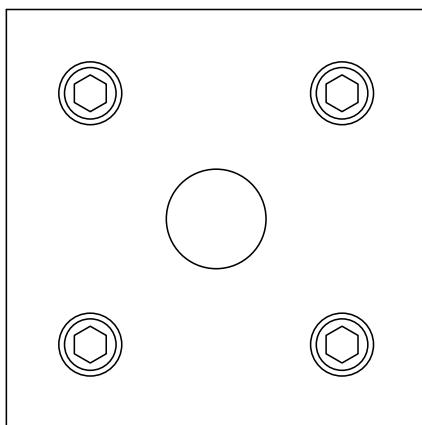
TPI-BST10026

Roller Assembly Tool

Part Number: DST-10016 (TE363)

Description: Used to position and align A-5654-11 rollers during assembly of A-5654-1 pitch lock unit.

Vendor: Hartzell Propeller (HP)



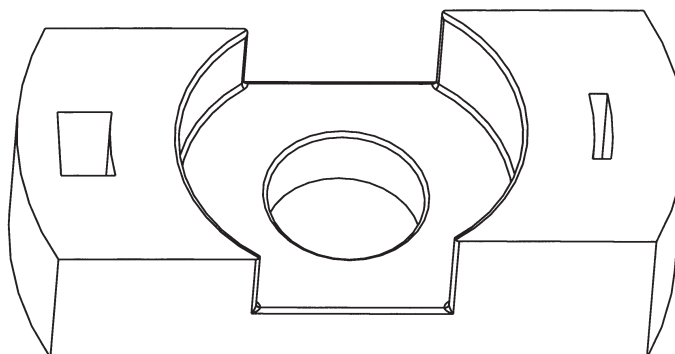
TPI-DST10016

Go/No-Go Gauge

Part Number: DST-10025 (TE364)

Description: Used to inspect for deflection of drive tab on B-6428 propeller control unit drive coupling.

Vendor: Hartzell Propeller (HP)



APS8144

Slide Hammer Assembly

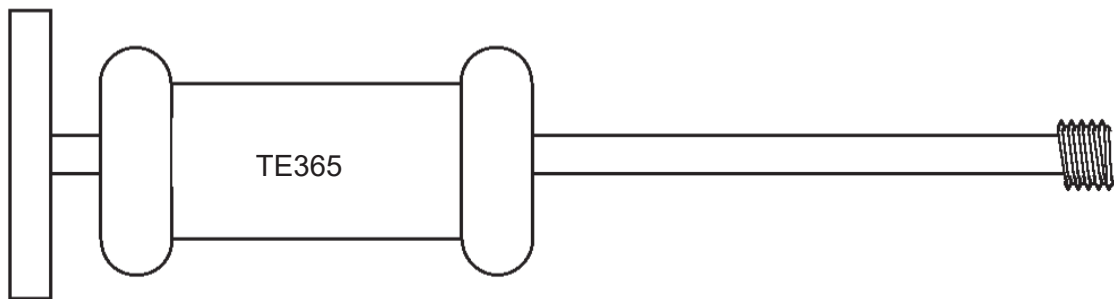
Part Number: CG250-9 and CG250-8A (TE365)

Description: Used in conjunction with an expanding rod and collet to remove bearings from a D-1199-2 propeller control unit.

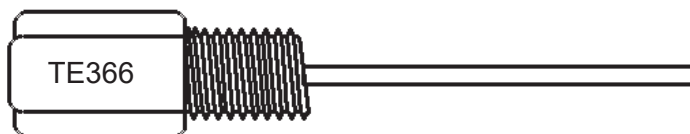
Components:

<u>Vendor</u>	<u>Vendor P/N</u>	<u>Description</u>	<u>Used With</u>
Snap-On Tools Corp. (SO)	CG250-8A (TE365)	Slide Screw	
Snap-On Tools Corp. (SO)	CG250-9 (TE365)	Slide Hammer	
Snap-On Tools Corp. (SO)	CG41-11 (TE366)	Expanding Rod internal thread size 5/8-18 external thread size 3/8-24	TE365
Snap-On Tools Corp. (SO)	CG41-14 (TE367)	1/4-5/16 inch Collet - to remove a B-6133-1 bearing	TE365/TE366
Snap-On Tools Corp. (SO)	CG41-13 (TE368)	3/8-7/16 inch Collet - to remove a B-6133-2 bearing (not shown)	TE365/TE366

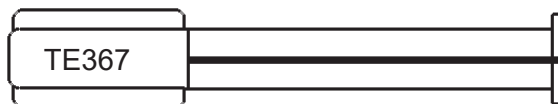
NOTE: CG250-8A slide screw and CG250-9 slide hammer make up TE365 slide hammer assembly.



APS6126



APS6127



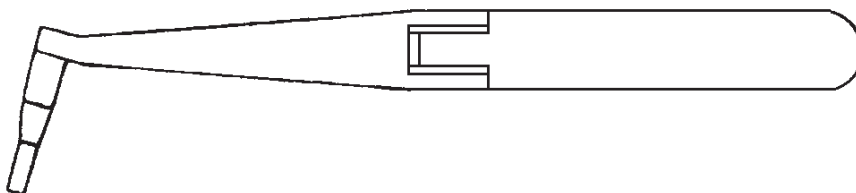
APS6128

Pin Extractor

Part Number: MS27495R20 (TE369)

Description: Used to disassemble B-5927 electrical connector on D-1199-2 propeller control unit and used for removal of pins on electrical connector for electrically actuated governors.

Vendor: Customer Supplied (CS)



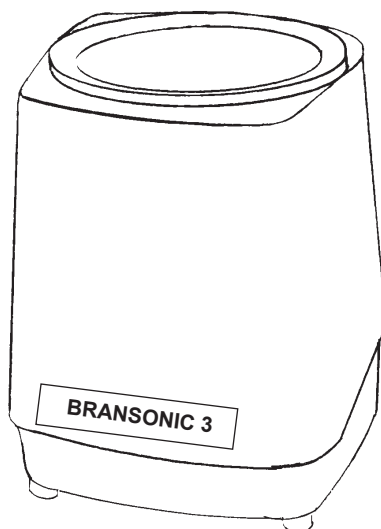
APS6142

Bransonic Benchtop Cleaner

Part Number: 000-951-005 Model B3 (TE370)

Description: Used to clean B-5840 PCU filter prior to reinstallation in D-1199-2 propeller control unit.

Vendor: Branson Ultrasonics Corporation (BN)



Branson

Transducer Assembly

Part Number: Cust. P/N (TE374)

Description: Used in conjunction with Ultrasonic Flaw Detector (TE375) to locate flaws in non-magnetic material (composite blade shank area). Not shown.

Vendor: Panametrics, Inc. (PM)

Components:

<u>Vendor</u>	<u>Vendor P/N</u>	<u>Description</u>	<u>Quantity</u>
GE Panametrics, Inc. (PM)	M207-RB (Included in TE374)	2.25 MHz Transducer	1
GE Panametrics, Inc. (PM)	DLH-2 (Included in TE374)	Delay Tip (Line)	1

Ultrasonic Flaw Detector

Part Number: Cust. P/N (TE375)

Description: Instrument to locate flaws in non-magnetic material (composite blade shank area). Not shown.

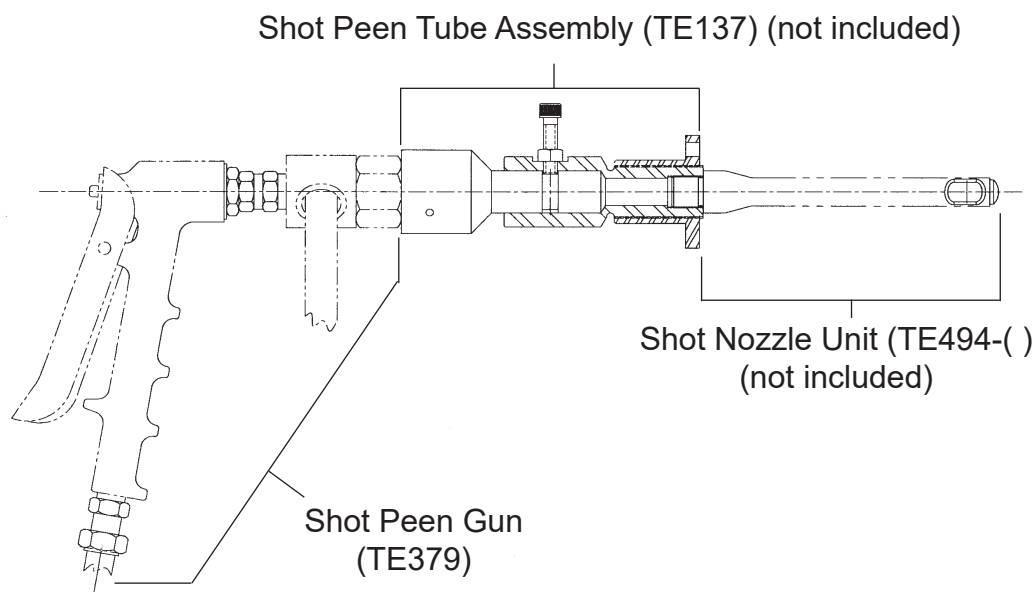
<u>Vendor</u>	<u>Part Description</u>
GE Panametrics Inc. (PM)	Panametrics Epoch 3
Olympus NDT Inc. (OL)	Epoch 600 (superseded by Epoch 650) Epoch 650 (supersedes Epoch 600)

Shot Peen Gun Assembly

Part Number: 02643 (TE379)
Supersedes HZP-09S#4 (GO)

Description: Tool used to shot peen blade balance holes. Used with BT-1271-1,2 (TE137), (not included), CT-1311 (TE12), and BT-1271(-4, -5, -6, -7,-8) (TE494-4, -5, -6, -7,-8)

Vendor: Clemco Industries Corp. (CL)



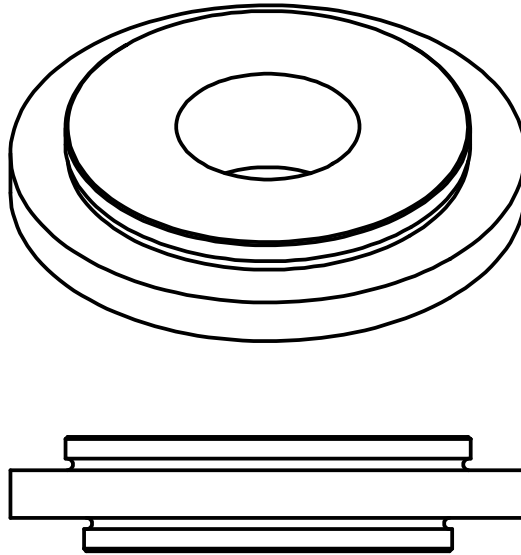
BT-1271-1_2

Cylinder Cap

Part Number: CST-3110 (TE380)

Description: Cap used with the cylinder when installing the spring assembly in compact aluminum, feathering -2 propellers.

Vendor: Hartzell Propeller (HP)



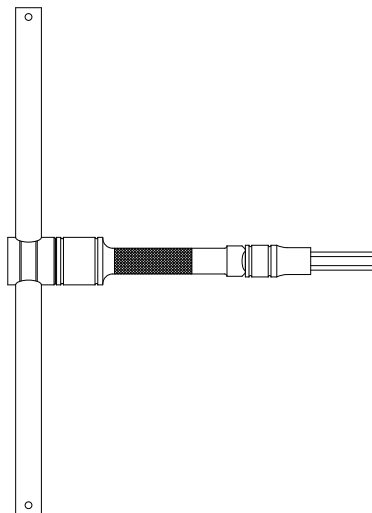
APS-6263

T-handle Wrench

Part Number: BST-3109 (TE381)

Description: Installation of the stop screw in compact aluminum -2 propellers.

Vendor: Hartzell Propeller (HP)



TPI-BST-3109

Thread Gauge Airflow Kit

Part Number: DST-3146 (TE382), DST-3146-1 (TE382-1)

Description: Used to inspect the condition of D-5117-1 counterweight clamp threaded holes. Also used to inspect the seal of an assembled propeller.

NOTE 1: When performing the grease seal pressure test, grease seal pressure test tool TE443 (BT-3838) must be used as an adapter with the CST-3117 Probe Assembly. The BT-3838-1 Blade Seal Probe in the DST-3146-1 Kit (TE382-1) eliminates the need for an adapter.

NOTE 2: Pressure gauges included with this thread gauge airflow kit are subject to calibration drift during shipping because of vibration, shock, etc., and must be re-calibrated by the customer on arrival at the final destination.

Vendor: Hartzell Propeller (HP)

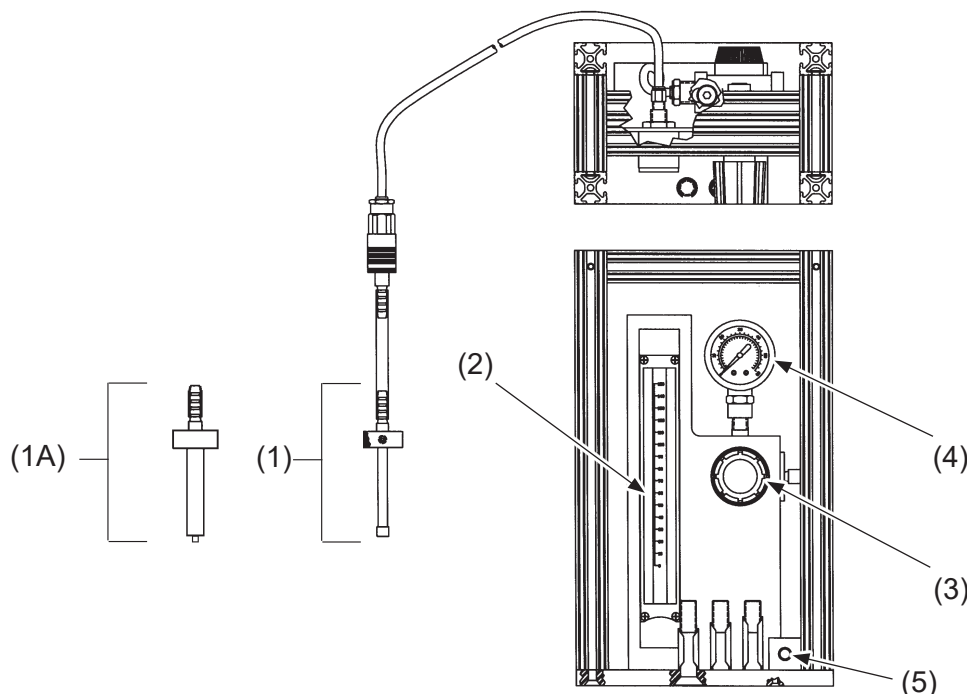
Components:

DST-3146 (TE382)

- (1) CST-3117 Probe Assembly
- (2) BST-3118 Flowmeter
- (3) BST-3119 Regulator
- (4) BST-3122 Gauge
- (5) CST-3135 Calibration Block

DST-3146-1 (TE382-1)

- (1A) BT-3838-1 Blade Seal Probe
- (2) BST-3118 Flowmeter
- (3) BST-3119 Regulator
- (4) BST-3122 Gauge



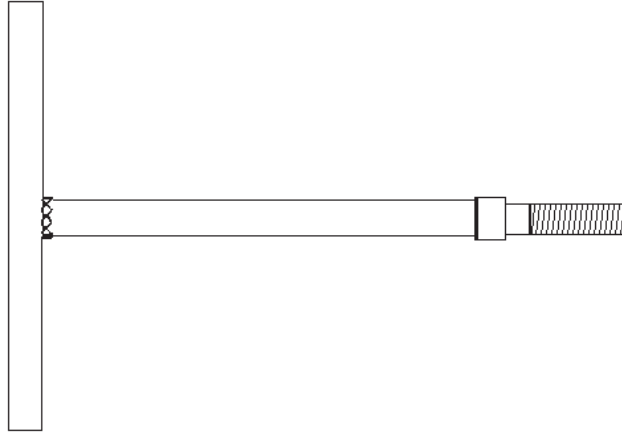
APS6266

Feathering Tool

Part Number: BST-3103 (TE383)

Description: Tool used to install the pitch adjustment washers and feathering stop in compact aluminum -2 propellers.

Vendor: Hartzell Propeller (HP)



TPI-APS6260

Cylinder Installation Rod

Part Number: BST-3104 (TE384)

Description: Tool used to spread the start lock mechanism when installing the cylinder in compact aluminum feathering propellers.

Vendor: Hartzell Propeller (HP)



APS6261

Slimsert® Installation and Removal Tool

Description: Tool used to install/remove Slimserts® (threaded inserts) into/from threaded holes.

Vendor/Part Number w/Dimension

Hartzell Propeller (HP)	Locally Procured (RC)	McKinnon Industries (MK)	Acme Industrial (AC)	Threaded Hole Size
BST-2930-1 (TE389-1), Supersedes TE314	SR25W4A	MR25W4A	225-072722	Bore 1/4-20 or 1/4-28 hole to 5/16-24 hole
BST-2930-2 (TE389-2)	SR43W4A	MR43W4A	225-072734	Bore 7/16-20 hole to 1/2-20 hole
BST-2930-3 (TE389-3), Supersedes TE312	SR50W4A	MR50W4A	225-072738 or 225-890051	Bore 1/2-13 or 1/2-20 hole to 9/16-24 hole
BST-2930-4 (TE389-4) Supersedes TE313	SR56W4A	MR56W4A	225-072742 or 225-890053	Bore 9/16-18 hole to 11/16-12 hole
BST-2930-5 (TE389-5), Supersedes TE353	SR19W4A	MR19W4A	225-072718	1/4-28
BST-2930-6 (TE389-6) Supersedes TE389	SR16W4A	MR16W4A	225-072714	12-28
BST-2930-7 (TE389-7)	SR37W4A	MR37W4A	225-072730	7/16-20
BST-2930-8 (TE389-8)	SR31W4A	MR31W4A	225-072726	3/8-24
BST-2930-9 (TE389-9)	SR14W4A	MR14W4A	225-072710	10-32
BST-2930-10 (TE389-10)	SR11W4A	MR11W4A	225-072706	8-32



BST-2930

Pressure Check Adapter

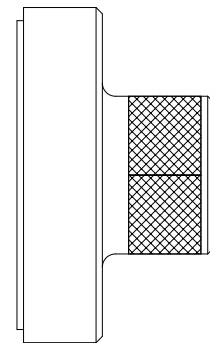
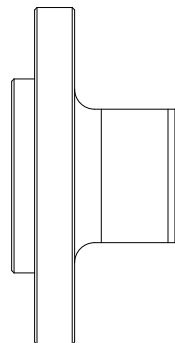
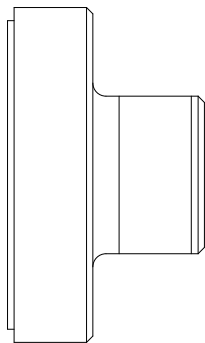
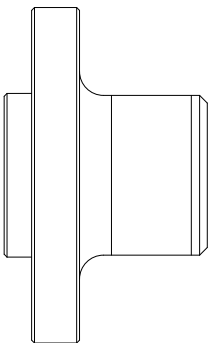
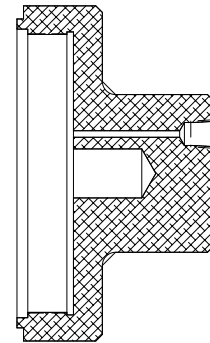
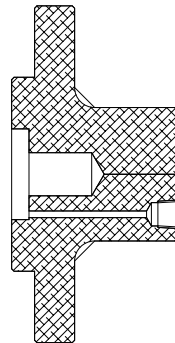
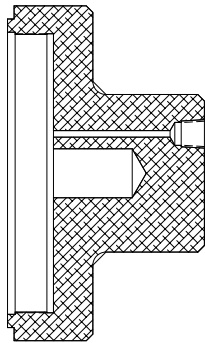
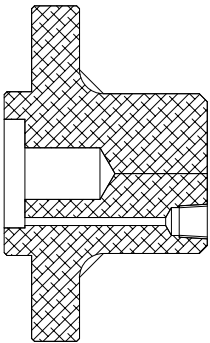
Part Number: DT-2997-2 (TE390)
DT-2997-7 (TE393)
DT-2997-8 (TE394)
DT-2997-9 (TE429)

Description: Adapter used to check the pitch change rod bushing on either the engine-side or cylinder-side of the hub.

NOTE: This part number can be used to order the drawing for local fabrication.

Vendor: Customer Supplied (CS)

<u>Hartzell P/N</u>	<u>Description</u>	<u>Used With</u>
DT-2997-2	Engine-side of N-flange aluminum hubs.	TE391
DT-2997-7	Cylinder-side of A or N-flange aluminum hubs with coarse cylinder attachment threads.	TE392
DT-2997-8	Engine-side of A-flange aluminum hubs.	TE391
DT-2997-9	Cylinder-side of A-flange aluminum hubs with fine cylinder attachment threads.	TE392



DT-2997-2

DT-2997-7

DT-2997-8

DT-2997-9

TPI-DT-2997-(2,7,8,9)

Pitch Change Bore Plug

Part Number: DT-2997-4 (TE391)
DT-2997-5 (TE392)

Description: Used to pressure check the pitch change rod bushing on either the engine-side or cylinder-side of A or N-flange hubs.

NOTE: This part number can be used to order the drawing for local fabrication.

Vendor: Customer Supplied (CS)

<u>Hartzell P/N</u>	<u>Description</u>	<u>Used With</u>
DT-2997-4	Engine-side of A or N-flange aluminum hubs.	TE390 or TE394
DT-2997-5	Cylinder-side of A or N-flange aluminum hubs.	TE393 or TE429



AP56265

Gear Inspection Wire

Description: Wire used to inspect governor components.

Vendor: Van Keuren (VK)

<u>Diameter</u>	<u>Tool Number</u>	<u>Inspect</u>
0.0525 inch	TE395	Governor control shaft diameter
0.0620 inch	TE396	Governor rack diameter
0.0850 inch	TE397	Governor drive shaft gear internal pitch diameter
0.2634 inch	TE398	Governor idler gear diameter
0.2700 inch	TE399	Governor drive shaft gear diameter
0.0962 inch	TE400	Governor idler gear pitch diameter
0.1400 inch	TE401	Governor idler gear pitch diameter
0.1480 inch	TE402	Governor drive shaft gear pitch diameter



TPI-THREAD-MEASURING-WIRES

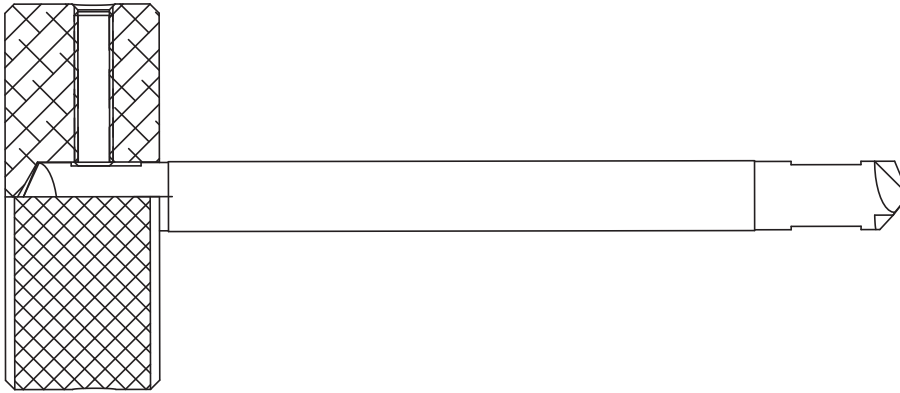
Reamer

Part Number: BST-3022 (TE403) - All Compact and "H" and "Q" Bantam propeller hubs with 1/2-20UNF studs

BST-3022A (TE403-1) - Bantam propeller hubs with 7/16-20UNF studs

Description: Used to remove adhesive from the bottom of hub mounting stud holes.

Vendor: Hartzell Propeller (HP)



BST3022

Stud Installation/Torque Check Tool

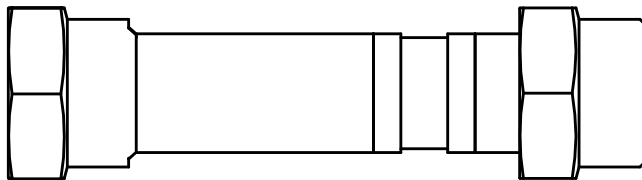
Part Number: AST-2968 (TE404) (Install/check 1/2-20 [12.7 mm] studs)

AST-2968-1 (TE404-1) (Install/check 9/16-18 [14.2 mm] studs)

AST-2968-2 (TE404-2) (Install/check 7/16-20 [10.9 mm] studs)

Description: Used to install hub mounting studs and to check the required torque after stud adhesive cures.

Vendor: Hartzell Propeller (HP)



TPI-AST2968

Shot Peen Protection Kit

Part Number: AST-3163-() (TE405)

Description: Kit to mask the chamfered lubrication fittings in two-blade and three-blade aluminum hubs.

Vendor: Hartzell Propeller (HP)

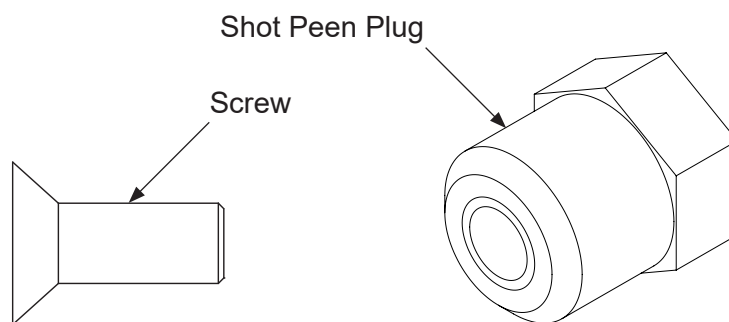
Components:

AST-3163 (TE405-1) Kit for two-blade aluminum hubs

<u>Hartzell P/N</u>	<u>Description</u>	<u>Quantity</u>
AST-3157	Shot Peen Plug	4
AST-2971-1	Screw - 0.50 inch (12.7 mm)	2
AST-2971-2	Screw - 0.62 inch (15.7 mm)	2

AST-3163-1 (TE405-2) Kit for three-blade aluminum hubs

<u>Hartzell P/N</u>	<u>Description</u>	<u>Quantity</u>
AST-3157	Shot Peen Plug	6
AST-2971-1	Screw - 0.50 inch (12.7 mm)	6



TPI-AST3157
TPI-AST2971

Slimsert® Repair Kit

Part Number: A-2327 (TE409)

Description: Kit including tools and parts necessary to repair to the lubrication fitting holes in aluminum hubs.

Components:

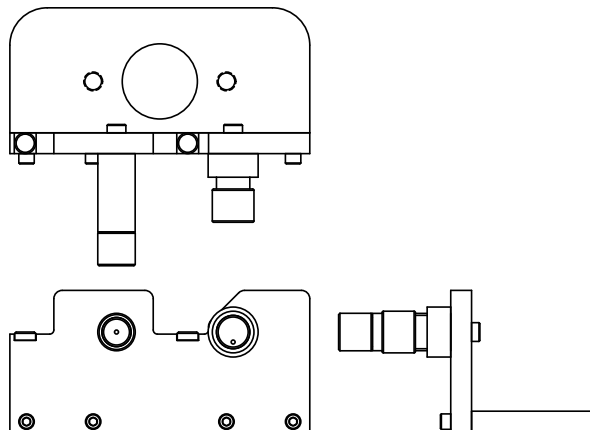
<u>Hartzell P/N</u>	<u>Vendor</u>	<u>Vendor P/N</u>	<u>Description</u>	<u>Quantity</u>
B-6986-258 (TE410)	Locally Procured (RC)	SR258	Slimsert® - Thin Wall Threaded Insert	1
791762313 (TE411)	n/a		Tap - 5/16-24 UNF-3B MOD (Minor diameter 0.280-0.285 MOD)	1
BST-2930-1 (TE389-1) Supersedes TE314	Locally Procured (RC)	SR25W4-A	Slimsert® Installation and Removal Tool	1
BST-2931-1 (TE412)	Locally Procured (RC)	SR25D	Slimsert® Step Drill	1

Blade Angle Locating Fixture

Part Number: CST-2969 (TE413)

Description: Fixture to check blade-to-blade angular difference before final hub assembly.

Vendor: Hartzell Propeller (HP)



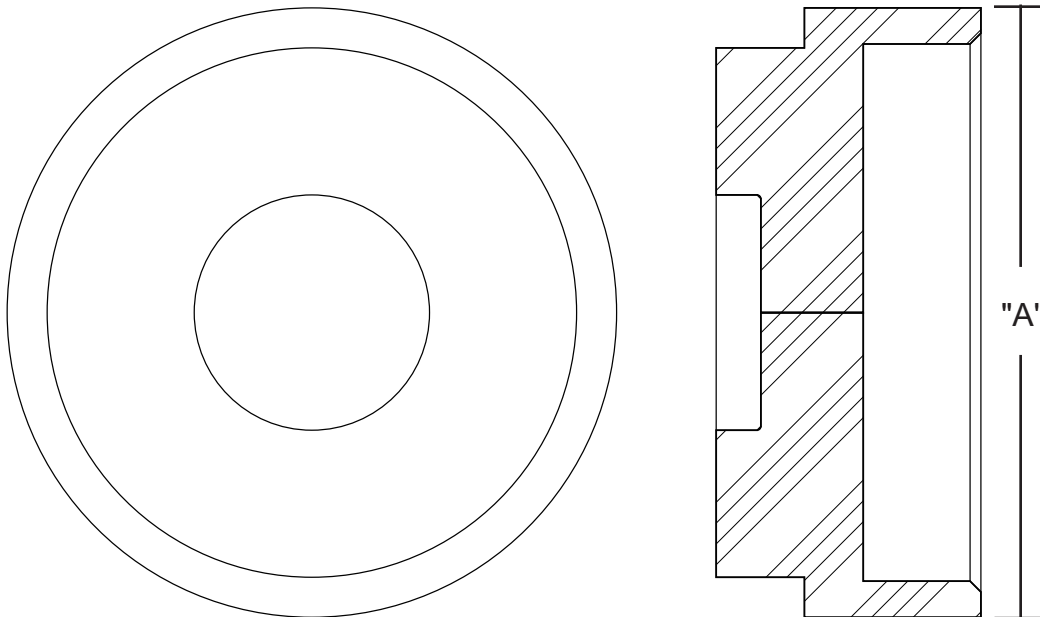
CST2969A

Paint Mask Cap

<u>Part Number:</u>	BST-3006 (TE414)	diameter of "A" is 5.930 inches (15.06 cm)
	BST-3158 (TE415)	diameter of "A" is 6.345 inches (16.12 cm)
	BST-3159 (TE416)	diameter of "A" is 5.745 inches (14.59 cm)
	BST-3160 (TE417)	diameter of "A" is 5.370 inches (13.64 cm)
	BST-3161 (TE418)	diameter of "A" is 5.875 inches (14.92 cm)
	BST-3162 (TE419)	diameter of "A" is 5.180 inches (13.16 cm)

Description: Used to mask the cylinder attachment thread area of aluminum hubs.

Vendor: Hartzell Propeller (HP)



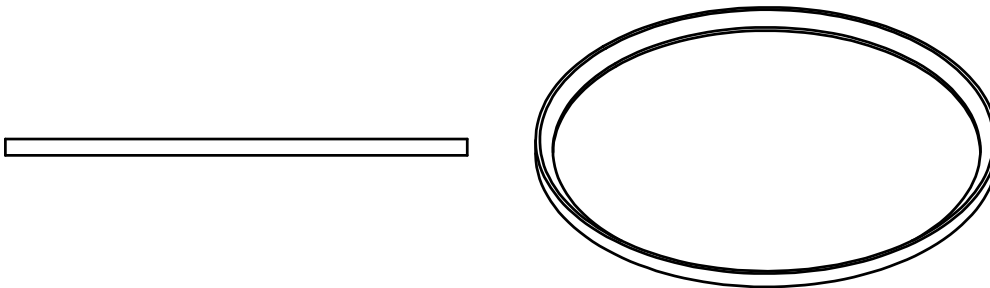
TPI-BST-3162

Spacer

Part Number: BST-2991 (TE420)

Description: Used during assembly for set up of 2-way and 3-way Hydro-Selective propellers.

Vendor: Hartzell Propeller (HP)



BST2991

Slimsert® Repair Kit

Part Number: AST-3154 (TE421)

Description: Kit including tools and parts necessary to repair the link pin unit safety screw hole. Not shown.

Components:

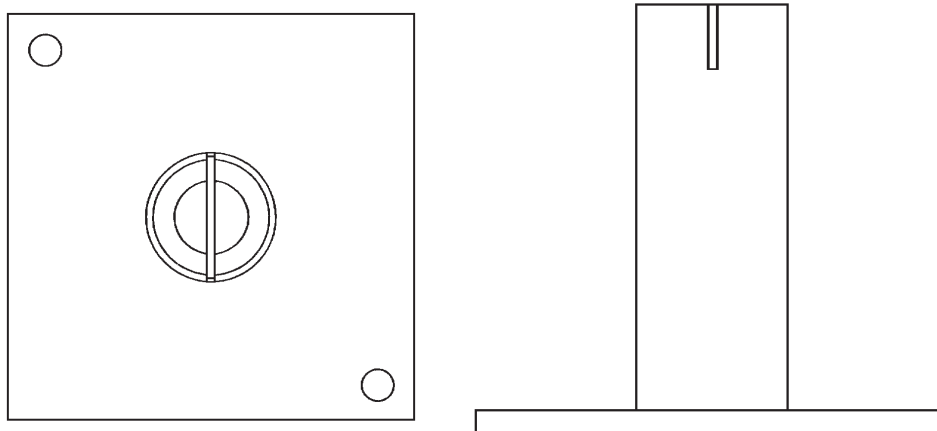
<u>Hartzell P/N</u>	<u>Vendor</u>	<u>Vendor P/N</u>	<u>Description</u>	<u>Quantity</u>
B-6986-192 (TE422)	Locally Procured (RC)	SR192	Slimsert®	1
106511 (TE624) Supersedes TE423	n/a		Tap, Flute, 1/4-28	1
BST-2930-5 (TE389-5)	Locally Procured (RC)	SR19W4-A	Slimsert® Installation and Renoval Tool	1
BST-2931-5 (TE424) Replaced by TE425	Locally Procured (RC)	SR19D	Slimsert® Step Drill	1
AST-8014 (TE425) Replaces TE424	McMaster-Carr Supply Co (MC)	30595A42	K-size Drill Bit	1

Sleeve Installation Tool

Part Number: CST-3169 (TE427)

Description: Tool for installation of the reverse adjustment sleeve in lightweight turbine propellers.

Vendor: Hartzell Propeller (HP)



CST3169

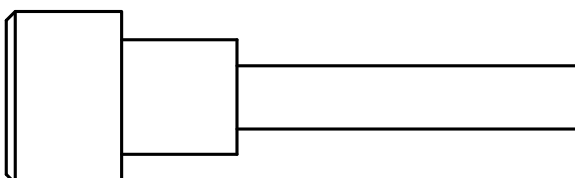
Mask Screw

Part Number: BST-3081(N) (TE428)

NOTE: Part number ending in "N" denotes tool is made of nylon material.

Description: Screw to mask shot peen from the lubrication fitting hole in an aluminum hub.

Vendor: Hartzell Propeller (HP)



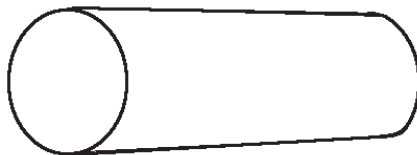
BST3081

No-Go Gauge

Tool Number: TE430

Description: 0.2760 Pin Gauge, Minus "Y" Tolerance. Used to inspect the C-6066-1 preload plate.

Vendor: Hemco Corporation (HM)



W10418

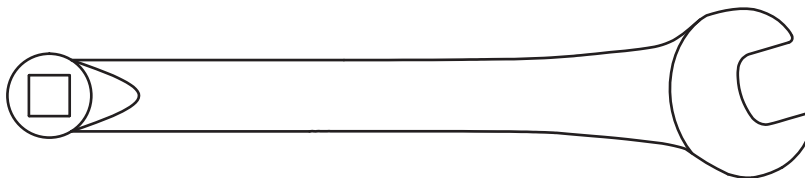
Torque Wrench Adapter

Part Number: AST-3175 (TE432)

Description: Wrench to tighten and torque mounting bolts on W-flange propellers. Used in conjunction with a standard 1/2 inch square drive torque wrench.

NOTE: This part number can be used to order the drawing for local fabrication.

Vendor: Customer Supplied (CS)



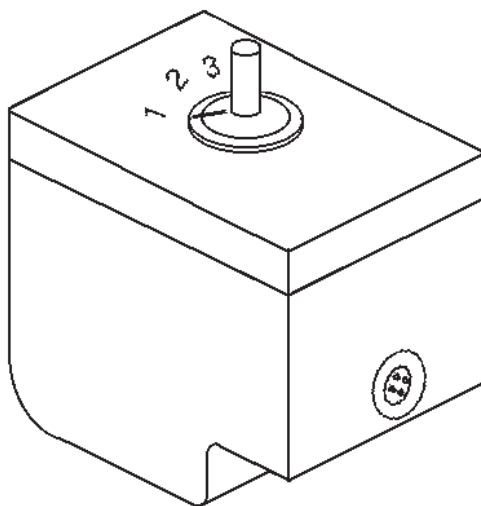
TPI-JM-000184

Eddy Current Probe

Part Number: 101088 (TE434)
Supersedes 379-006-430 (HK)

Description: Eddy current probe for bearing cavity inspection.

Vendor: Hartzell Propeller (HP)



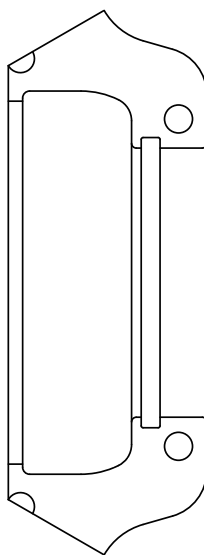
W10460

Calibration Standard

Part Number: CST-3015 (TE435)

Description: Calibration standard for 101088 eddy current probe.

Vendor: Hartzell Propeller (HP)



CST3015

Profilometer

Part Number: AST-3475-2 (TE436-2)

Description: Used to measure surface finish in the radius and transition areas of aluminum blade shanks. Probe Housing Component BST-3227 (TE437) is available for use with the Hartzell Propeller and Mahr Federal models. Stand Adapter 104371 (TE496) and Drive Housing Adapter 104372 (TE497) are available for use with the Mahr Federal Model as an alternate to BST-3227. Use of Stand Adapter 104371 (TE496) and Drive Housing Adapter 104372 (TE497) connect the drive unit to a standard height stand (customer procured) without the use of BST-3227 (TE437).

Hartzell Propeller Approved Alternates:

<u>Part Number</u>	<u>Vendor Part Number</u>	<u>Vendor</u>
AST-3475 (TE436)	Perthometer 6910431	Mahr Federal Inc. (MH) (no longer available)
AST-3475 (TE436)	Perthometer 6910134	Mahr Federal Inc. (MH) (no longer available)
AST-3475 (TE436)	Perthometer 6910135	Mahr Federal Inc. (MH) (no longer available)
AST-3475 (TE436)	Surftest SV-600 series	Mitutoyo America Corporation (MT) (no longer available)
AST-3475-1 (TE436-1)	MarSurf PS1-1 6910214	Mahr Federal Inc. (MH) (no longer available)
AST-3475-2 (TE436-2)	MarSurf PS10 6910230	Mahr Federal Inc. (MH) (Supersedes AST-3475 and AST-3475-1, no alternatives are approved)



MarSurf PS1 6910214
AST-3475-1 (TE436-1)
Mahr-Federal Inc. (MH)



MarSurf PS10 6910230
AST-3475-2 (TE436-2)
Mahr-Federal Inc. (MH)

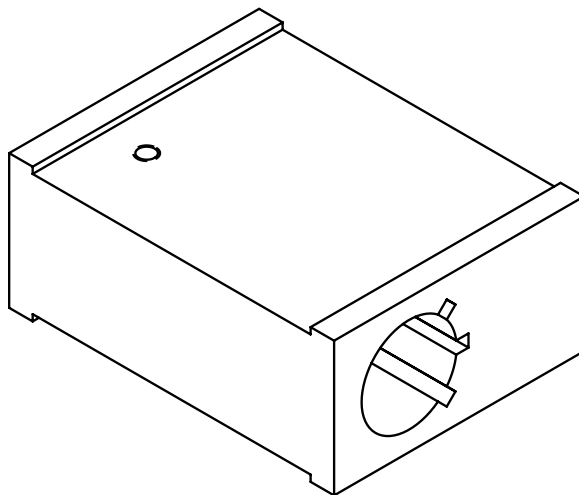
TI-165AST3475
TPI-JM-000174

Probe Housing

Part Number: BST-3227 (TE437)

Description: Used to support the probe of the profilometer when performing the surface finish inspection in the radius and transition areas of aluminum blade shanks. Used with AST-3475-() (TE436), as necessary.

Vendor: Hartzell Propeller (HP)



TPI-JM-000271

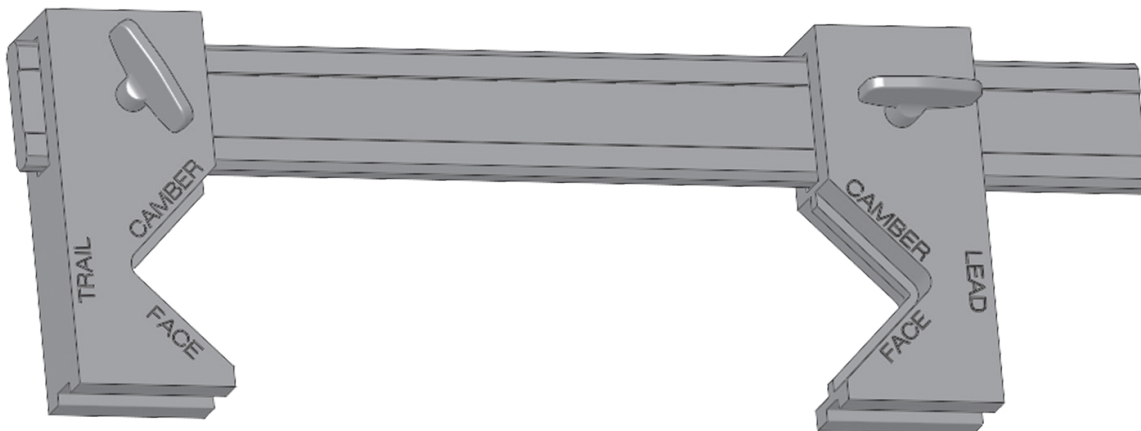
Blade Pitch Fixture

Part Number: BST-3226 (TE438)

Description: Tool that attaches to the blade for blade angle check.

NOTE: This part number can be used to order the drawing for local fabrication.

Vendor: Customer Supplied (CS)



TI-BST-3226

Ball Hex Driver

Part Number: AST-3174 (TE439)

Description: Used with 3/8 inch ratchet on the B-3812-5-16P socket head cap screw to set preload on blade assembly.

Vendor: Hartzell Propeller (HP)



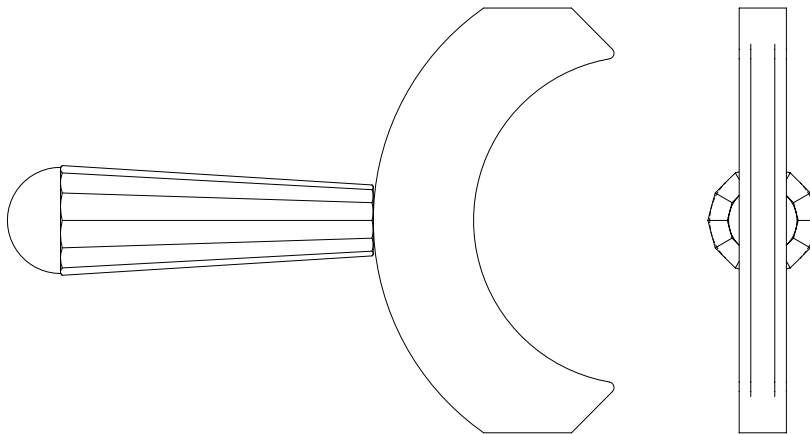
TPI-JM-000187

Blade Seal Alignment Tool

Part Number: BST-3177 (TE440) For four-bladed lightweight turbine propellers
BST-3063 (TE440-1) For five-bladed lightweight turbine propellers

Description: Used during assembly to aid installation of the blade seal.

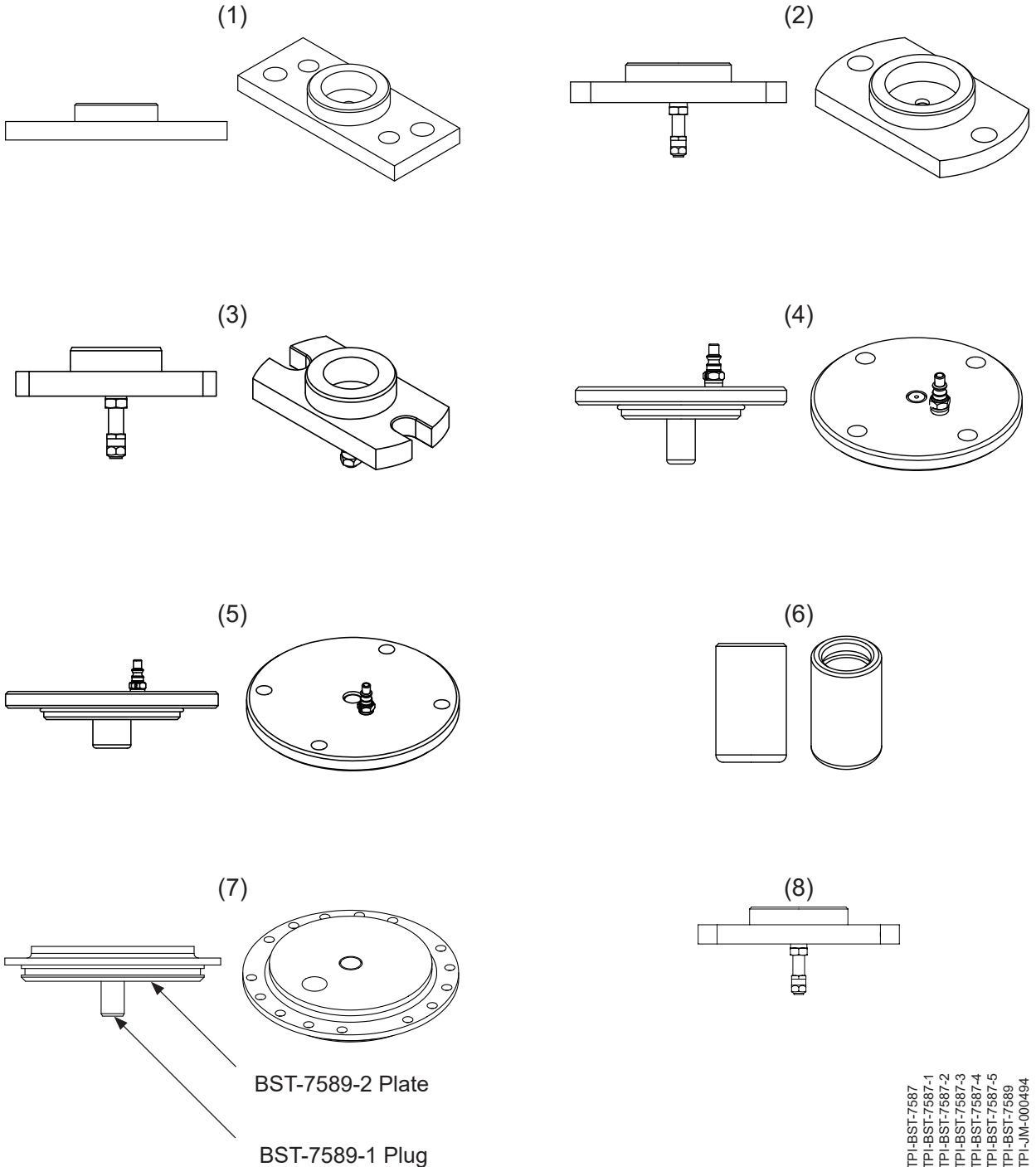
Vendor: Hartzell Propeller (HP)



BST3177

Pressure Check Tool (page 1 of 2)

Description: Used to perform a leak inspection after repair of the pitch change rod bore of an aluminum hub.



TP-BST-7587
TP-BST-7587-1
TP-BST-7587-2
TP-BST-7587-3
TP-BST-7587-4
TP-BST-7587-5
TP-BST-7589
TP-JM-000494

Pressure Check Tool (page 2 of 2)

Description: Tool used to pressure check the hub (engine-side or cylinder-side, as applicable).

NOTE: This part number can be used to order the drawing for local fabrication.

Vendor: Customer Supplied (CS)

<u>Figure No.</u>	<u>Hartzell P/N</u>	<u>Description</u>
(1)	BST-7587 (TE441)	For K, R, L, and F-flange
(2)	BST-7587-1 (TE441-1)	For N, P, and W-flange
(3)	BST-7587-2 (TE441-2)	For Q, T, H, and G-flange
(4)	BST-7587-3 (TE441-3)	For A and B-flange, except D-1066-1 hub with an A-flange
(5)	BST-7587-4 (TE441-4)	For C-flange
(6)	BST-7587-5 (TE441-5)	For a D-1066-1 hub unit with an A-flange. Use with the BST-7587-3 pressure check tool.
(7)	BST-7589 (TE441-6)	For Bantam hubs (cylinder-side).
(8)	BST-7587-6 (TE441-7)	For W-flange with Non-Staked Inserts

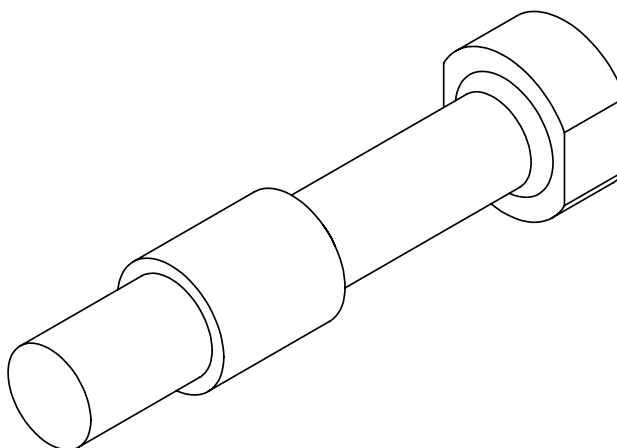
Composite Balance Tube Puller

Part Number: BST-4114 (TE442)

Description: Tool to remove composite blade balance tube.

NOTE: This part number can be used to order the drawing for local fabrication.

Vendor: Customer Supplied (CS)



BST-4114

Grease Seal Pressure Test Tool (Adapter)

Part Number: BT-3838 (TE443)

Description: Used with TE382 (DST-3146) Thread Gauge Airflow Kit to perform grease seal pressure test.

NOTE: Use with O-rings C-3317-010-2 and C-3317-08-2, not supplied.

Vendor: Hartzell Propeller (HP)



BT-3838

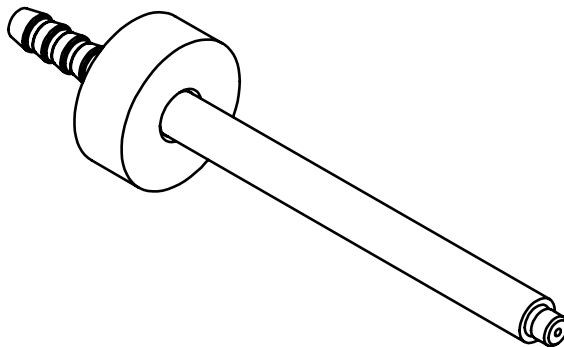
Blade Seal Probe

Part Number: BT-3838-1 (TE443-1)

Description: Used with TE382 or TE382-1 Thread Gauge Airflow Kit to perform grease seal pressure test.

NOTE: BT-3838-1 (TE443-1) eliminates the need for using both the CST-3117 Probe Assembly and BT-3838 (TE443) to check grease seal pressure.

Vendor: Hartzell Propeller (HP)



BT-3838-1A

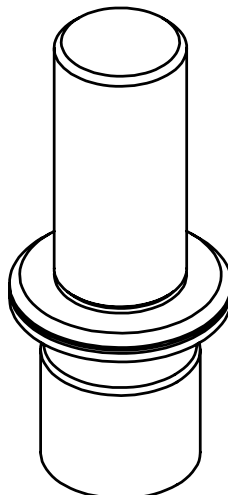
Cadmium Plate Masking Fixture

Part Number: DST-3483 (TE444)

Description: Used to mask the pilot tube during the plating process.

NOTE: This part number can be used to order the drawing for local fabrication.

Vendor: Customer Supplied (CS)



TPI-DST3483

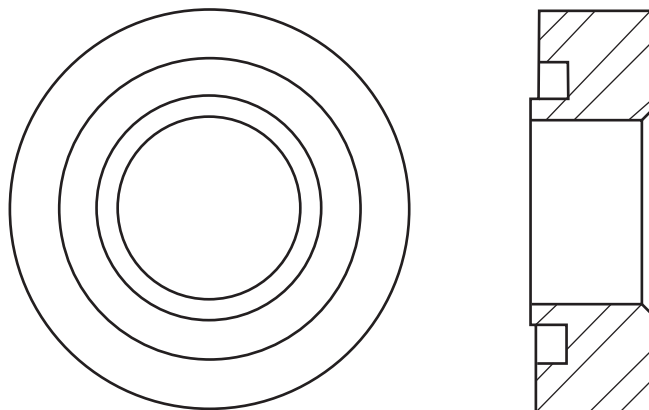
Insert Installation Tool

Part Number: BST-7588 (TE445)

Description: Used to provide a location of depth of the flange mounting inserts during the adhesive cure process.

NOTE: This part number can be used to order the drawing for local fabrication.

Vendor: Customer Supplied (CS)



TI-165A-BST-7588

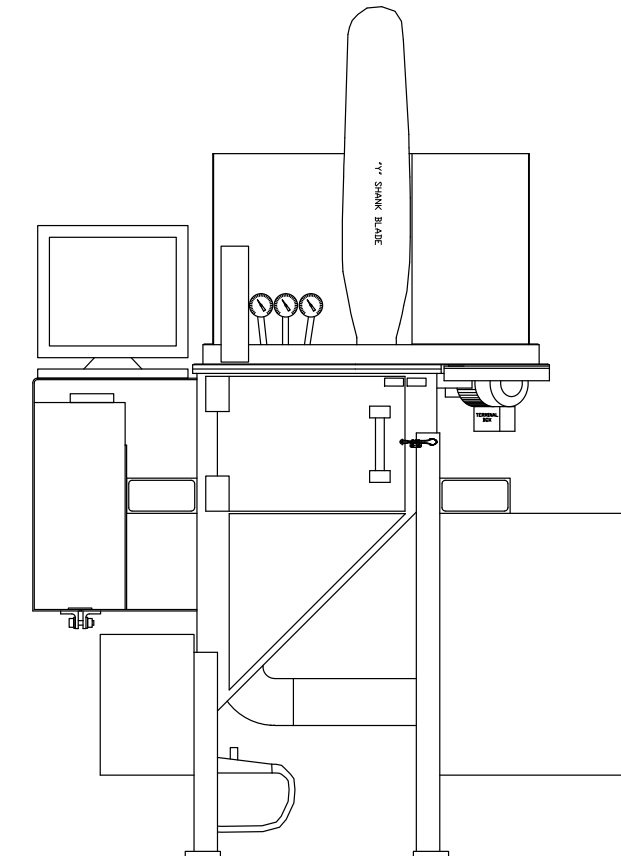
Shot Peen Machine Assembly (page 1 of 3)

Part Number: DST-5855(F,A) (TE446)

Description: A machine that reapplies the compressive layer to aluminum blade shank integral pitch change knobs. The machine consists of one shot peen knob kit DST-5855-1(F) and the drawings needed for local fabrication of the remainder of the machine.

NOTE: DST-5855 is designed for applications using 120V-60 Hz electricity. DST-5855F is designed for use with 50 Hz electric supply along with a voltage transformer.

Vendor: White Hawk Machine & Tool (WH)



TPI-DST5855

HARTZELL TOOL AND EQUIPMENT MANUAL
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Shot Peen Machine Assembly (page 2 of 3)

DST-5855	DST-5855F	DST-5855FA	Hartzell P/N	Vendor	Vendor P/N	Description
1	1	1	DST-5855+1	Bodine Electric Co. (BO)	49401054	Capacitor
1	1	1	DST-5855+2	Bodine Electric Co. (BO)	0984	Terminal Box
1	1		DST-5855+3	Bodine Electric Co. (BO)	0492	AC Right Angle Gear Motor
		1	DST-5855+3F	Bodine Electric Co. (BO)	0492 Modified Windings	AC Right Angle Gear Motor
2	2	2	DST-5855+4	DE-STA-CO (DS)	TC-205U	Clamps
1	1	1	DST-5855+5	Hartzell Propeller (HP)	n/a	Motor Bracket
1			DST-5855+6	Browning (BG)	OK17	1/2" Single Groove Pulley
	1	1	DST-5855+6F	Browning (BG)	OK20	1/2" Single Groove Pulley
A/R	A/R	A/R	DST-5855+9	Ervin Industries (ER), Surface Prep (US), DeLong Equipment Co. (DE), Innovative Peening System (IP)	S-330 Cast Steel per AMS-2431/1 or 330 Shot Steel per AMS-S-13165	330 Shot
1			DST-5855+12	Browning (BG)	3L420	V-belt
	1	1	DST-5855+12F	Browning (BG)	3L430	V-belt
A/R	A/R	A/R	DST-5855+13	Metal Improvement Co. (MI)	1595	Almen Strip, A Scale
1	1	1	DST-5885+14	Electronics Incorporated (EL)	TSP-3B	Almen Gauge
1	1	1	DST-5885+15	Hartzell Propeller (HP)	n/a	Cabinet
1	1	1	DST-5885+16	N.T. Ruddock Co. (NT)	NT11937	Nozzle Insert, Boron Carbide
1	1	1	DST-5885+17	N.T. Ruddock Co. (NT)	NT12276	Shot Peen Gun Housing
1	1	1	DST-5885+18	N.T. Ruddock Co. (NT)	NT11295	Shot Peen Nozzle Guard
1	1	1	DST-5885+19	N.T. Ruddock Co. (NT)	108975	Shot Peen Nozzle, O-ring
1	1	1	DST-5885+20	N.T. Ruddock Co. (NT)	NT12038	Shot Peen Retainer Ring
1	1	1	DST-5855+21 (TE603)	N.T. Ruddock Co. (NT)	NT11918	Shot Peen Locknut Oriface
1	1	1	DST-5855+22 (TE604)	N.T. Ruddock Co. (NT)	NT11961	Shot Peen Oriface, Airjet
1	1	1	DST-5855+23	N.T. Ruddock Co. (NT)	NT11723	Shot Peen, 1/2 inch Hose Fitting
1	1	1	DST-5855+24 (TE605)	N.T. Ruddock Co. (NT)	NT12417	Shot Metering Valve
1	1	1	DST-5855+26 (TE606)	Parker Hannifin Co. (PH)	XV500P-8	Air Ball Valve
1	1	1	DST-5855+27	Parker Hannifin Co. (PH)	07F3HA	Air Filter Assembly
1	1	1	DST-5855+28	Parker Hannifin Co. (PH)	PS843P	Air Mounting Bracket
1	1	1	DST-5855+29 (TE607)	Parker Hannifin Co. (PH)	07R318L 07R318AC	Air Regulator
1	1	1	DST-5855+31	Hartzell Propeller (HP)	n/a	Nozzle Bracket
1	1	1	DST-5855+32	Hartzell Propeller (HP)	n/a	Ring
1	1	1	DST-5855+33 (TE608)	Hartzell Propeller (HP)	n/a	Plate
1	1	1	DST-5855+34	Hartzell Propeller (HP)	n/a	Top Plate

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165A

Shot Peen Machine Assembly (page 3 of 3)

DST-5855	DST-5855F	DST-5855FA	Hartzell P/N	Vendor	Vendor P/N	Description
1	1	1	DST-5855+35 (TE609)	Hartzell Propeller (HP)	n/a	Almen Strip Holder
1	1	1	DST-5855+42	Hartzell Propeller (HP)	n/a	Guard
1	1	1	DST-5855+45	Hartzell Propeller (HP)	n/a	Base, Nozzle Bracket
1	1	1	DST-5855+48 (TE610)	Hartzell Propeller (HP)	n/a	Mask
1	1	1	DST-5855+50	Hartzell Propeller (HP)	n/a	Motor Plate
1	1	1	DST-5855+63	Hartzell Propeller (HP)	n/a	Protective Guarding
2	2	2	DST-5855+64	DE-STA-CO (DS)	TC-205-SL	Clamp, Door
1	1	1	DST-5855+66	Eaton Cutler-Hammer (EC)	4-X-1-1-L	Counter, Rotation
1	1	1	DST-5855+67	Hartzell Propeller (HP)	n/a	Trigger
1	1	1	DST-5855+68	Hartzell Propeller (HP)	n/a	Plate, Wear
1		1	DT-1724+69	Square D (SQ)	2510FG2	Main Power Switch
	1		DT-1724+77	Triad Magnetics (MG)	N-9MG	Transformer Kit
				Stancor (SC)	GSD 1500	
				Hammond Manufacturing (HA)	175G-NA	

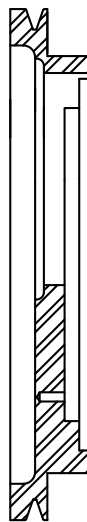
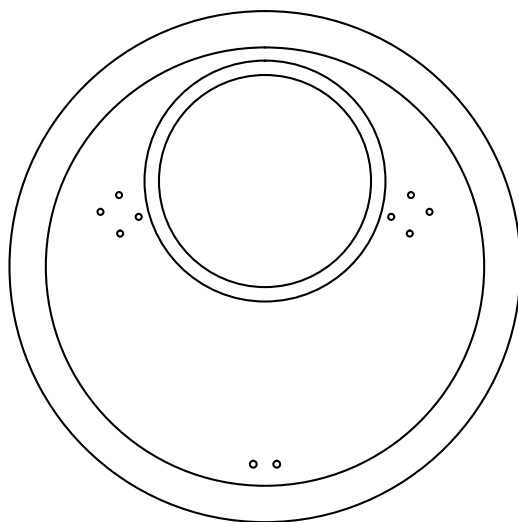
Knob, Blade Shank - Shot Peen Kit

Part Number: DST-5855-1(F) (TE447)

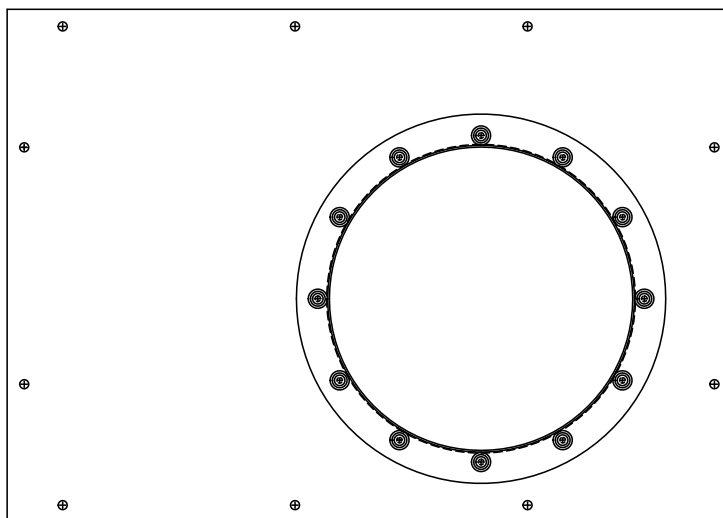
Description: Kit consists of one (1) DST-5855+33 Rotation Plate and one (1) DST-5855+34 Top Plate plus the drawings needed to permit local fabrication of a DST-5855(F) Shot Peen Machine Assembly.

NOTE: DST-5855-1 is designed for applications using 120V-60 Hz electricity. DST-5855-1F is designed for use with 50 Hz electric supply.

Vendor: Hartzell Propeller (HP)



Rotation Plate
DST-5855+33



Top Plate
DST-5855+34

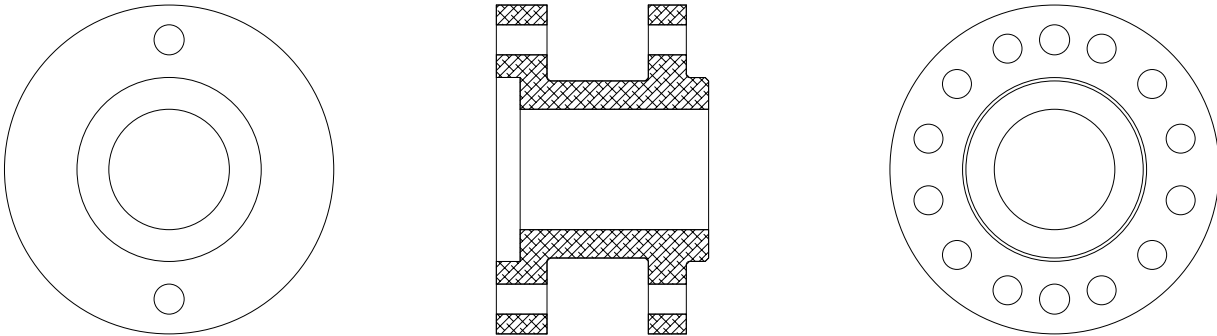
TPI-JM-000190

Bolt Alignment Fixture

Part Number: CST-3178 (TE448)

Description: Used to align mounting bolts in an E-7369 hub with oversize mounting bolt holes.

Vendor: Hartzell Propeller (HP)



CST-3178

E-shank Form Tool

Part Number: 101679 (TE449)

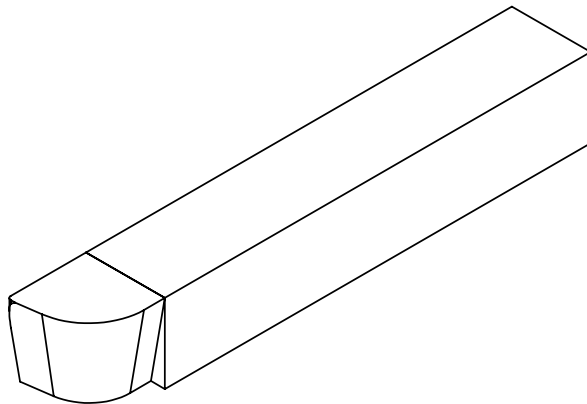
For E10950 composite blades. Used with TE450 and TE18-7.

105473 (TE449-1)

For E13890 and E9193 composite blades. Used with TE450 and TE18-7.

Description: Used to cut the retention radius of the composite blade after potting.

Vendor: Hartzell Propeller (HP)



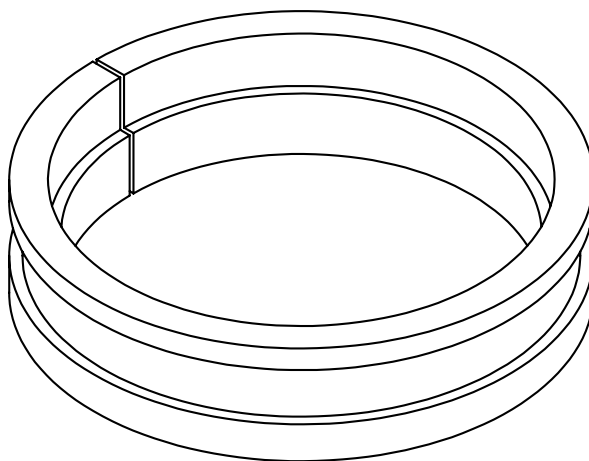
101679

E-shank Potting Mold

Part Number: 101736 (TE450)

Description: Used when filling the area of the blade retention radius of the E10950 composite blade to provide sufficient material for cutting a new radius. Used with TE449, TE18-7, and a customer supplied worm gear hose clamp.

Vendor: Hartzell Propeller (HP)



101736

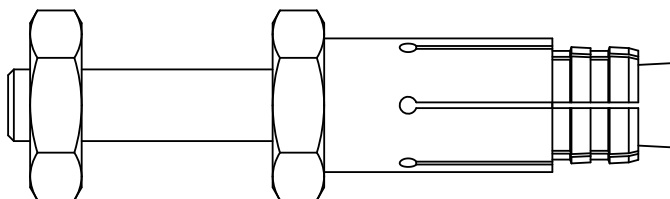
Tube Puller Assembly

Part Number: 101999 (TE452)

Description: Tool used to pull the balance tube for the N-shank composite blade.

NOTE: This part number can be used to order the drawing for local fabrication. Used with customer supplied press.

Vendor: Customer Supplied (CS)



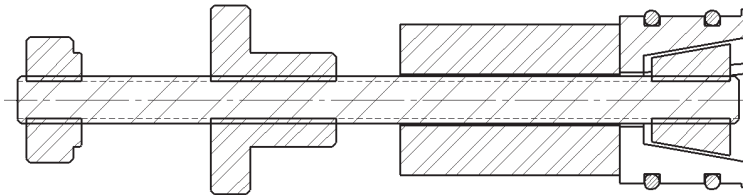
101999

Plug Puller

Part Number: 101781 (TE454)

Description: Tool used to pull the blade plug for the N-shank composite blade. Used with a customer supplied press.

Vendor: Hartzell Propeller (HP)



101781

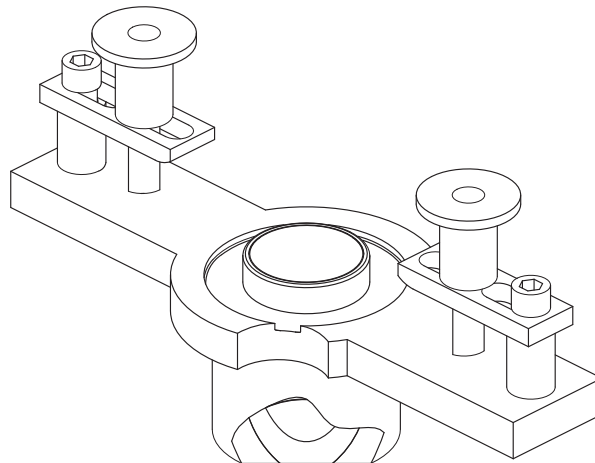
Blade Spud Adapter

Part Number: 101932 (TE455)
Superseded by 105501 (TE539)

Description: Adapter used with a locally procured blade spud inspection bench. Only use adapter 101932 (TE455) on composite blades that have an integral pitch change knob.

NOTE: This part number can be used to order the drawing for local fabrication.

Vendor: Customer Supplied (CS)



101932

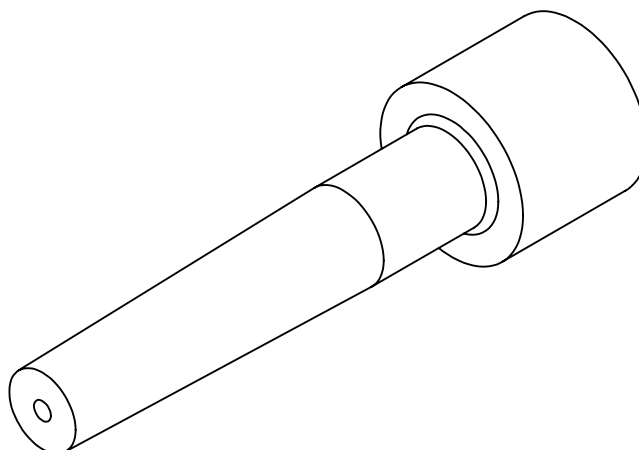
Mandrel

Part Number: 103570 (TE456)

Description: Adapter used with the N-shank composite blade.

NOTE: This part number can be used to order the drawing for local fabrication.

Vendor: Customer Supplied (CS)



103570

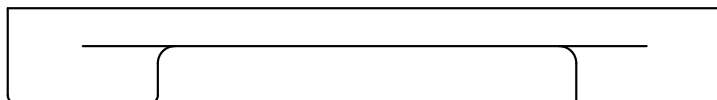
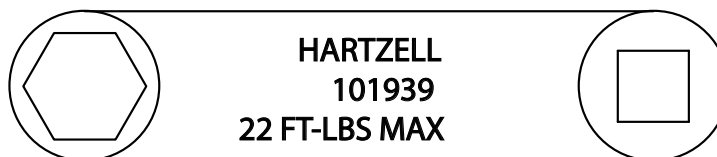
Torque Wrench Adapter

Part Number: 101939 (TE457)

Description: Installation of the hub clamping bolts and nuts on 3 blade compact propellers with smooth forged hubs. Used with standard 3/8 inch square drive torque wrench.

NOTE: This part number can be used to order the drawing for local fabrication.

Vendor: Customer Supplied (CS)



101939

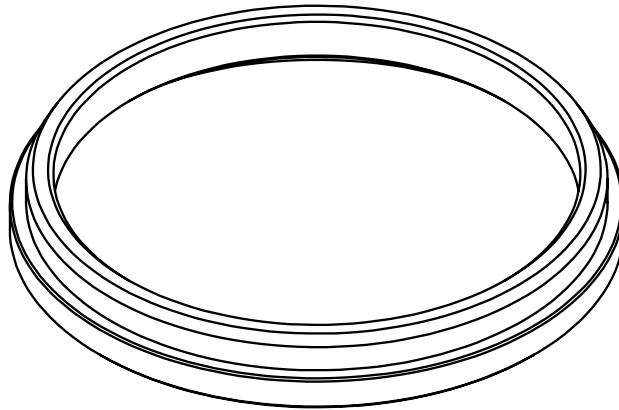
Ring

Part Number: 103572 (TE459)

Description: Adapter used with DST-2934 blade bearing press blade to locate and install the retention ring and press the bearings during epoxy bonding for the 103425 composite blade shank.

NOTE: This part number can be used to order the drawing for local fabrication.

Vendor: Customer Supplied (CS)



103572

212-8 Driver

Part Number: 791911212 (TE486)

Description: Bit to remove, install and torque self-locking screws.

Vendor: Hartzell Propeller (HP)



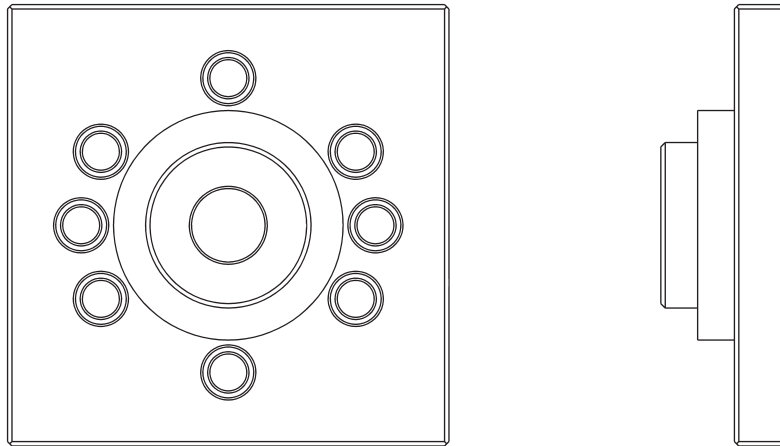
TPI-APSO146B

Stud Fixture Plate

Part Number: CST-421 (TE487)

Description: A tool used when installing studs in D, F, N, and W-flange hubs to make sure that the studs are set perpendicular to the hub flange.

Vendor: Hartzell Propeller (HP)



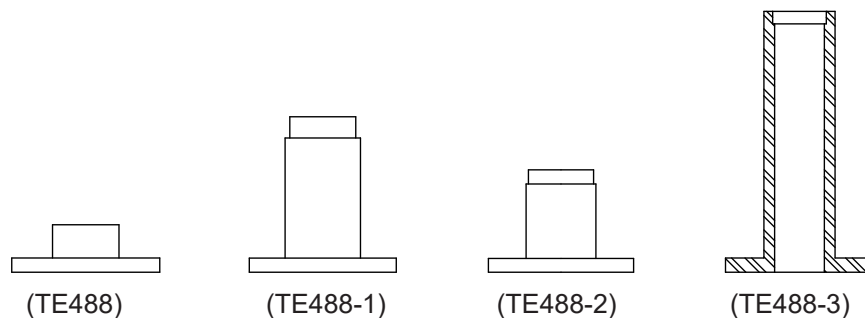
CST-421

Spring Compressor Base

Part Number: BST-2890 (TE488)
BST-2891 (TE488-1)
BST-2894 (TE488-2)
106885 (TE488-3)

Description: Spring Compressor Base is to be used in conjunction with CST-2914 (TE59) Spring Compressor Fixture. Refer to CST-2914 (TE59) to determine which Spring Compressor Base (TE488-[]) to use with Spring Assembly type.

Vendor: Hartzell Propeller (HP)



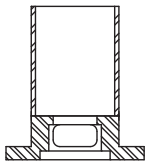
TPI-JM-000188

Spring Compressor Guide Rod Retainer

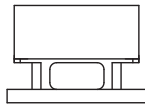
Part Number: BST-2895 (TE489)
BST-2896 (TE489-1)
BST-2897 (TE489-2)
BST-2899 (TE489-3)
106884 (TE489-4)

Description: Spring Compressor Retainer is to be used in conjunction with CST-2914 (TE59) Spring Compressor Fixture. Refer to CST-2914 (TE59) to determine which Spring Compressor Retainer (TE489-[]) to use with Spring Assembly type.

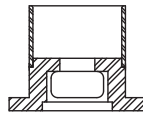
Vendor: Hartzell Propeller (HP)



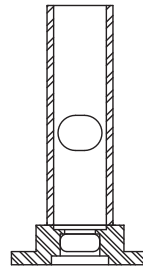
(TE489)



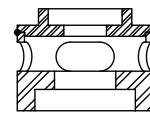
(TE489-1)



(TE489-2)



(TE489-3)



(TE489-4)

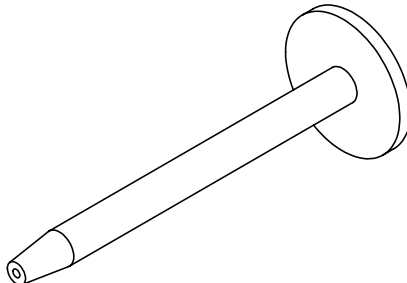
TPI-JM-000189

Guide Rod

Part Number: BST-2902 (TE490)
BST-2903 (TE490-1)
BST-2904 (TE490-2)
BST-2905 (TE490-3)
BST-2907 (TE490-4)

Description: Spring Compressor Guide Rod is to be used in conjunction with CST-2914 (TE59) Spring Compressor Fixture. Refer to CST-2914 (TE59) to determine which Spring Compressor Guide Rod (TE490-[]) to use with Spring Assembly type.

Vendor: Hartzell Propeller (HP)



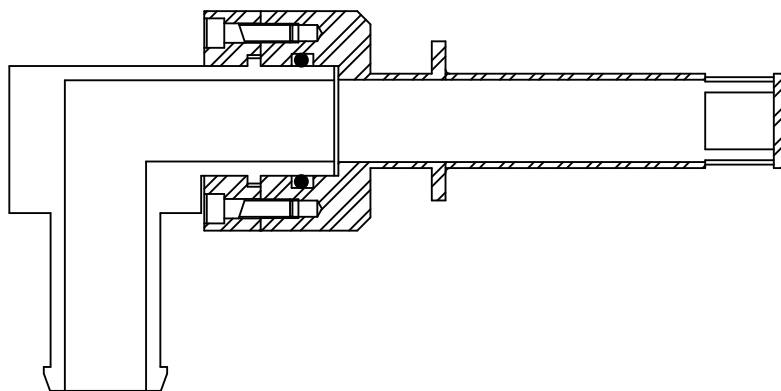
TPI-BST2902

Chip Detector Fitting

Part Number: BST-3050 (TE492)

Description: Chip Detector Fitting used with DST-3049-() (TE318) Ground Hydraulic Power Unit.

Vendor: Hartzell Propeller (HP)



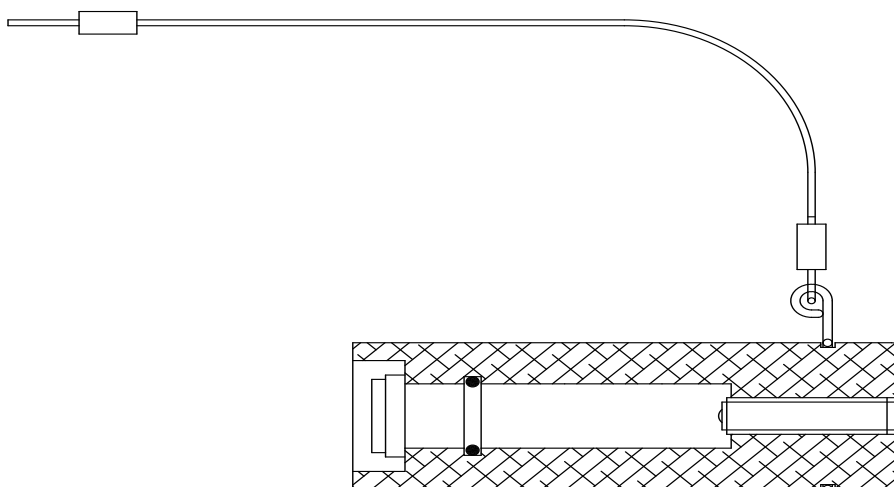
TPI-BST3050

Chip Detector Fitting Cover

Part Number: BST-3051 (TE493)

Description: Cover for BST-3050 Chip Detector Fitting on DST-3049-() Ground Hydraulic Power Unit.

Vendor: Hartzell Propeller (HP)



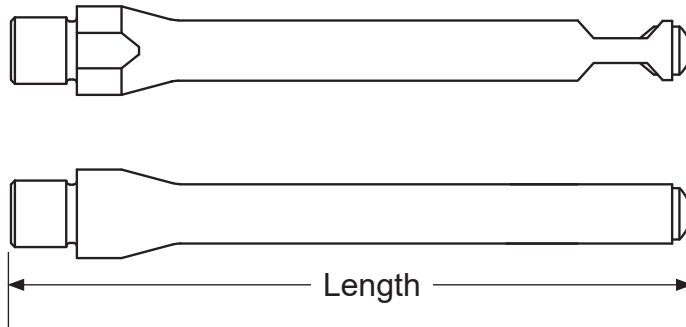
TPI-BST-3051

Shot Nozzle Unit

<u>Part Number</u>	<u>TE Number</u>	<u>Length</u>
BT-1271-4	(TE494)	1.95 inches (49.5 mm)
BT-1271-5	(TE494-1)	3.34 inches (84.8 mm)
BT-1271-6	(TE494-2)	4.72 inches (119.8 mm)
BT-1271-7	(TE494-3)	6.10 inches (154.9 mm)
BT-1271-8	(TE494-4)	10.10 inches (256.5 mm)

Description: Used with Shot Peen Cabinet CT1311 (TE12), Shot Peen Gun 02643 (TE379), Shot Peen Tube Assembly BT-1271(-1,or-2) (TE137)

Vendor: Hartzell Propeller (HP)



TPI-BT-1271-4_8

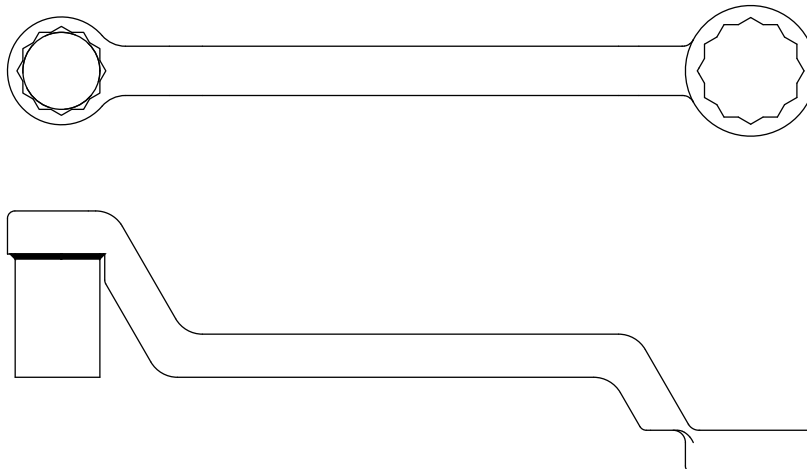
Torque Wrench Adapter

Part Number: 104287 (TE495)

Description: Used for blade preload of the hovercraft model 103000 assembly. Used with standard 3/8 inch square drive torque wrench.

NOTE: This part number can be used to order the drawing for local fabrication.

Vendor: Customer Supplied (CS)



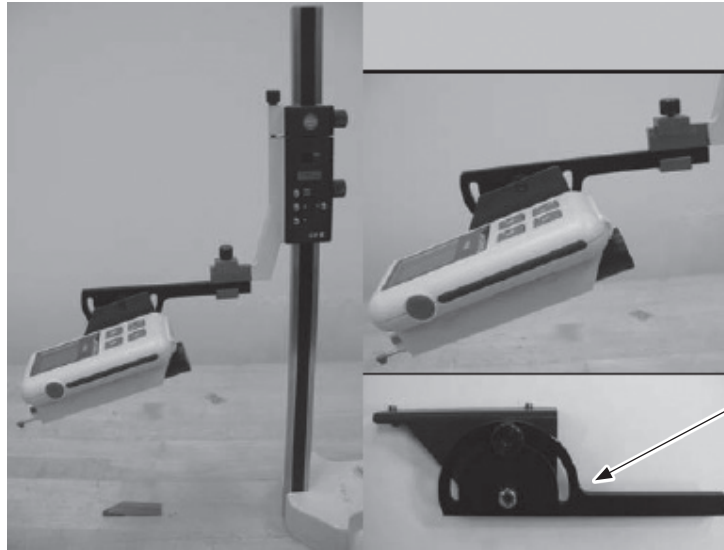
104287

Mounting Bracket

Part Number: 104371 (TE496)

Description: Used with customer procured height stand and drive housing adapter TE497. Customer procured.

Vendor: Mahr Federal Inc. (MH), part number 2247086



Mounting Bracket

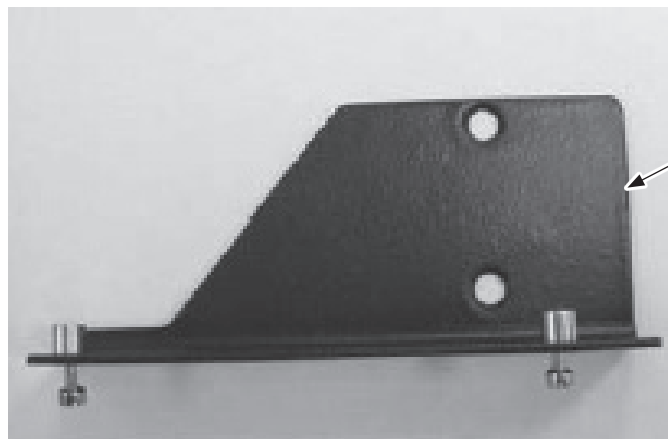
TPI-104371

Drive Housing Adapter

Part Number: 104372 (TE497)

Description: Used with customer procured height stand and stand adapter TE496. Customer procured.

Vendor: Mahr Federal Inc. (MH), part number 2250564



104372 (TE497)

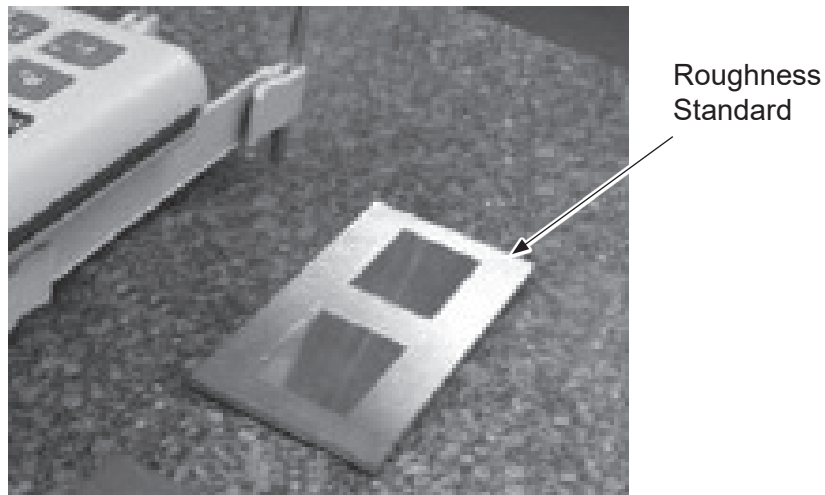
TPI-104372

Roughness Standard

Part Number: 104374 (TE498)

Description: Used to measure surface finish. Customer procured.

Vendor: Mahr Federal Inc. (MH), part number 2238983



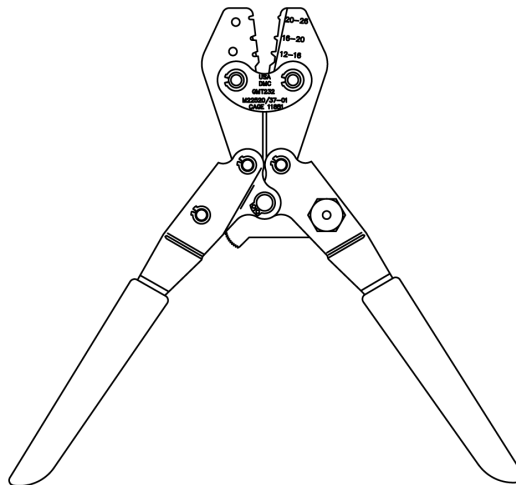
TP1-104374

Crimp Tool

Part Number: M22520/37-01 (TE499)

Description: Used to crimp wire splices on the electronic governor. Locally procured.

Vendor: Customer Supplied (CS)



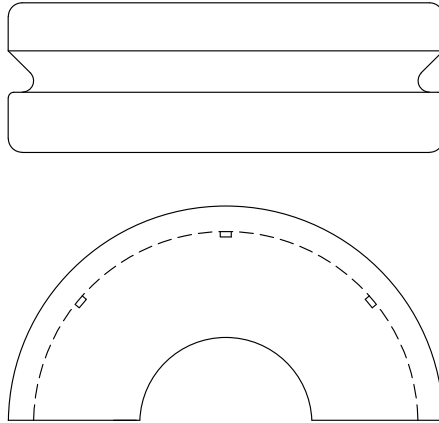
TI-165008

Calibration Standard

Part Number: BST-3076 (TE500)

Description: Test specimen to calibrate an eddy current instrument before its use when inspecting the retention radius of X and V-shank blades.

Vendor: Hartzell Propeller (HP)



TPI-BST-3076

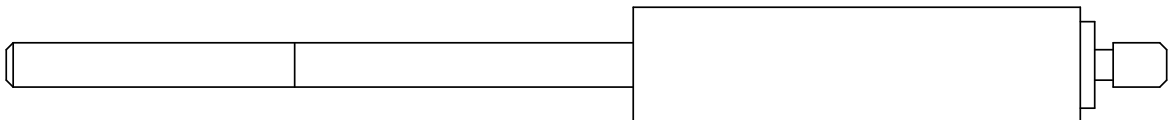
Eddy Current Probe

Part Number: BST-3077-1 (TE501)

Description: Standard 0.125 inch diameter pencil probe that has a 200 KHZ frequency.

NOTE: This part number can be used to order the drawing for local fabrication.

Vendor: Customer Supplied (CS)



3077-1

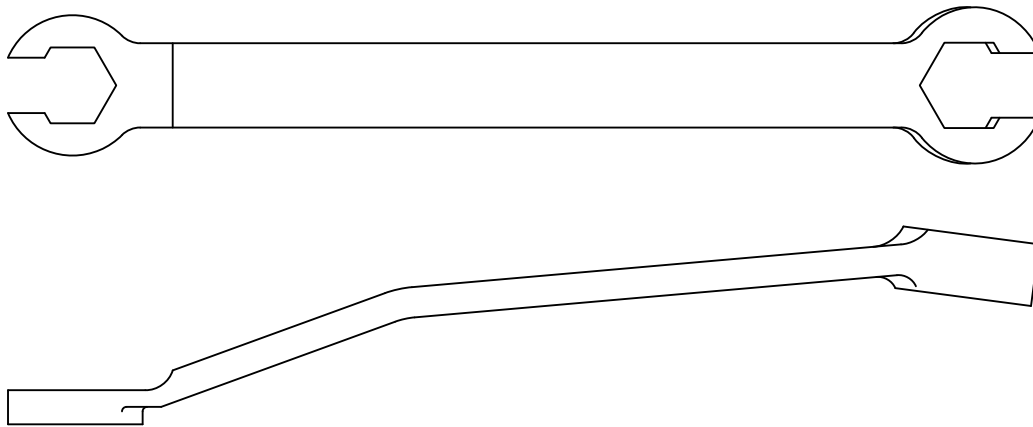
Fitting Wrench

Part Number: 104933 (TE502)

Description: Used for fittings of anti-ice assemblies.

NOTE: This part number can be used to order the drawing for local fabrication.

Vendor: Customer Supplied (CS)



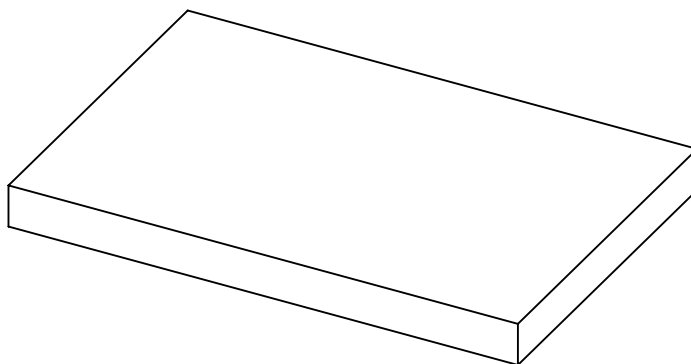
104933

Spacer Blank

Part Number: 104811 (TE503)

Description: Used to make custom sized spacer in accordance with the procedure in Hartzell Propeller Blade Shank Rolling Machine Maintenance Manual 128 (61-00-28).

Vendor: Customer Supplied (CS)



TPI-JM-000270

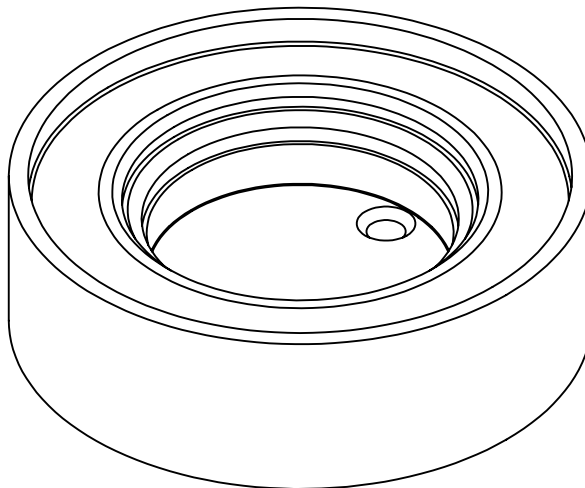
Bearing Assembly Tool

Part Number: 105189 (TE504)

Description: Used to assemble the bearing on Bantam blades.

NOTE: This part number can be used to order the drawing for local fabrication.

Vendor: Customer Supplied (CS)



105189

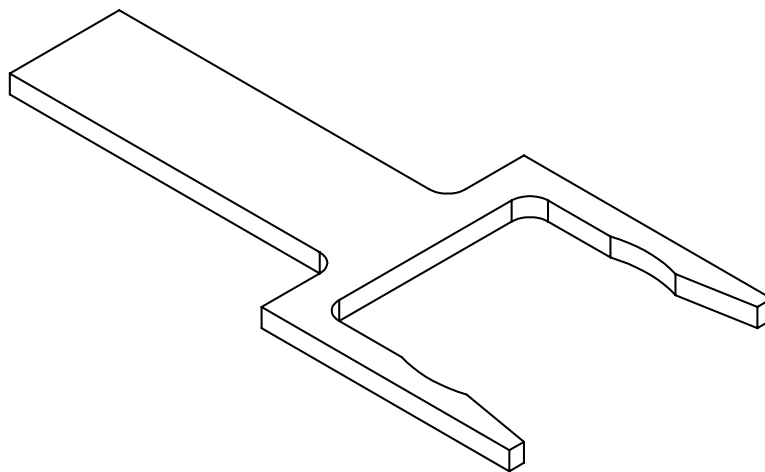
Bearing Assembly Clamp

Part Number: 105190 (TE505)

Description: Used to assemble the bearing on Bantam blades.

NOTE: This part number can be used to order the drawing for local fabrication.

Vendor: Customer Supplied (CS)



105190

Leak Check Manifold

Part Number: 104507 (TE506)

Replaced by BST-3500 (TE644)

Description: Used to perform an assembly leak check before installing the red dye oil in the propeller hub.

Adapter

Part Number: 104504 (TE507) - Obsolete

Replaced by TE644-()

Check Cylinder

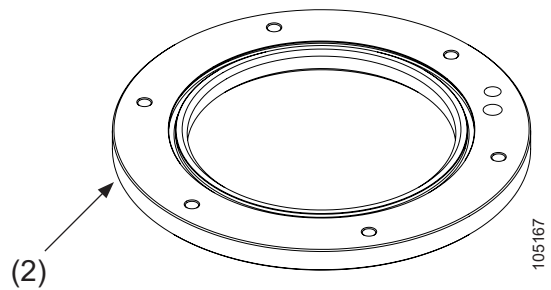
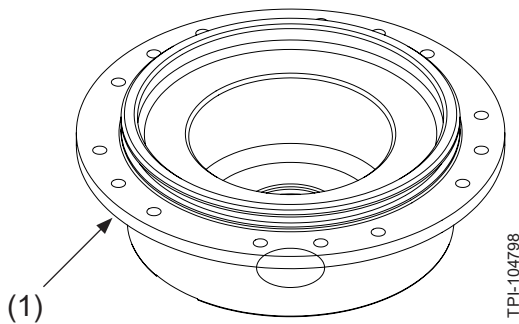
Part Number: 104798 (TE508), 105167 (TE509)

Description: Used to perform an assembly leak check before installing the red dye oil in the propeller hub.

Vendor: Hartzell Propeller (HP)

Components:

<u>Figure No.</u>	<u>Hartzell P/N</u>	<u>Used On</u>	<u>Used With</u>
(1)	104798 (TE508)	5-bladed Bantam propellers	BST-3490 (TE644-2) BST-3494 (TE644-7)
(2)	105167 (TE509)	5-bladed Hovercraft propellers	BST-3490 (TE644-2) BST-3494 (TE644-7)



Plug Assembly

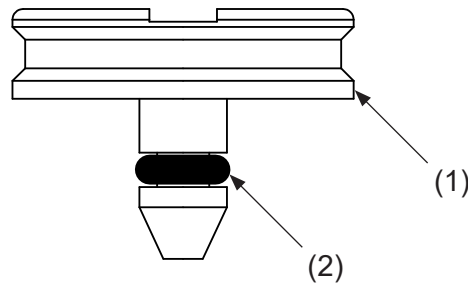
Part Number: 104506 (TE510)

Description: Used to perform an assembly leak check before installing the red dye oil in the propeller hub for Bantam series propellers.

Vendor: Customer Supplied (CS)

Components:

<u>Figure No.</u>	<u>Hartzell P/N</u>	<u>Description</u>	<u>Quantity</u>
(1)	104490	Plug	1
(2)	C-3317-006	O-ring	1



104506

Double Shoulder Blade Eddy Current Kit

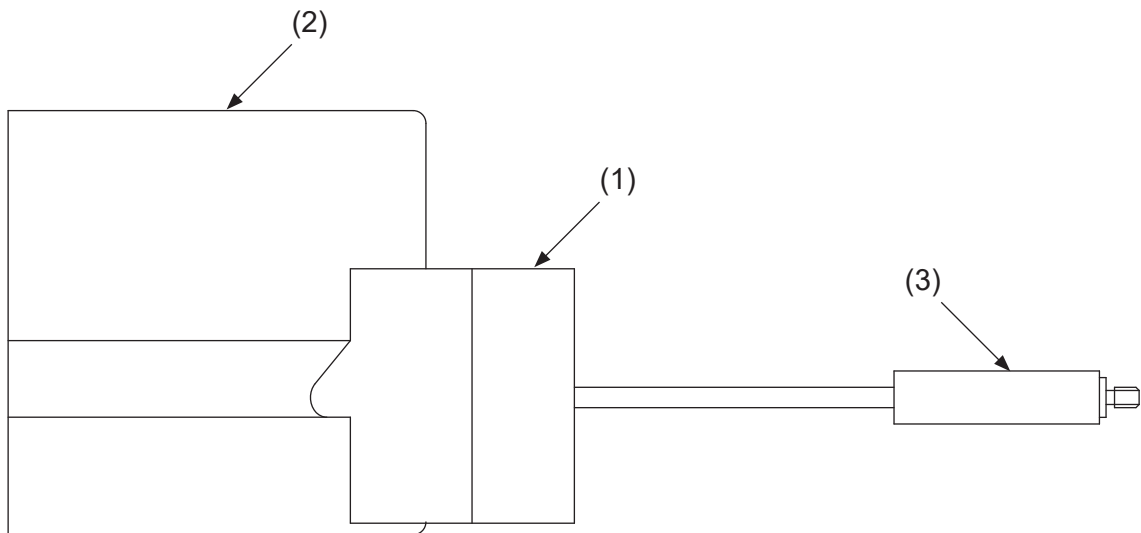
Part Number: BST-3075 (TE516)

Description: Instruments used to perform eddy current inspection of the double shoulder blade retention radius.

Vendor: Hartzell Propeller (HP)

Components:

<u>Figure No.</u>	<u>Hartzell P/N</u>	<u>Description</u>	<u>Quantity</u>
(1)	BST-3069 (TE315)	Probe Holder	1
(2)	BST-3076 (TE500)	Calibration Standard	1
(3)	BST-3077-1 (TE501)	Eddy Current Probe	1
-	BST-3078	Teflon Tape	1
-	BST-3075+1	Protective Case	1



3075

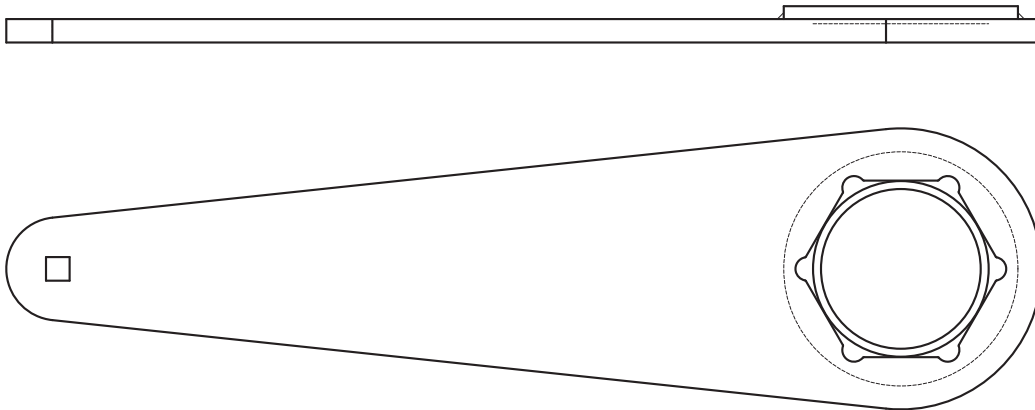
Torque Unit Adapter

Part Number: 105266 (TE517)

Description: Wrench to tighten and torque mounting bolts on 3 bladed reversing Bantam propellers. Used in conjunction with a standard 1/2 inch drive torque wrench.

NOTE: This part number can be used to order the drawing for local fabrication.

Vendor: Customer Supplied (CS)



105266

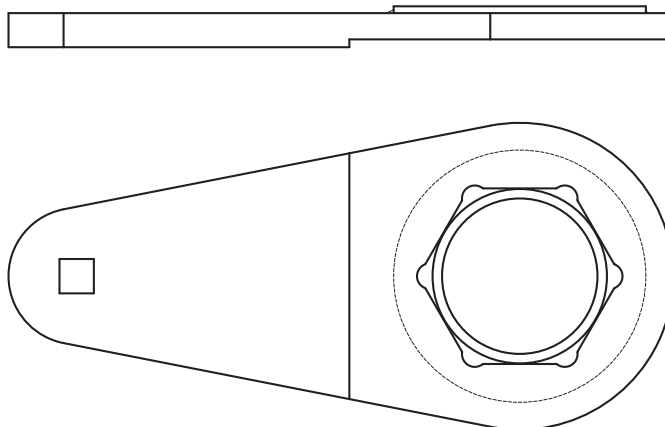
Torque Unit Adapter

Part Number: 105269 (TE518)

Description: Wrench to tighten and torque mounting bolts on 3 bladed reversing Bantam propellers. Used in conjunction with a standard 1/2 inch drive torque wrench.

NOTE: This part number can be used to order the drawing for local fabrication.

Vendor: Customer Supplied (CS)



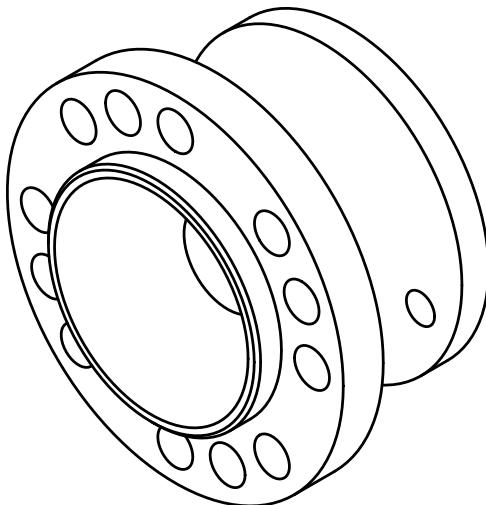
105269

5-blade Hovercraft Adapter

Part Number: BST-2912-20 (TE519)

Description: Adapter permits mounting of 5 bladed Hovercraft propellers to the CST-2901() propeller assembly table. Must be used with the BST-2912-1 flanged hub spindle (TE124).

Vendor: Customer Supplied (CS)



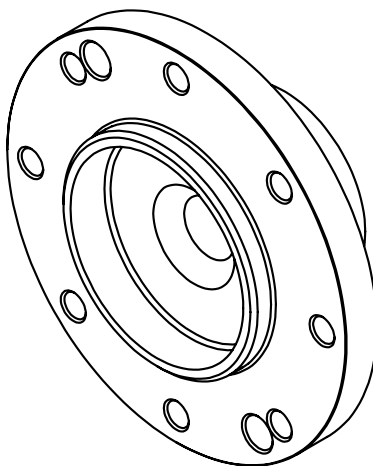
BST-2912-20

6-blade Hovercraft Adapter

Part Number: BST-2912-21 (TE520)

Description: Adapter permits mounting of 6 bladed Hovercraft propellers to the CST-2901() propeller assembly table. Must be used with the BST-2912-1 flanged hub spindle (TE124).

Vendor: Customer Supplied (CS)



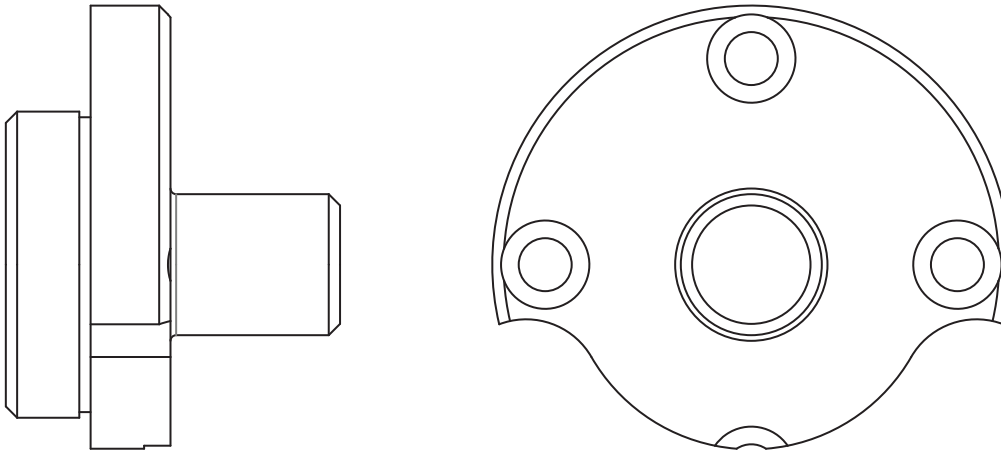
BST-2912-21

Balance Adapter

Part Number: 105274 (TE531)

Description: Adapter used with the balance arbor for the Bantam composite blade. This part number may be used to order the drawing of the balance adapter for local fabrication. Used with the customer supplied blade balancing equipment.

Vendor: Hartzell Propeller (HP)



105274.ai

Bantam Blade Spud Adapter

Part Number: **See Note below. TE532

Description: Adapter used with the blade spud for the Bantam composite blade. Not shown.

**NOTE: Contact Hartzell Propeller Product Support Department for recommended tooling.

Vendor: Hartzell Propeller (HP)

Leak Detector Kit

Part Number: 102560 (TE533)

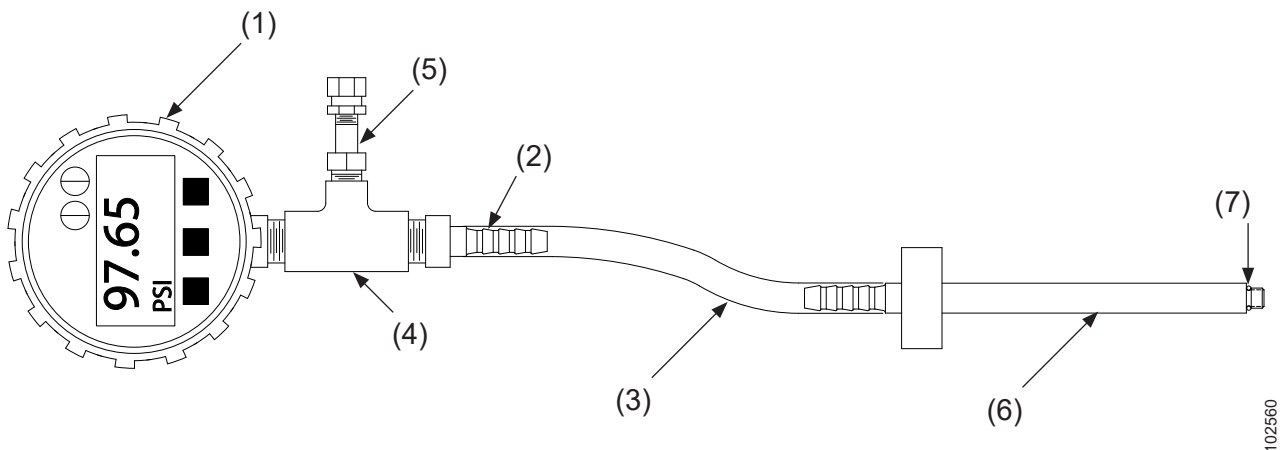
Description: Leak detector kit is an assembly of a digital pressure gauge, fill valve, fittings, tubing, and a hub connector. The kit is used to inspect the propeller seals with compressed air prior to filling the hub with red dyed oil in accordance with HC-SL-61-273.

NOTE: Pressure gauges included with this leak detector kit are subject to calibration drift during shipping because of vibration, shock, etc., and must be re-calibrated by the customer on arrival at the final destination.

Vendor: Hartzell Propeller (HP)

Description:

<u>Figure No.</u>	<u>Hartzell P/N</u>	<u>Description</u>	<u>Quantity</u>
(1)	102560-1	Air Pressure Gauge	1
(2)	102560-2	Barbed Fitting	1
(3)	102560-3	Tubing	1
(4)	102560-4	Tee Fitting	1
(5)	B-1938	Valve Assembly	1
(6)	BT-3838-1	Blade Seal Probe	1
(7)	C-3317-010-2	O-ring	1



Blade Inspection Adapter

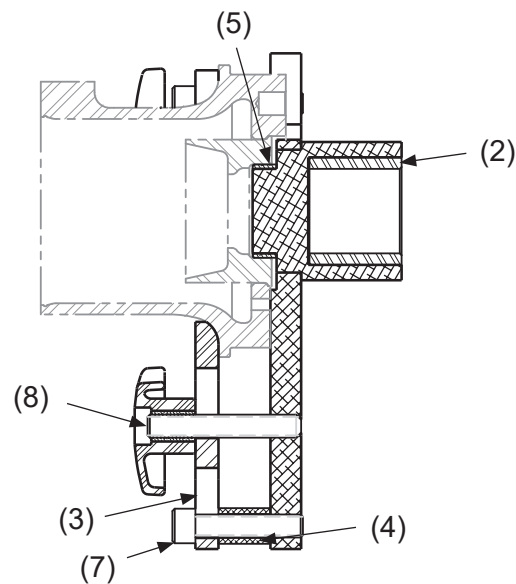
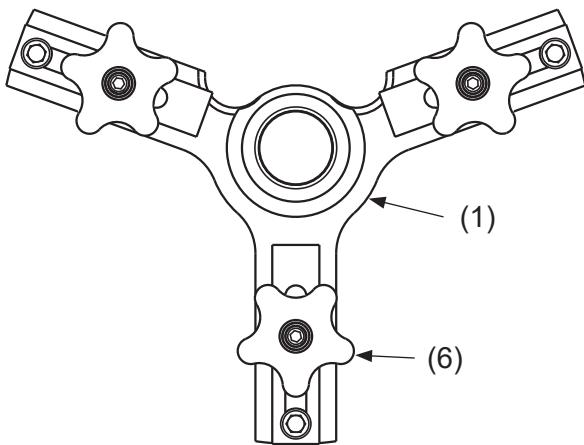
Part Number: 105478 (TE534)

Description: Adapter used with the NC8834() composite blade.

Vendor: Hartzell Propeller (HP)

Components:

<u>Figure No.</u>	<u>Hartzell P/N</u>	<u>Description</u>	<u>Quantity</u>
n/a	105478	Blade Inspection Adapter	n/a
(1)	105478-1	Frame Unit	1
(2)	105478-2	Altered Linear Bushing	1
(3)	105478-3	Hold Down	3
(4)	105478-4	Spacer	3
(5)	105478-5	Altered Linear Bushing	1
(6)	n/a	Knob - use any brand or style hand knob with 3/8-16 thread	3
(7)	n/a	Screw - use grade 2 or better with 3/8-16 x 1-3/4 inch socket head cap screw	3
(8)	n/a	Set Screw - use grade 2 or better with 3/8-16 x 2-1/2 inch socket head cap screw or threaded rod	3



105478

Drill Jig

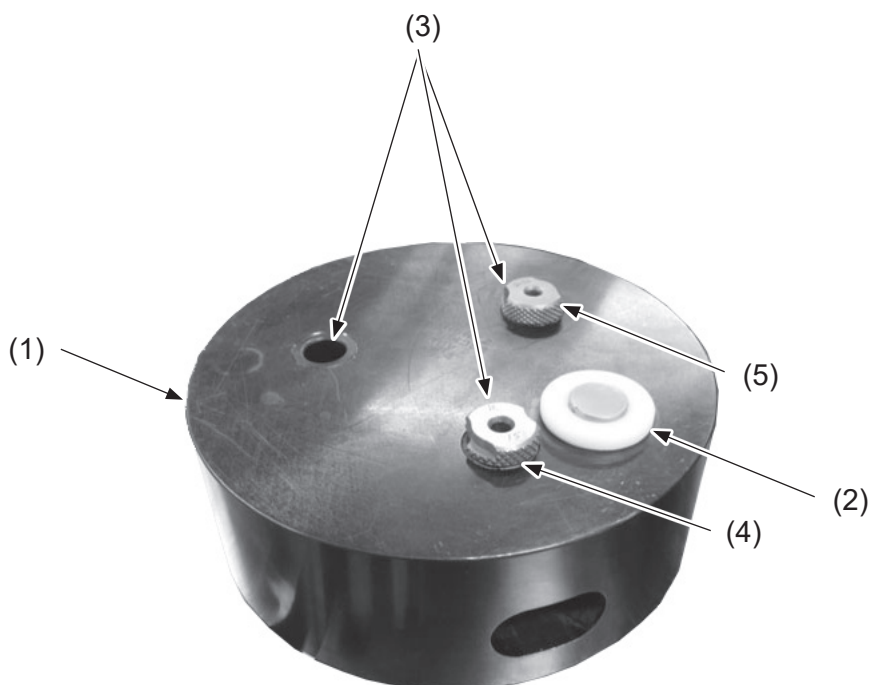
Part Number: 104052 (TE535)

Description: Drill jig used to repair the dowel pin in the existing N7605(B,K)() and N7893() composite blades in accordance with HC-SB-61-319.

Vendor: Hartzell Propeller (HP)

Components:

<u>Figure No.</u>	<u>Hartzell P/N</u>	<u>Description</u>	<u>Quantity</u>
(1)	104052-1	Base	1
(2)	104052-2	Knob Locator	1
(3)	n/a	Liner Bushing - installed 3 places	3
(4)	n/a	Drill Bushing - 0.1800 in. (4.572 mm)	1
(5)	n/a	Drill Bushing - 0.1875 in. (4.762 mm)	1



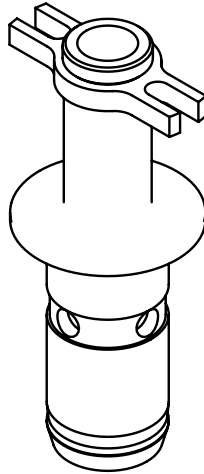
104052

Hub Flange Spindle

Part Number: BST-2912-19 (TE536)

Description: Tool permits mounting of the H, T, Q, and G-flange propellers to the propeller assembly table CST-2901(-) (TE129). Used with TE548 Bantam Spring Compressor.

Vendor: Hartzell Propeller (HP)



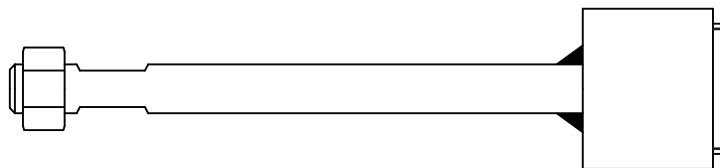
TPI-BST-2912-19

Shank Spacer Puller

Part Number: 102515 (TE537)

Description: Tool for engaging the threaded bearing spacer in V, V/N, and MV blades to pull out the spacer and the outboard bearing.

Vendor: Customer Supplied (CS)



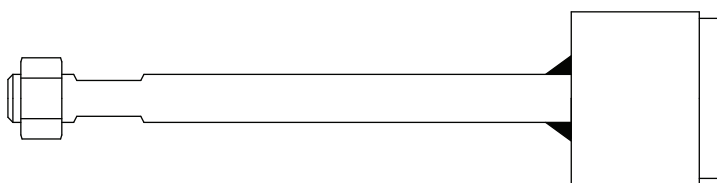
102515

Shank Spacer Puller

Part Number: 102516 (TE538)

Description: Tool for engaging the threaded bearing spacer in P, R, P/N, M, T, Z/W, W, M/N, and T/N blades to pull out the spacer and the outboard bearing.

Vendor: Customer Supplied (CS)



102516

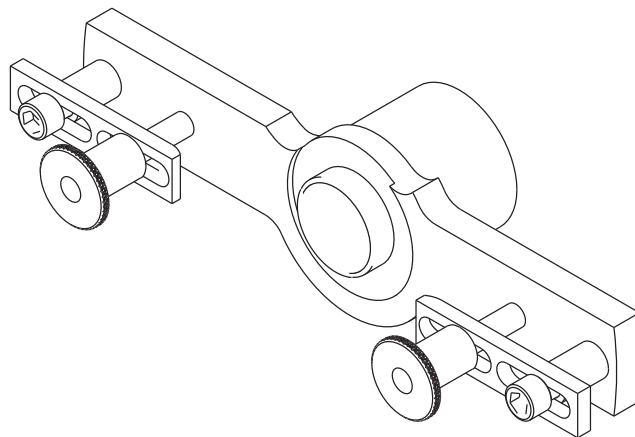
Blade Inspection Adapter

Part Number: 105501 (TE539)
Supersedes 101932 (TE455)

Description: Adapter used with a locally procured blade spud inspection bench. Use adapter 105501 (TE539) for any composite blade that needs an adapter except for E, M, and B-shank composite blades.

NOTE: This part number can be used to order the drawing for local fabrication.

Vendor: Customer Supplied (CS)



105501

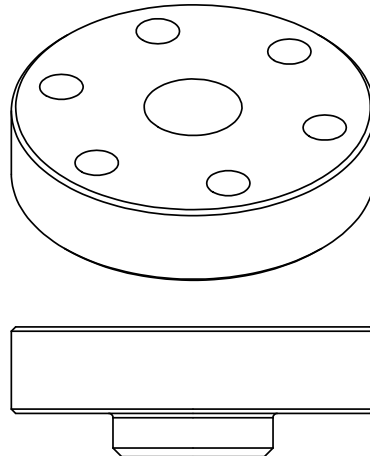
Preload Stud Plate

Part Number: 103454 (TE540)

Description: Used for the 103437 hub at overhaul to re-install the mounting studs properly.

NOTE: This part number can be used to order the drawing for local fabrication.

Vendor: Customer Supplied (CS)



103454

Valve Assembly Check Tool

Part Number: 105615 (TE547)

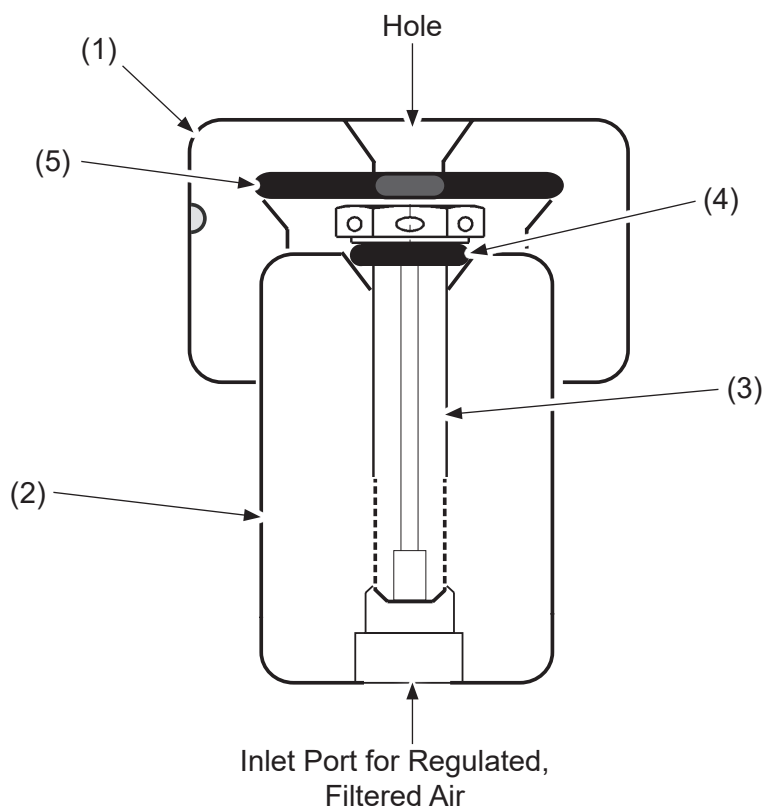
Description: Tool to pressure test the internal relief valve contained in the relief valve bolt unit.

NOTE: This part number can be used to order the drawing for local fabrication.

Vendor: Customer Supplied (CS)

Components:

<u>Figure No.</u>	<u>Hartzell P/N</u>	<u>Vendor P/N</u>	<u>Vendor</u>	<u>Description</u>	<u>Quantity</u>
(1)	105616	n/a	n/a	Cap	1
(2)	105617	n/a	n/a	Housing	1
(3)	105403	n/a	n/a	Relief Valve Bolt Unit	1
(4)	C-3317-010-2	n/a	n/a	O-ring	1
(5)	n/a	90131A305	McMaster-Carr Supply Co (MC)	Rubber Washer	1



TPI-MB-0022

Bantam Spring Compressor

Part Number: 105532 (TE548)

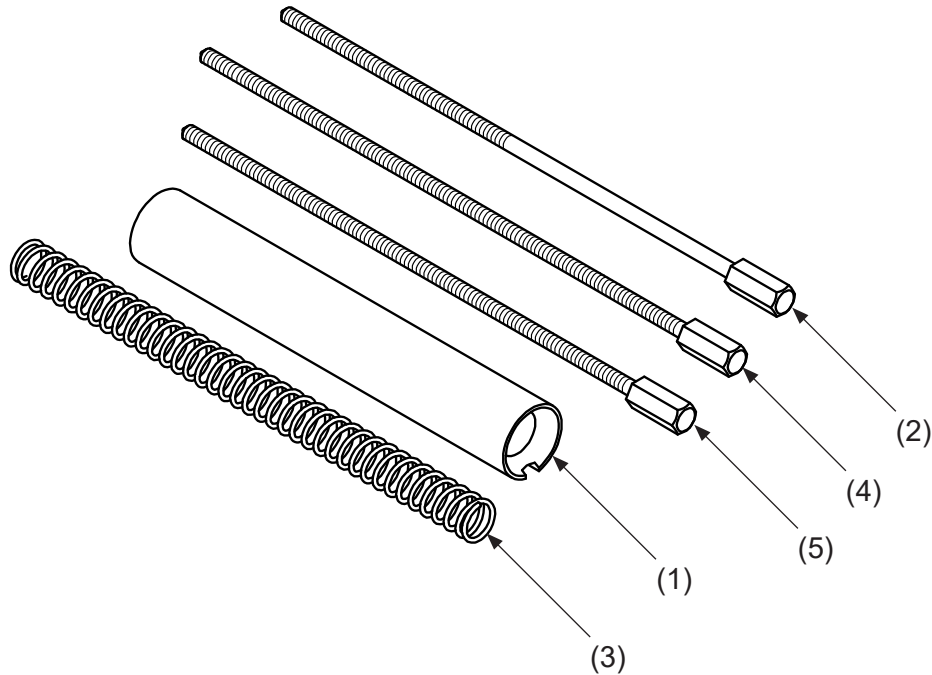
Description: Adapter is used to help mount the Bantam propeller to the CST-2901() Propeller Assembly Table. Used with BST-2912-19 Hub Flange Spindle TE536.

NOTE: This part number can be used to order the drawing for local fabrication.

Vendor: Hartzell Propeller (HP)

Components:

<u>Figure No.</u>	<u>Hartzell P/N</u>	<u>Description</u>
(1)	105663 (TE548-1)	Extension
(2)	105664 (TE548-2) Alternate for TE548-4, TE548-5	Pull Rod
(3)	105665 (TE548-3)	Compression Spring
(4)	109413 (TE548-4)	Pull Rod, 10.5"
(5)	109437 (TE548-5)	Pull Rod, 9.5"



TPI-165010

F-flange Bantam Adapter Ring

Part Number: BST-2912-22 (TE550)

Description: Adapter permits mating to the BST-2912-19 spindle so that the Bantam spring compressor features will work. Used with TE536 BST-2912-19 Hub Flange Spindle.

NOTE: This part number can be used to order the drawing for local fabrication.

Vendor: Customer Supplied (CS)



TPI-BST-2912-22

Right Angle Grease Coupler

Part Number: 105702 (TE559)

Description: Bits used between the counterweight and the lubrication fitting of the TBM Socata 5-way Propeller, HC-E5N-3C. Provides 90 degree access.

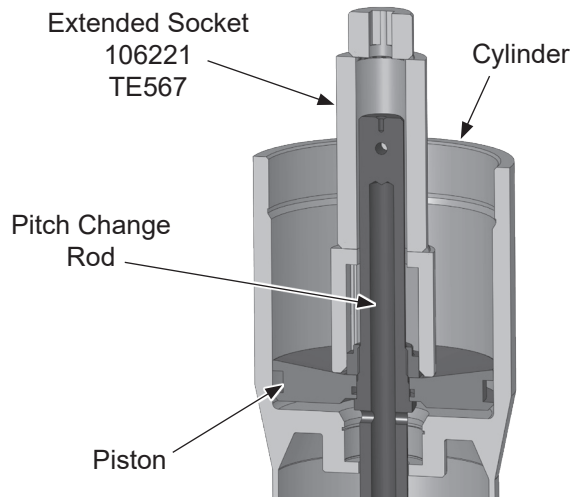
<u>Hartzell P/N</u>	<u>Vendor</u>	<u>Vendor P/N</u>
105702	American Forge & Foundry, Inc. (AF)	8034
	Lincoln Industrial Corporation (LI)	5883
	Matco Tools (MA)	GGA21600
	McMaster-Carr Supply Co (MC)	1091K61
	OTC Tools Inc. (OT)	2322
	Steelman Pro (SM)	06135
	SAE Products (SP)	QCC-HTR
	Thexton Manufacturing Company (TM)	THX-418MD0213-4

Extended Socket

Part Number: 106221 (TE567)

Description: For five-bladed light-weight turbine propellers. Modified extended socket used to torque the piston mounting nut against the piston on lightweight turbine propellers.

Vendor: Hartzell Propeller (HP)



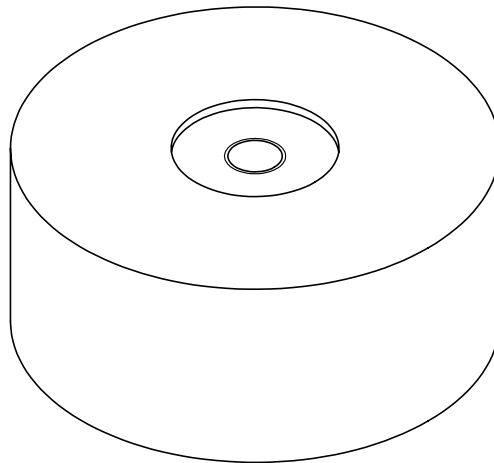
TPI-165A-106221

Air Check Block

Part Number: 105236 (TE568)

Description: Used to provide a method to check the leak check manifold 104507 (TE506) assembly and to provide a protective way to store the leak check manifold 104507 (TE506) when not in use.

Vendor: Hartzell Propeller (HP)



TPI-105236

Tube Nut

Part Number: 106450 (TE570) For building the G-flange propeller

Description: Used to hold the propeller to the assembly table spindle and to protect the threads of the captive fasteners within the spindle slots. Used with TE536 BST-2912-19 Hub Flange Spindle.

Vendor: Hartzell Propeller (HP)



TPI-165A-106450

C-shank Rolling Conversion Kit

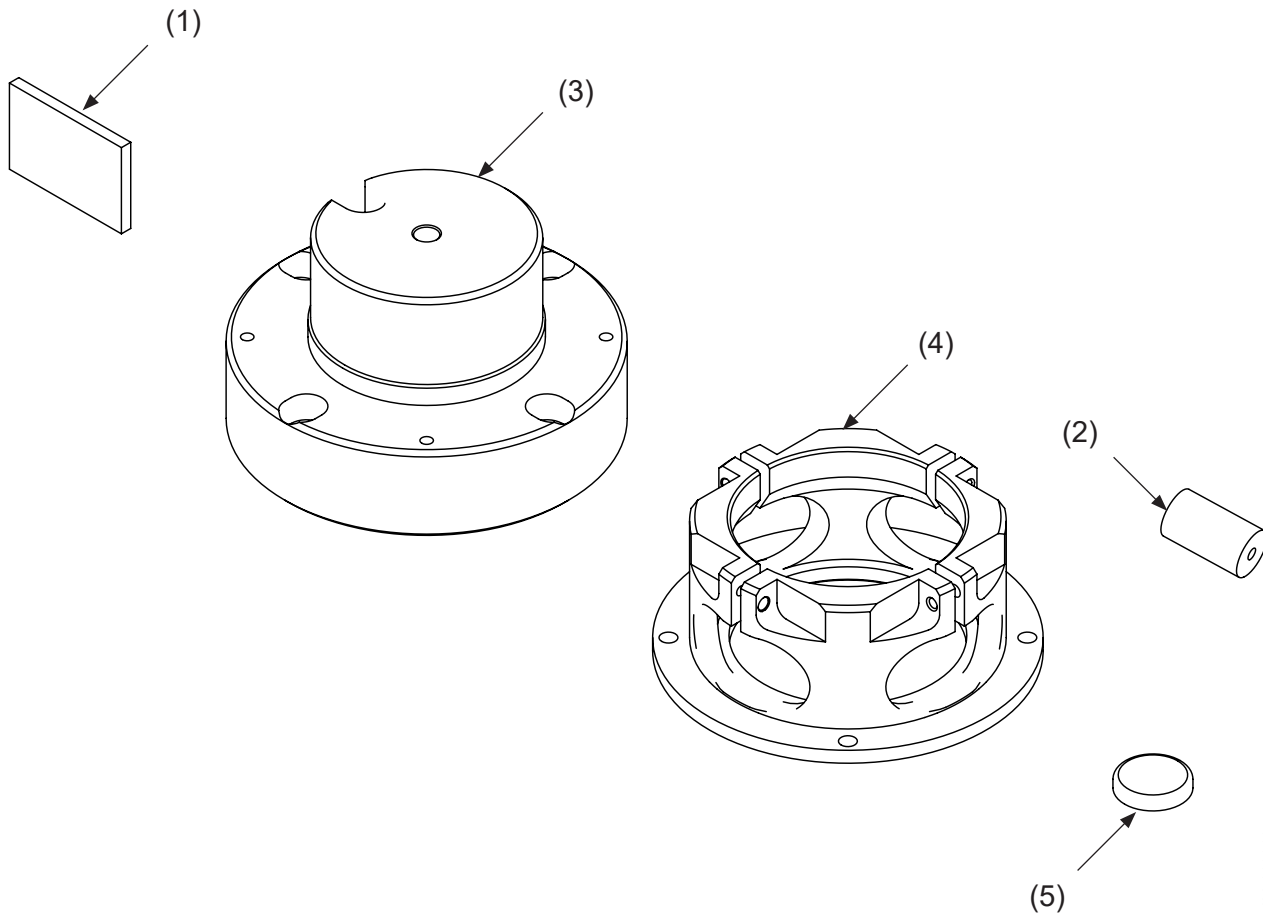
Part Number: 106542 (TE594)

Description: The C-shank Rolling Conversion Kit is an assembly to convert the Hartzell Propeller Rolling Machine to roll the Raptor C-shank blades.

Vendor: Hartzell Propeller (HP)

Components:

<u>Figure No.</u>	<u>Hartzell P/N</u>	<u>Description</u>	<u>Quantity</u>
(1)	104811 (TE503)	Spacer Blank	1
(2)	BST-2869-1 (TE635)	Spacer	1
(3)	DT-1724+171 (TE598)	Base	1
(4)	DT-1724+172 (TE599)	Clamp Ring	1
(5)	DT-1724+173 (TE600)	Locator Pin	1



TPI-JM-000011

Shot Peen Mask Tool

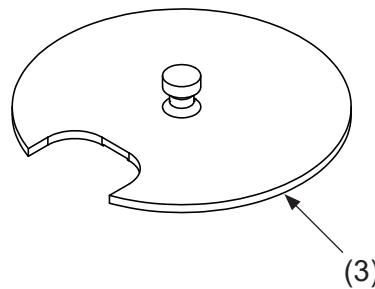
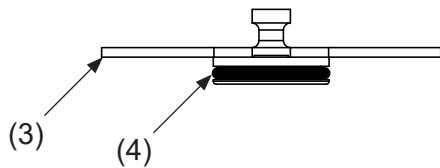
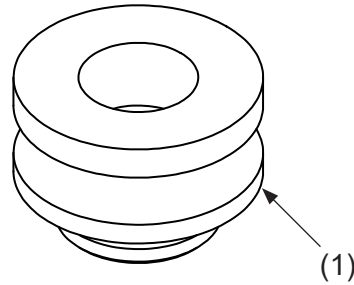
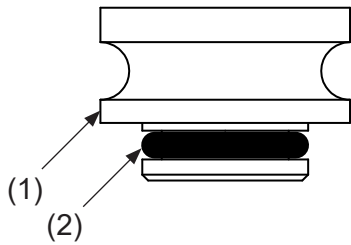
Part Number: DST-5855+72 (TE601)
DST-5855+73 (TE602)

Description: Shot peen masking tool used on Raptor C-shank.

Vendor: Hartzell Propeller (HP)

Components:

<u>Figure No.</u>	<u>Hartzell P/N</u>	<u>Description</u>	<u>Quantity</u>
(1)	DST-5855+72 (TE601)	Shot Peen Mask Tool	1
(2)	C-3317-011-()	O-ring, not included and must be used with TE601	1
(3)	DST-5855+73 (TE602)	Shot Peen Mask Tool	1
(4)	C-3317-218-()	O-ring, not included and must be used with TE602	1



TPI-165A-DST-5855+72
TPI-165A-DST-5855+73

Piston Ring Clamp Kit

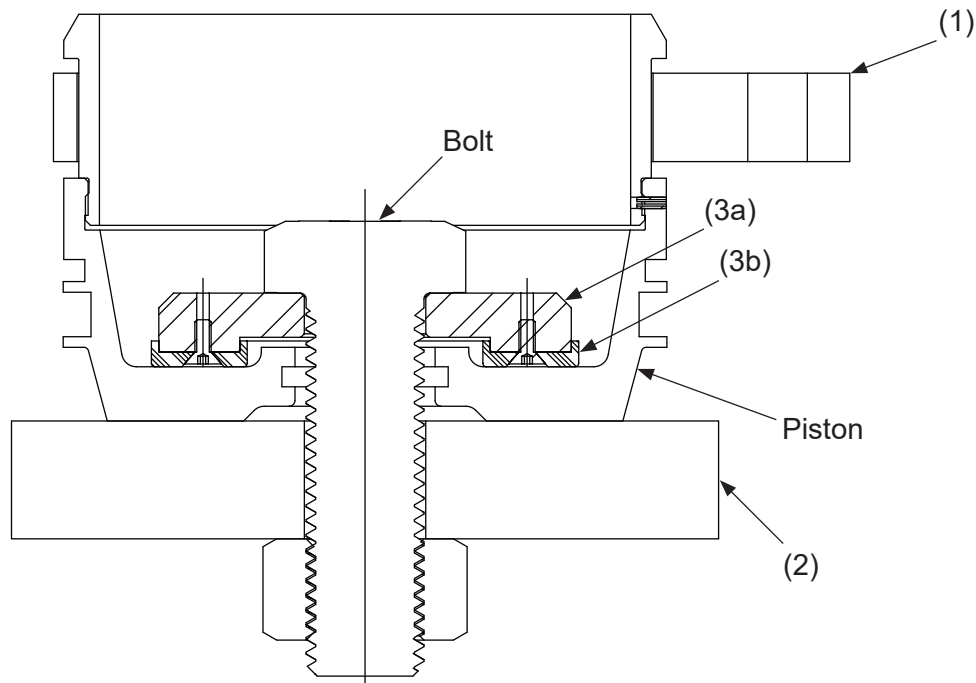
Part Number: 106513 (TE616)

Description: For removing the piston ring from piston units C-497 and C-497-1.

Vendor: Hartzell Propeller (HP)

Components:

<u>Figure No.</u>	<u>Hartzell P/N</u>	<u>Description</u>	<u>Quantity</u>
(1)	106294 (TE617)	Piston Ring Clamp	1
(2)	106295 (TE618)	Clamp Base	1
(3)	106296 (TE619)	Clamp Washer	1
(3a)	• DT-7102+1	Clamp Plate	1
(3b)	• DT-7102+2	Protective Pad	1



TPI-106513

Spring Assembly Tool

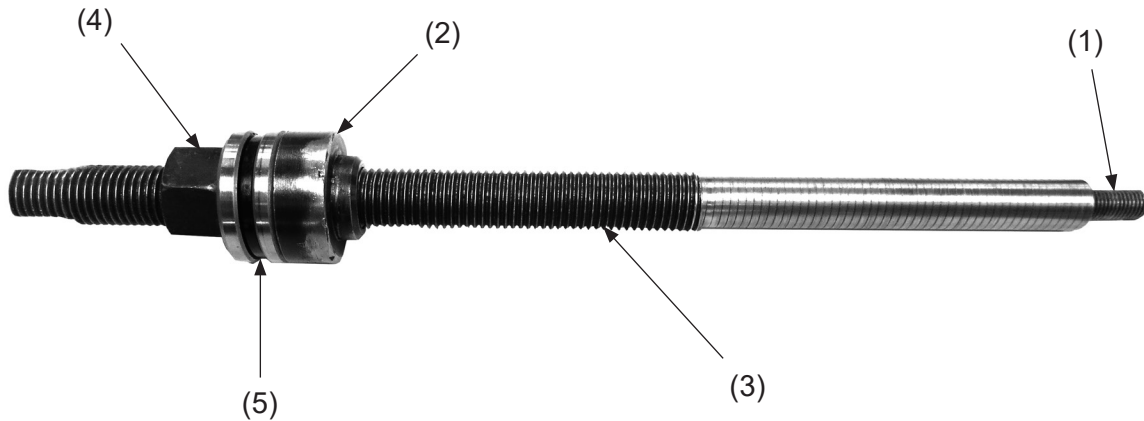
Part Number: BST-2855 (TE627)

Description: Assembling tool for the HC-E3YR-7()F propeller.

Vendor: Hartzell Propeller (HP)

Components:

<u>Figure No.</u>	<u>Hartzell P/N</u>	<u>Vendor</u>	<u>Vendor P/N</u>	<u>Description</u>	<u>Quantity</u>
(1)	A-3204	n/a	n/a	5/16-24 Set Screw	1
(2)	AST-2851	n/a	n/a	Guide Washer	1
(3)	BST-2850-1	n/a	n/a	Threaded Rod	1
(4)	BST-3151	n/a	n/a	5/8-11 Hex Nut	1
(5)	BST-3152	Aetna Consolidated INA USA Corp.	F-3 GT-3 GT-3	Thrust Ball Bearing	1



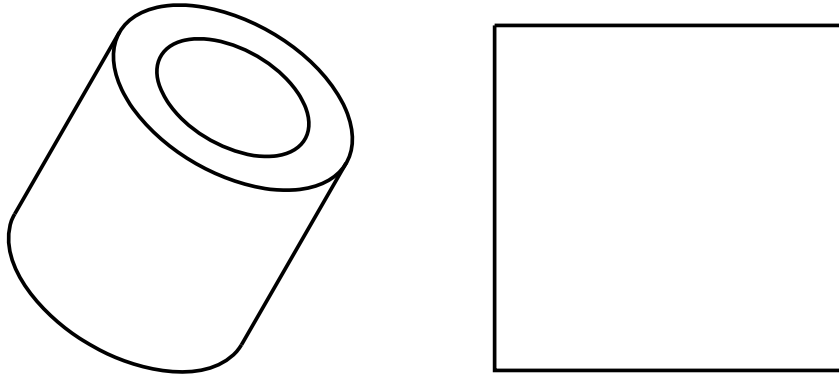
TPI-165A-BST-2855

Assembly Low Pitch Spacer

Part Number: 106964 (TE634)

Description: Used to set low pitch for assembling the HC-A2(V,MV)20-5L.

Vendor: Hartzell Propeller (HP)



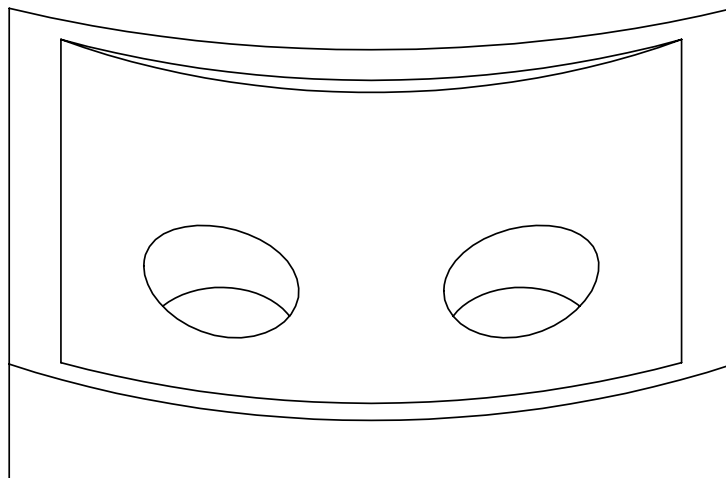
TPI-165A-106964

Mask

Part Number: 107139 (TE636)

Description: Used as a paint mask for the E-7486 clamp.

Vendor: Hartzell Propeller (HP)



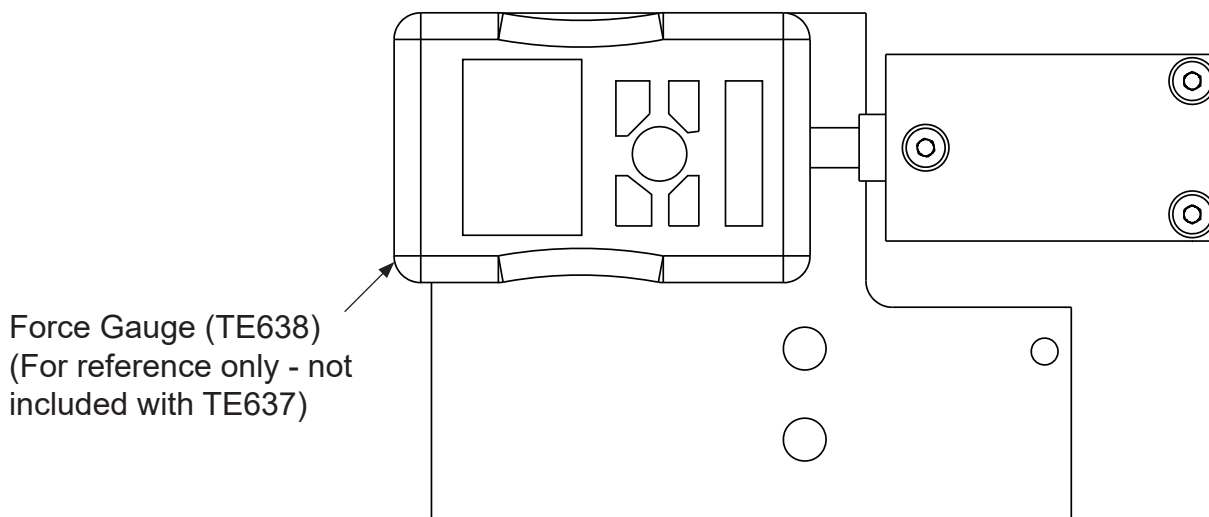
TPI-JM-000022

Hardware Kit

Part Number: CST-3200 (TE637)

Description: Tools used with the TE638 Force Gauge for the applied load calibration of the DT-1724-5 Automated Rolling Machine. Tools TE637 and TE638 are sold separately. One hardware kit can be used for multiple rolling machines.

Vendor: Hartzell Propeller (HP)



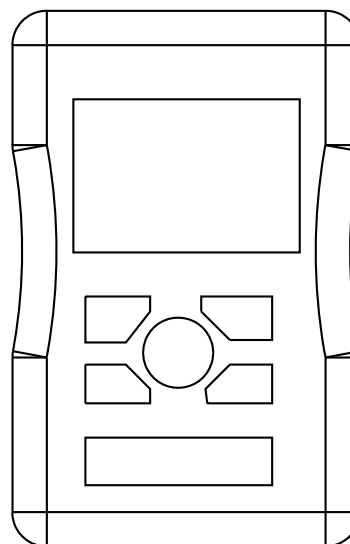
TPI-JM-000078

Force Gauge

Part Number: 107192 (TE638)

Description: Measures an applied force from the roller on the DT-1724-5 Automated Rolling Machine. The force gauge is used with CST-3200 (TE637). One force gauge can be used for multiple rolling machines.

Vendor: Hartzell Propeller (HP)



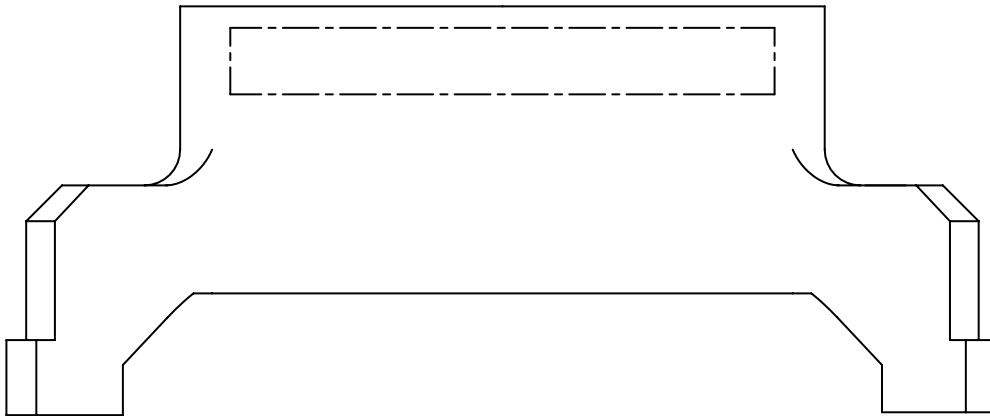
TPI-JM-000079

Position Gauge

Part Number: 107190 (TE639)

Description: A tool to establish a home position on the DT-1724-5 Automated Rolling Machine. One position gauge can be used for multiple rolling machines.

Vendor: Hartzell Propeller (HP)



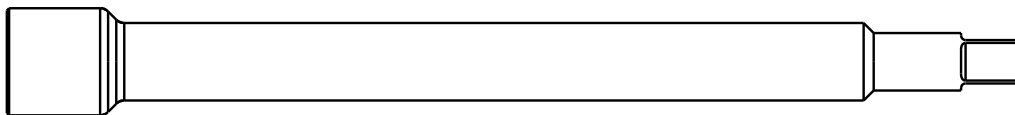
TPI-JM-000080

Torque Wrench Adapter

Part Number: DT-1724+193 (TE640)

Description: A wrench adapter used to torque the DT-1724-5 Automated Rolling Machine chuck.

Vendor: Hartzell Propeller (HP)



TPI-JM-000082

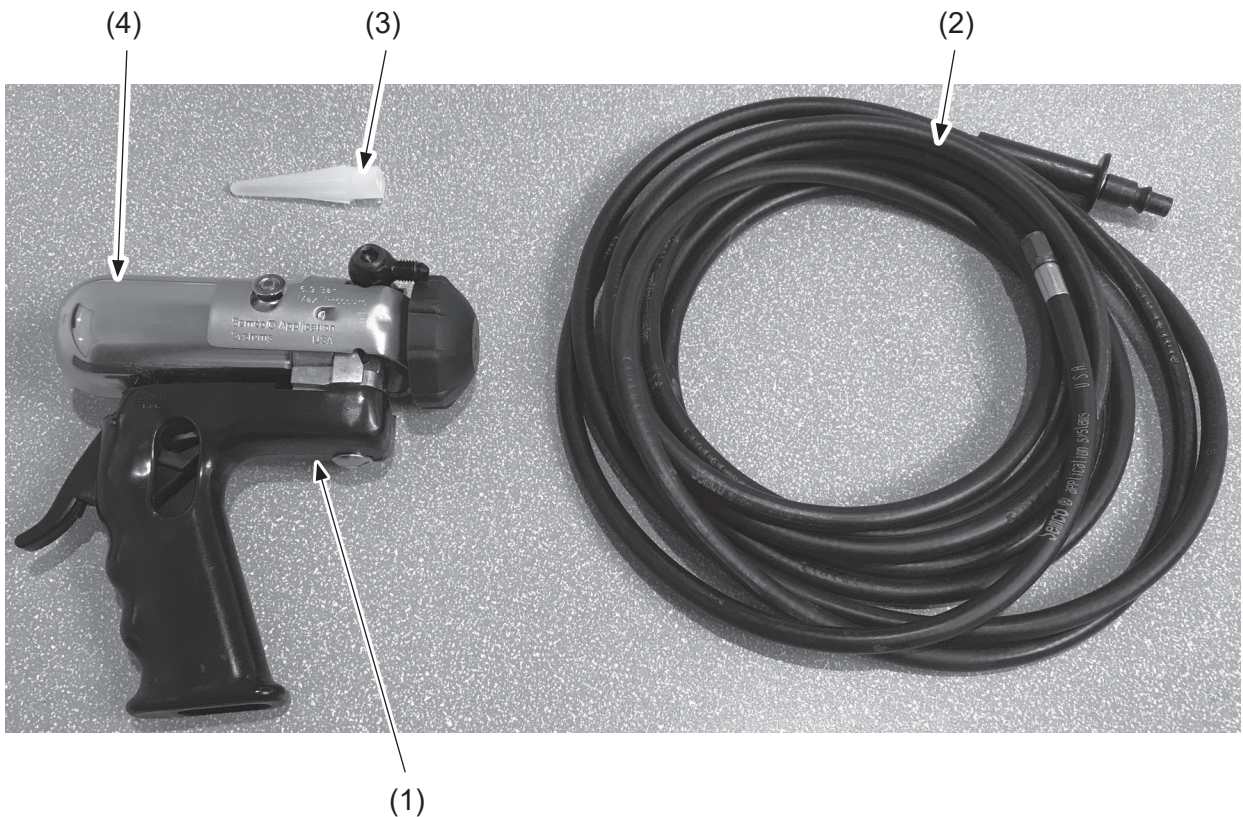
Sealant Gun Assembly

Tool Number: TE641

Description: The Sealant Gun Assembly uses facility supplied air pressure to dispense sealant. Components of the Sealant Gun Assembly are listed below:

NOTE: Components must be purchased separately from the vendor.

<u>Figure No.</u>	<u>Vendor</u>	<u>Vendor P/N</u>	<u>Description</u>
(1)	PPG Aerospace (PG)	250255	Sealant Gun with 2.5 oz Retainer
(2)	PPG Aerospace (PG)	280014	Hose Assembly, 15 ft in length
(3)	PPG Aerospace (PG)	220538	Nozzle
(4)	PPG Aerospace (PG)	220928	6.0 oz Retainer (optional)



TPI-JM-000085

Eddy Current Test Shank

Part Number: n/a (TE643)

Description: Used to set-up the Eddy Current machine before processing blades.

Vendor: Hartzell Propeller (HP)

<u>Hartzell P/N</u>	<u>Test Set-Up</u>
107518 (TE643-1)	Y-shank blades
AST-3870 (TE643-2)	C-shank Raptor blades

Leak Check Kit

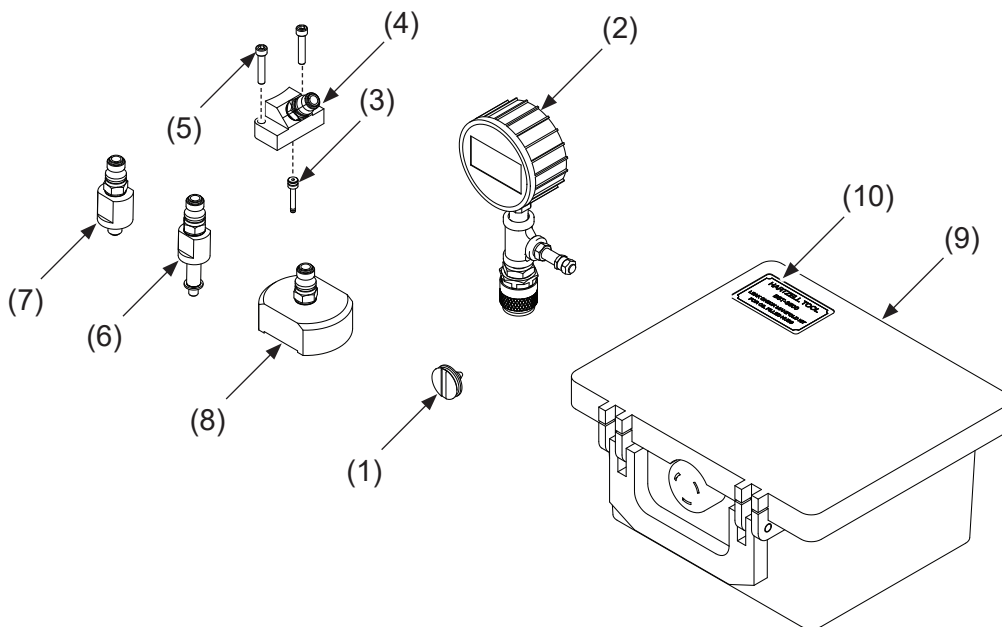
Part Number: BST-3500 (TE644)
Replaces 105190 (TE506)

Description: Tool used to check for leaks on all oil-filled aluminum hub applications.

Vendor: Hartzell Propeller (HP)

Component(s):

<u>Figure No.</u>	<u>Hartzell P/N</u>	<u>Description</u>	<u>Item Use</u>
(1)	104506	Plug Assembly	Used to plug the piston before leak check
(2)	BST-3490	Manifold Assembly	Quick connect gauge
(3)	BST-3491	Drilled Pin Assembly	Installed in bottom of BST-3492
(4)	BST-3492	Block Assembly	Adapter used on 3A2 and 3A7 propellers
(5)	AST-4220-3-16	Bolt/Screw	Used to bolt BST-3492 to hub
(6)	BST-3493	5-way Adapter Assembly	Adapter used on 5A2 propellers
(7)	BST-3494	Cylinder Adapter Assembly	Adapter used on 3A1, 3A8, 3H1, 5A1, and HM-()V Hovercraft propellers
(8)	BST-3496	Base Assembly	Adapter used to detect leaks in the Manifold Assembly BST-3490
(9)	AST-4000-1200	Storage Case	Protective case for the leak check kit
(10)	AST-4500-3500	Tag	Label installed on the storage case



TPI-JM-000300

E-Z Out (Screw Extractor) Kit

Tool Number: TE645

Description: Tool used to remove threaded staked inserts.

Component(s):

<u>Vendor</u>	<u>Description</u>	<u>Quantity</u>
Customer Supplied (CS)	E-Z Out Tool - variable sizes	1



TPI-JM-000295

Hole Location Gauge (True Position Indicator)

Tool Number: TE646

Description: Tool used to determine the true position of a hole.

Component(s):

<u>Vendor</u>	<u>Description</u>	<u>Quantity</u>
Customer Supplied (CS)	Hole Location Gauge - variable sizes	1



TPI-JM-000299

Thread Tap

Tool Number: TE647

Description: The thread tap is used to thread pre-drilled holes.

Component(s):

<u>Tool No.</u>	<u>Vendor</u>	<u>Description</u>	<u>Quantity</u>
TE647-1	Customer Supplied (CS)	7/8-14 UNF-2B (H1-H4, as appropriate) Thread Tap	1
TE647-2	Customer Supplied (CS)	9/16-18 UNF	1



TPI-JM-000298

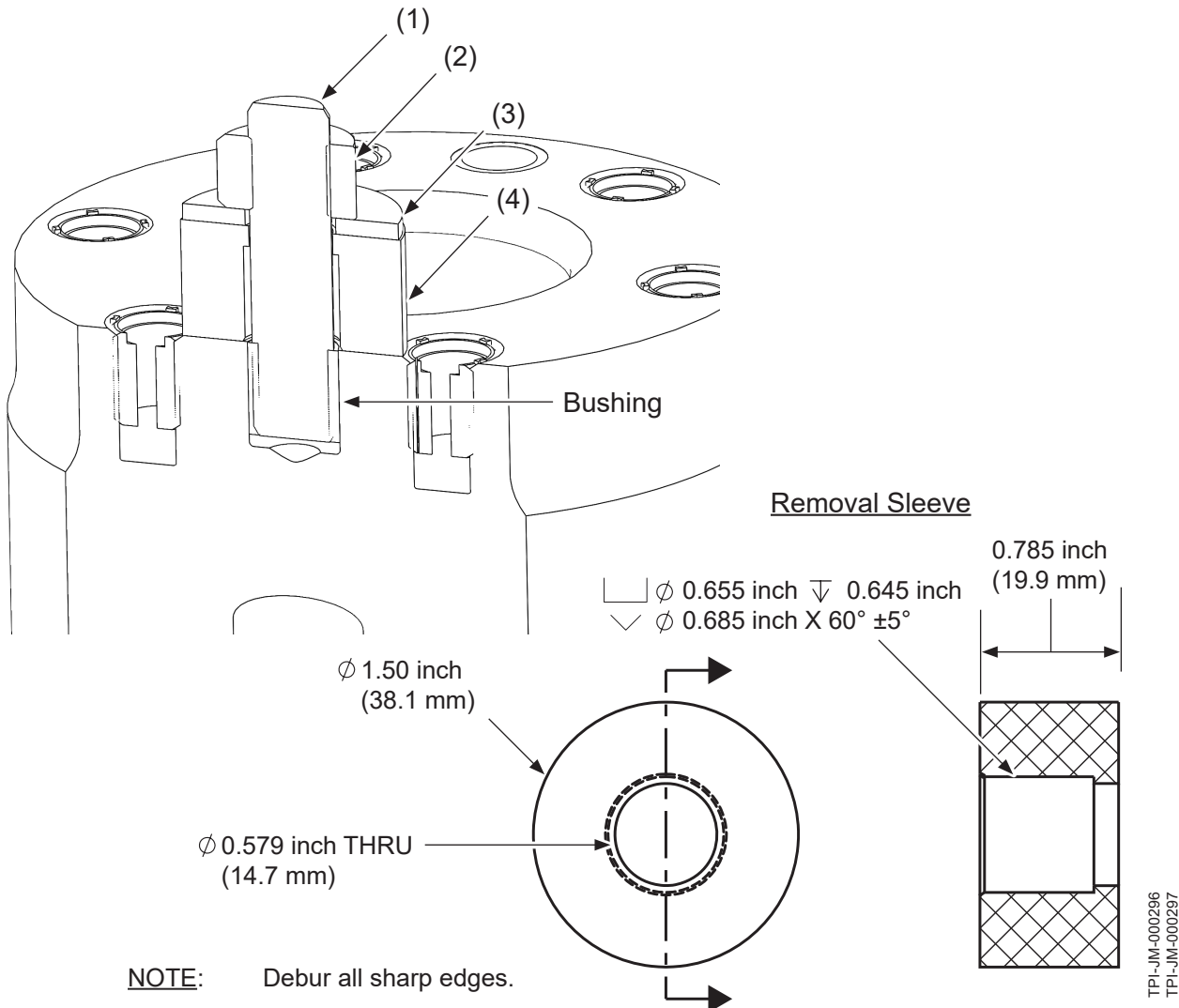
Bushing Removal Tool

Tool Number: TE648

Description: Tool used to remove a bushing from dowel pin holes in N-flange hubs.

Component(s):

<u>Figure No.</u>	<u>Vendor</u>	<u>Description</u>	<u>Quantity</u>
(1)	Customer Supplied (CS)	9/16-18 UNF Stud	1
(2)	Customer Supplied (CS)	9/16-18 Nut	1
(3)	Customer Supplied (CS)	9/16 Washer	1
(4)	Customer Supplied (CS)	Removal Sleeve (locally fabricated - refer to Removal Sleeve figure below.) Material: Acetal or Aluminum	1



Thread Plug

Tool Number: TE649

Description: Used to inspect the hub mounting flange threaded through hole.

Component(s):

<u>Tool No.</u>	<u>Vendor</u>	<u>Description</u>	<u>Quantity</u>
TE649-1	Customer Supplied (CS)	7/8-14 UNF-2B	1



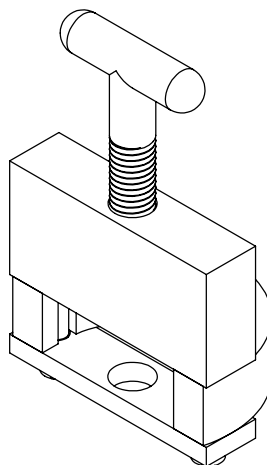
TPI-JM-000302

Roller Press

Part Number: BST-5212 (TE650)

Description: Tool used to remove/install the roller assembly DT-1724+212 on rolling machines DT-1724-(3,5).

Vendor: Hartzell Propeller (HP)



TPI-JM-000357

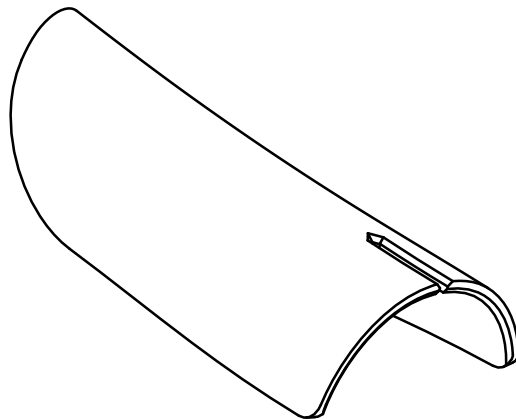
Blade Boot Alignment Tool

Part Number: BST-3010-1 (TE651)

Description: Tool used to align boot centerline with inboard leading edge of a blade (at overhaul or on-wing). Used on 76C04 blade.

NOTE: This part number can be used to order the solid model for local fabrication.

Vendor: Customer Supplied (CS)



TPI-JM-000360

Cylinder Leak Check Fixture

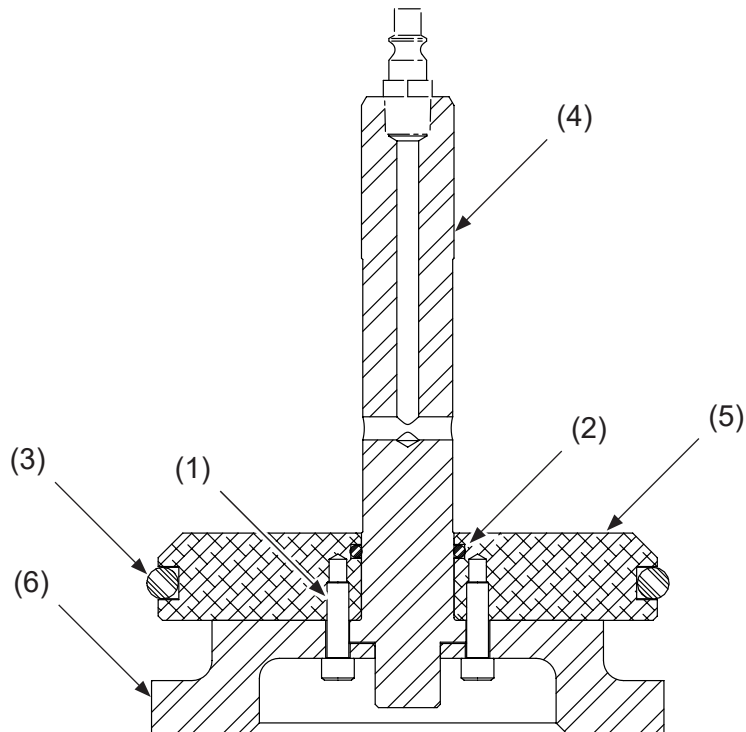
Tool Number: TE652

Description: Tool used to perform leak checks on double ended cylinders.

<u>Vendor</u>	<u>Vendor P/N</u>	<u>Tool Number</u>	<u>Description</u>
■ Hartzell Propeller (HP)	CST-3700	TE652-1	For double ended cylinders with a 5.1250-20 thread that use a 108298 bushing
■ Hartzell Propeller (HP)	CST-3800	TE652-2	For double ended cylinders with a 5.8750-20 thread that use a 108298 bushing

Components:

<u>TE652-1</u>		<u>TE652-2</u>	
<u>Part Number</u>	<u>Description</u>	<u>Part Number</u>	<u>Description</u>
(1) AST-4210-4-14	Coarse thread cap screw	(1) AST-4210-4-14	Coarse thread cap screw
(2) C-3317-215-2	O-ring	(2) C-3317-215-2	O-ring
(3) C-3317-425-2	O-ring	(3) C-3317-431-2	O-ring
(4) CST-3700+1	Simulated pitch change rod	(4) CST-3700+1	Simulated pitch change rod
(5) CST-3700+2	Piston fixture	(5) CST-3800+2	Piston fixture
(6) CST-3700+3	Cap	(6) CST-3800+3	Cap



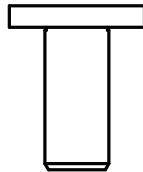
TPI-JM-000359

Bantam Flange Bushing Plug

Part Number: BST-7587-10 (TE653)

Description: Tool used to plug the engine-side hub bushing for pressure test on Bantam hubs. Used in conjunction with TE441-().

Vendor: Hartzell Propeller (HP)



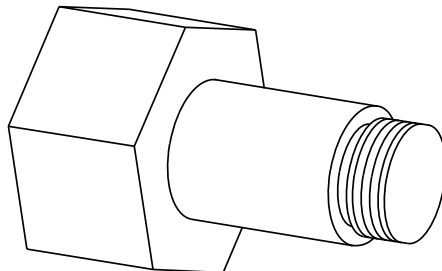
TPI-JM-000371

Insert Removal Tool

Part Number: BST-3042-10 (TE654)

Description: Tool used to remove threaded non-staked inserts from hubs.

Vendor: Hartzell Propeller (HP)



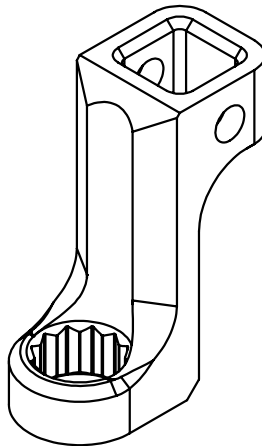
TPI-JM-000440

Torque Wrench Adapter

Part Number: AST-2893-6 (TE655)

Description: 3/8, 12-point torque wrench adapter - used for governor installation.

Vendor: Hartzell Propeller (HP)



TPI-JM-000373

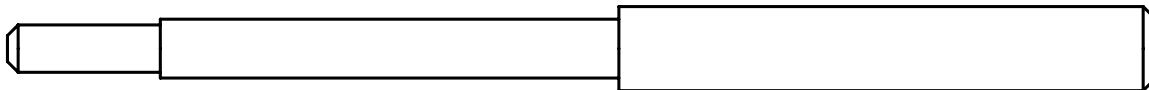
Assembly Alignment Tool

Part Number: AST-109149 (TE656)

Description: Used to align forks within the assembly. Used on Raptor-series propellers. Contact Hartzell Product Support to acquire print to locally fabricate.

NOTE: This part number can be used to order the drawing for local fabrication.

Vendor: Customer Supplied (CS)



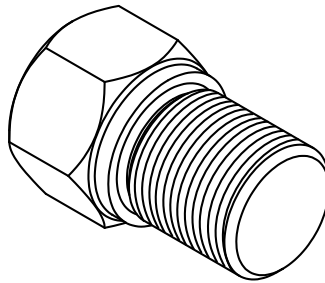
TPI-JM-000395

Torque Test Tool

Part Number: BST-3046-9 (TE657)

Description: Tool used to torque 9/16-18 non-staked inserts.

Vendor: Hartzell Propeller (HP)



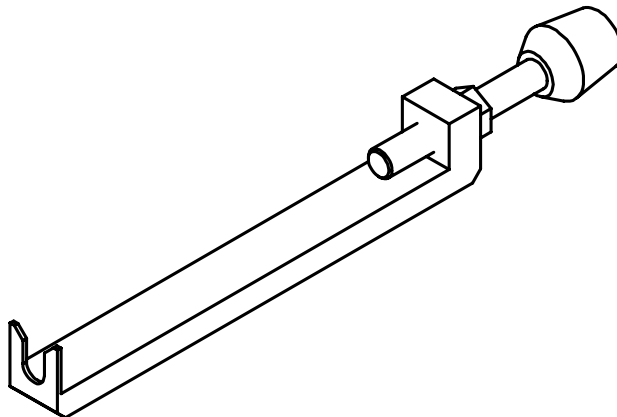
TPI-JM-000372

Spring Installation Tool

Part Number: CT-3882 (TE658)

Description: Tool used to compress the beta compression spring to allow for removal/installation of the thin hex nut on propeller assemblies that use a beta spring retainer.

Vendor: Hartzell Propeller (HP)



TPI-JM-000425

Bonding Fixture

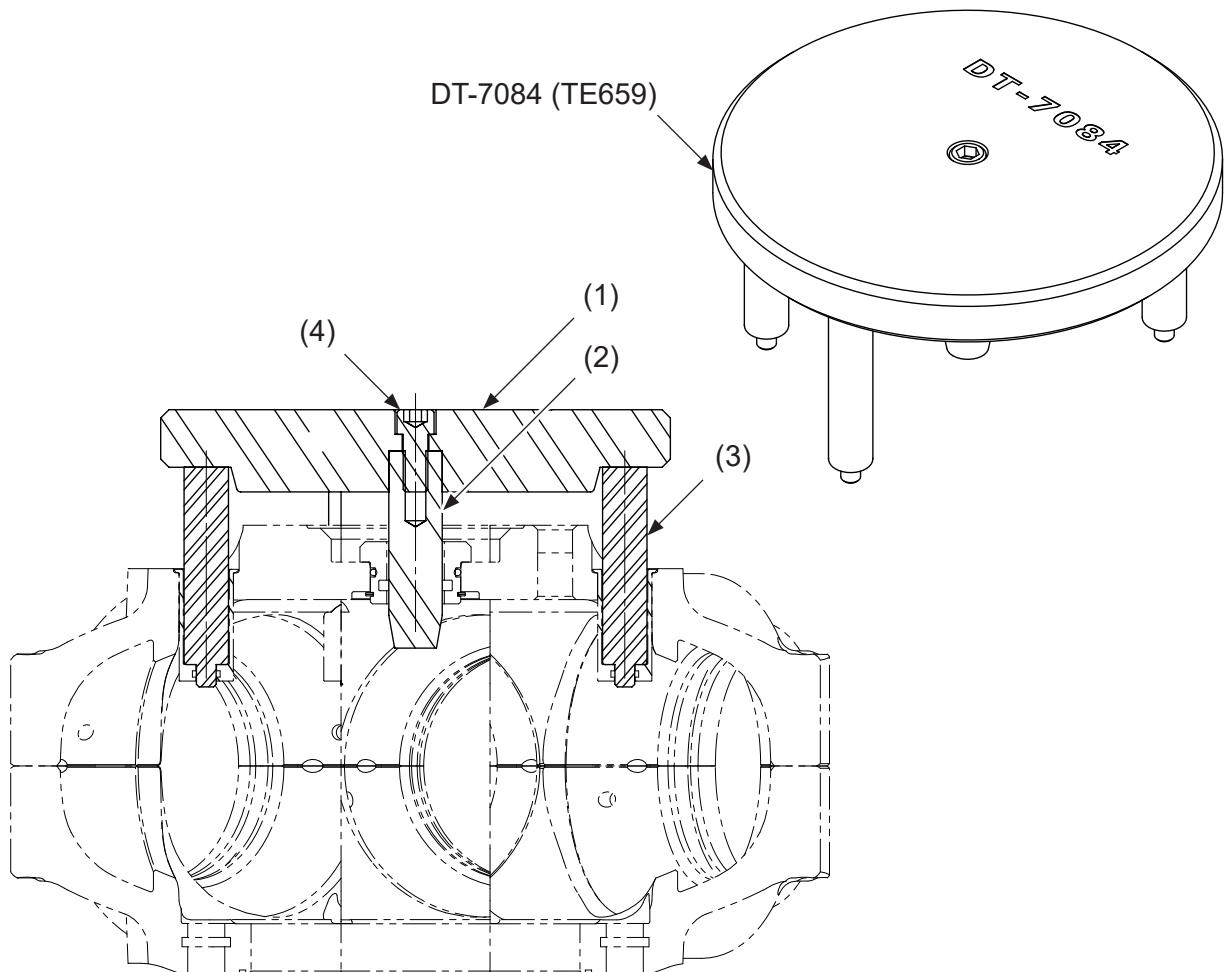
Part Number: DT-7084 (TE659)
Replaces AST-109709 (TE659)

Description: Tool used to align the B-454 spring retainer in 107964 hubs during the cure process.

Vendor: Hartzell Propeller (HP)

Components:

<u>Part Number</u>	<u>Description</u>
(1) DT-7084+1	Pressure plate
(2) DT-7084+2	Alignment post
(3) DT-7084+3	Alignment rod
(4) n/a	3/8-16 x 7/8 Screw, locally procured



TPI-JM-000518

Air Leak Check Tool

Part Number: DT-7045-1 (TE660)

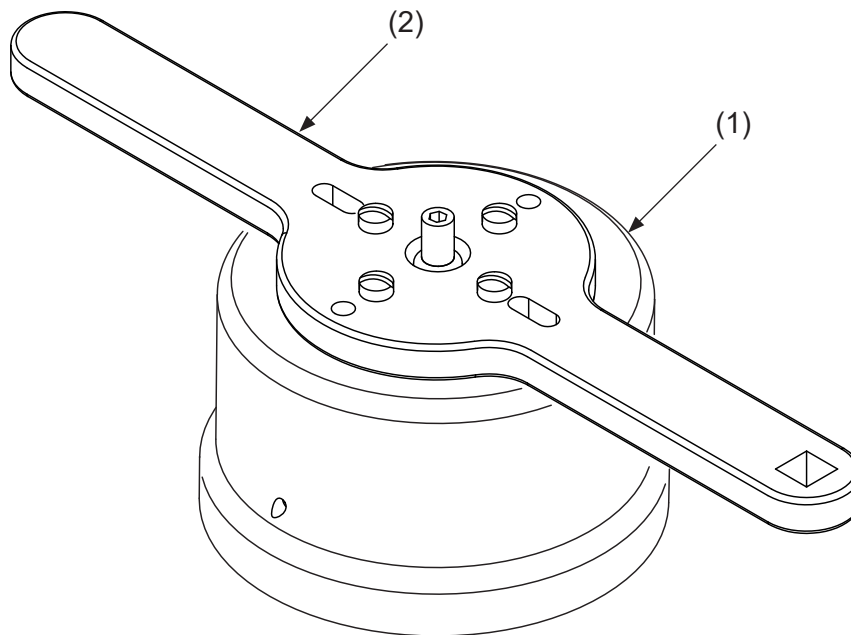
Description: Tool used to detect "-1" Raptor propeller internal hub air leaks.

NOTE: This part number can be used to order the drawing for local fabrication.

Vendor: Customer Supplied (CS)

Components:

	<u>Part Number</u>	<u>Description</u>
(1)	B-2428-3	Modified Cylinder
	B-2428-(1)	Modified Cylinder, alternate
(2)	DT-1745+2	Cylinder Torque Wrench
	BST-2921-(1)	Cylinder Torque Wrench, alternate
(3)	102472	3/8-24 Set Screw
(4)	A-2043-1	3/8-24 Self-Locking Hex Nut
(5)	B-6747	Seal Washer
(6)	B-3384-6H or equivalent	1/4-28 Hex Head Bolt
(7)	B-3851-0463	Washer



TPI-JM-000497

Bearing Installation Tool

Part Number: CST-7000 (TE661)

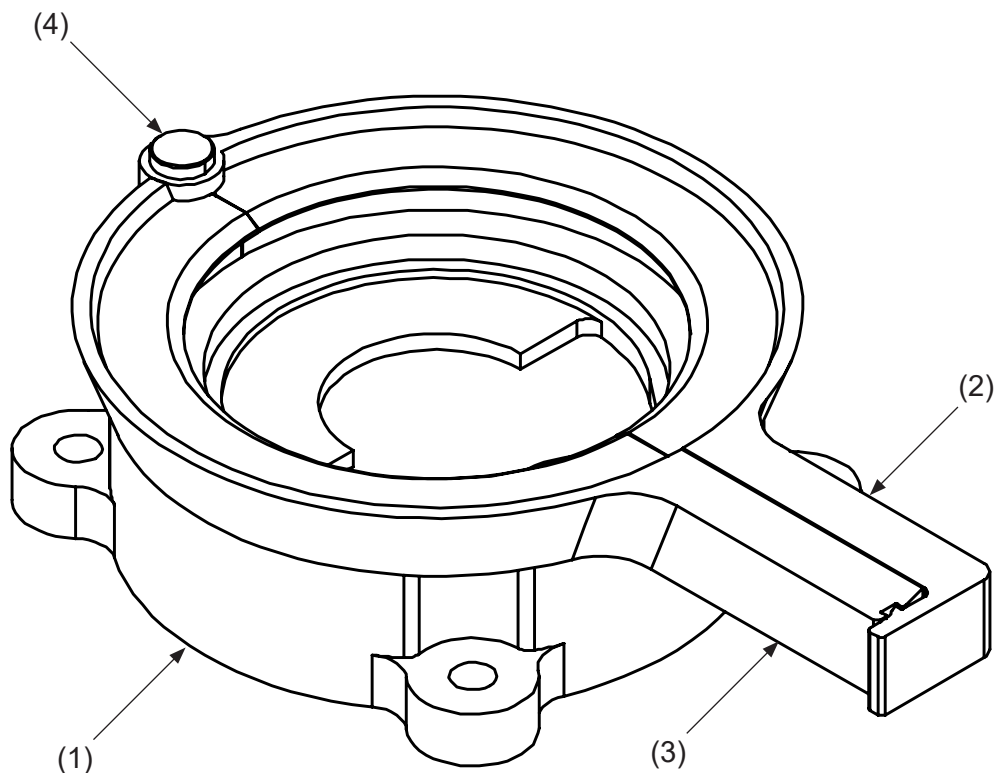
Description: Tool used to install the ball bearings/bearing races on the Falcon propeller blade.

NOTE: This part number can be used to order the drawing for local fabrication.

Vendor: Customer Supplied (CS)

Components:

<u>Part Number</u>	<u>Description</u>
(1) CST-7000+1	Retaining Ring Fixture
(2) CST-7000+2	Flange Half A
(3) CST-7000+3	Flange Half B
(4) n/a	1.5" X 0.25" Dia Clevis Pin, locally procured

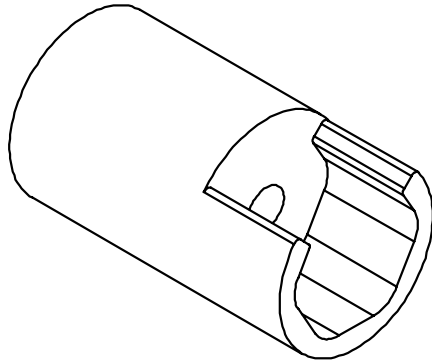


Spring Installation Tool

Part Number: CST-7001 (TE662)

Description: Tool used to install the spring assembly on the Falcon propeller.

Vendor: Hartzell Propeller (HP)



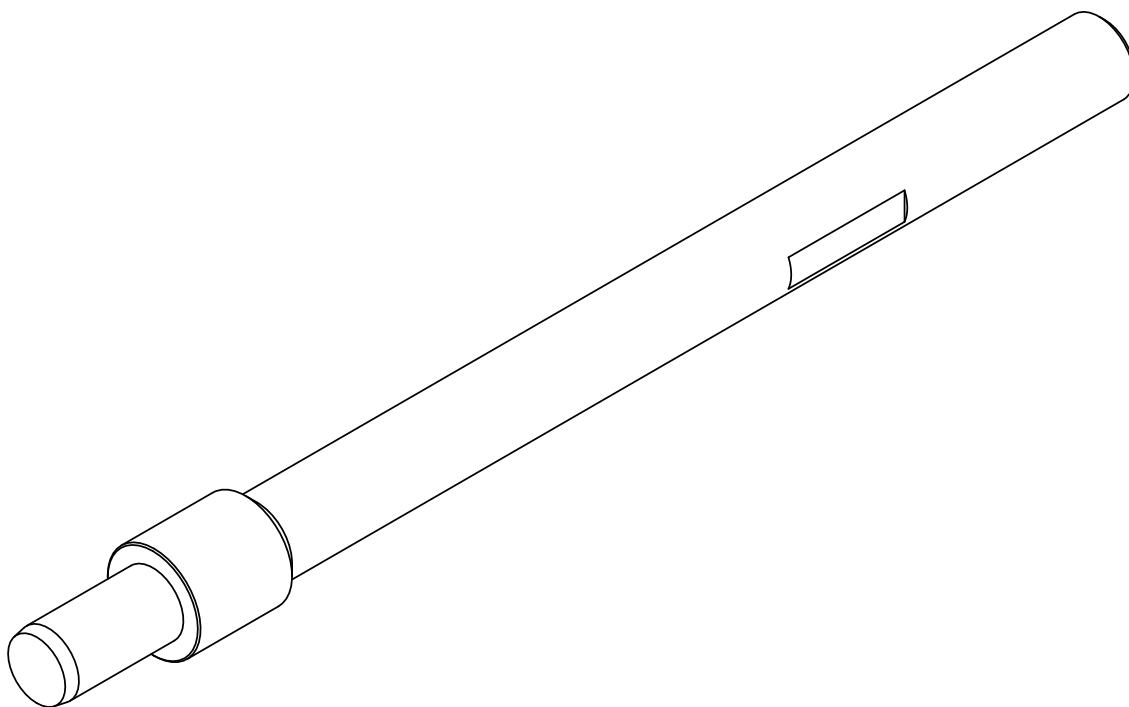
Bushing Alignment Tool

Part Number: DT-7153+1 (TE663)

Description: Tool used to align the 103434-() bushing in aluminum hubs.

NOTE: This part number can be used to order the drawing for local fabrication.

Vendor: Customer Supplied (CS)



Dual Acting Tool List

Description: Miscellaneous tools used for disassembly and reassembly of HD-E6C-3 propeller and PCU.

<u>Vendor</u>	<u>Hartzell P/N</u>	<u>Vendor P/N</u>	<u>Description</u>
SO	9943FS081 (TE109)	GFS081	Socket, 6 Point, 1/8 inch, 3/8 Drive
SO	9943MU121 (TE166)	GTMU121	Universal Socket, 12 Point, 3/8 inch, 1/4 Drive
SO	9943PS351 (TE176)	APS351	Adjustable Spanner Wrench, 1/8 Pin
SO	9943SF161 (TE202)	GSF161	Deep Well Socket, 12 Point, 1/2 inch, 3/8 Drive
SO	994313309 (TE229)	GFA4A	Socket Driver, 5/32 Hex Head, 3/8 Drive
SO	99430F12L (TE248)	GF10M	Breaker Bar, 3/8 Drive
SO	994301820 (TE249)	GV01820	Open End Wrench, Std Length, 9/16 - 5/8 in
SO	9943DH180 (TE250)	IMDF180	Socket, 12 Point, 9/16 inch, 3/8 Drive
AP	996680000 (TE252)	668	Thickness Gauge, Straight Leaves
SO	994313307 (TE253)	QDFR75	Adjustable Torque Wrench, 5 to 75 ft-lb, 3/8 Drive
SO	9943R217C (TE254)	QJR217C	Adjustable Torque Wrench, 30 to 200 in-lb, 3/8 Drive
SO	994313308 (TE255)	GFX1	3/8 Drive, 2 inch Extension
SO	(TE257)	SGASA204CG	Miniature Pick Set
AP	791706ATI (TE258)	170-6	Apex Torq-set® Bit, 1/4 inch, 1-1/4 Length
AP	(TE259)	1500-P	Hand Driver, Replaceable-Bit
MC	106128 (TE260)		Jack Screw
BH	9943BLX13 (TE261)	BLX 13	Ball Hex Wrench
LE	99430114C (TE263)	CUTA2810114C	Installation & Extraction Tool for Relief Valve
LE	99430104C (TE264)	CUTA1870104C	Installation & Extraction Tool for Oil Nozzle
DM	(TE265)	M22520/1-01	Beta Light Switch Crimping Tool
LE	99430203A (TE266)	CUTA1560203A	Lee Plug Installation Tool
LE	99430103B (TE267)	CUTA1560103B	Lee Plug Extraction Tool
LE	99438203A (TE268)	CUTA2180203A	Lee Plug Installation Tool
LE	99438103B (TE269)	CUTA2180103B	Lee Plug Extraction Tool
LE	99431203A (TE270)	CUTA2810203A	Lee Plug Installation Tool
LE	99431103B (TE271)	CUTA2810103B	Lee Plug Extraction Tool
LE	99432203A (TE272)	CUTA3120203A	Lee Plug Installation Tool
LE	99432103B (TE273)	CUTA3120103B	Lee Plug Extraction Tool
SO	994313306 (TE305)	PMF147A	6 inch Dial Caliper
LE	99435203A (TE323)	CUTA1250203A	Lee Plug Installation Tool
LE	99435103B (TE324)	CUTA1250103B	Lee Plug Extraction Tool
EP	99MR05000 (TE330)	MR05000	Rubber Roller