2. APPENDIX B - BIOSOLIDS COMPOSTING FACILITY OPERATING AND MAINTENANCE MANUAL SPECIFICATION SECTION 14454 - CONVEYORS

M2 Conveyor manual:

City of Winnipeg
Brady Rd Compost Facility

Supplied by:

RMS Industrial Maintenance
#1 34581 4th Ave
Abbotsford, B.C.
V2R 8E5

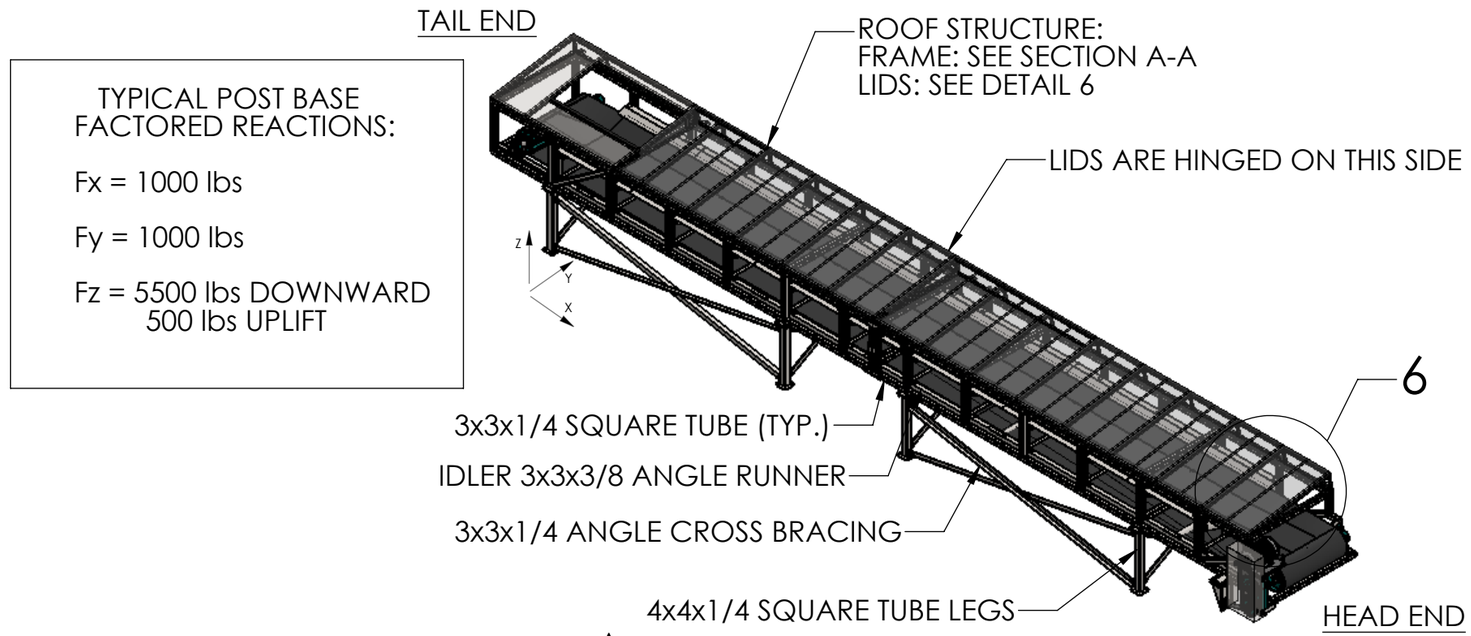
BILL OF MATERIALS			
CONVEYOR NUMBER	M2		WEIGHT
QUANTITY REQUIRED	1		EA. LBS
GENERAL DESIGN DATA	BELT WIDTH	1.2m	
	BELT SPEED	1908 linear ft. per/min	
	DESIGN CAPACITY	5 m3 per min.	
	MATERIAL	COMPOST	
	MATERIAL SIZE	1 cm TO 15 cm	
	BULK DENSITY	600kg/m3	
	MATERIAL LOAD/m	266 cubic inches per foot	
HEAD PULLEY	DIA, & FACE	16inch, 52inch	539.2 lbs
	BELT WRAP DEGREES	-210°	
	LAGGING THK. & TYPE	0.5inch	
SHAFT PILLOW BLOCKS	DIA. & MATERIAL	3.4375inch, AISI Steel:1040	
	MAKE & TYPE	BALDOR DODGE - ALIGN	LIFE: 500,000h
	NUMBER	070389	2 @ 30.4lbs
TAIL PULLEY SHAFT PILLOW BLOCKS	DIA, & FACE	12inch, 52 inch	480.8 lbs
	DIA, & MATERIAL	2.9375inch, ANSI Steel:1040	
	MAKE & TYPE	BALDOR DODGE - ALIGN	LIFE: 500,000h
	NUMBER	070368	2 @ 25.2 lbs
TAKE-UP	TYPE	SCREW TYPE	
	WEIGHT (TOTAL)	65.3lbs	
	TRAVEL	18inch	
IDLERS - TROUGH	NUMBER OF:	12	55 lbs
	ROLL DIA. & DEG	5 inch, 20°	
	MAKE, TYPE & HAND	ICC, TYPE C	
IDLERS - RETURN	NUMBER OF:	5	40 lbs
	ROLL DIA. & DEG.	5 inch	
	MAKE, TYPE & HAND	ICC, TYPE C	
BELT SCRAPER			
DRIVE PULLEY	R.P.M.	398 RPM	2 BELTS
MOTOR	H.P.	15	
	R.P.M.	1765	
	FRAME & ASSEMBLY	254T	
	VOLTS/PH/CYCLE	575/3/60HZ	
MOTOR SHEEVE	MAKE & SIZE	DODGE, 7.75inch	
REDUCER	TYPE	SHAFT MOUNTED, V-BELT DRIVE	
	MAKE	BALDOR DODGE	
	SIZE & ASSEMBLY	3, TXT515 x 2.9375inch	
	RATIO	3:1	
GEARBOX SHEEVE	MAKE & SIZE	DODGE, 11.35inch	
BELTING	LENGTH W/O SPLICE	48inch x 220 piw MECHANICAL FASTENER	
	PLY & TYPE	2 PLY	
	TOP & BOTTOM COVER	0.1875inch, 0.0625inch	

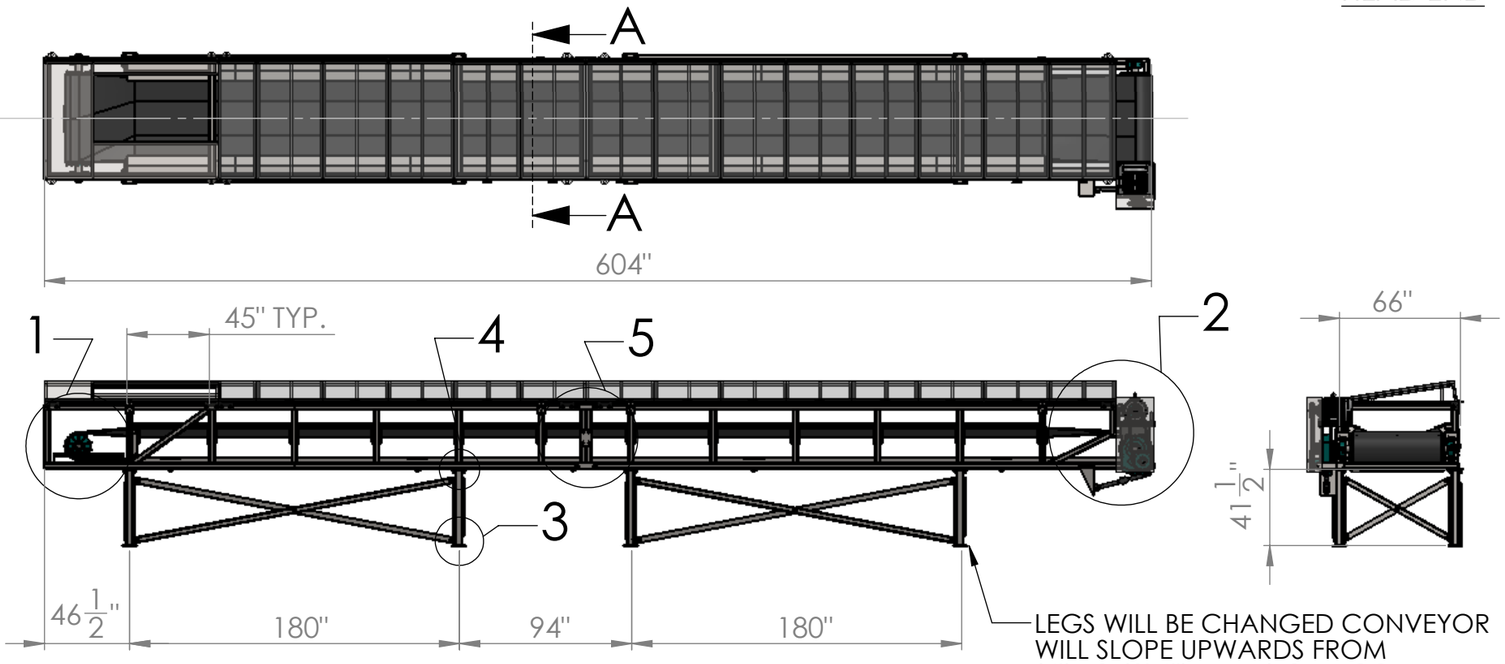
TYPICAL POST BASE FACTORED REACTIONS:

Fx = 1000 lbs

Fy = 1000 lbs

Fz = 5500 lbs DOWNWARD
500 lbs UPLIFT





EFFECTIVE THROAT OF FILLET/BEVEL/PENETRATION WELDS TO MATCH STEEL MEMBER WALL THICKNESS TYPICAL UNLESS NOTED OTHERWISE

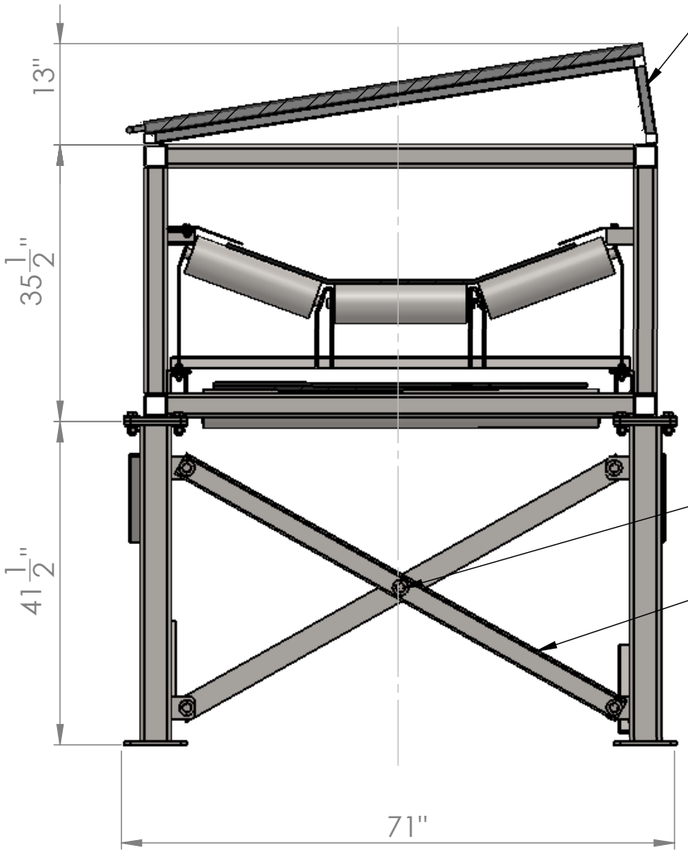
Job No. 112-494

lang structural engineering inc.

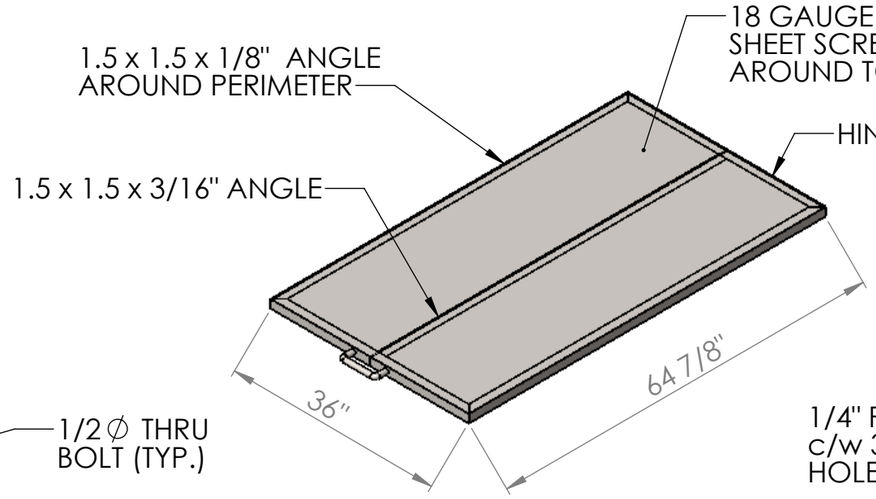
#201-2313 West Railway Street
Abbotsford, B.C.
V2S 2E3
Abbotsford (604) 853-8522
Toll Free (604) 857-1757
Fax (604) 853-0158
E-mail mail@langeng.com

1-34581 4th Ave
Abbotsford, BC
V2S 8E5

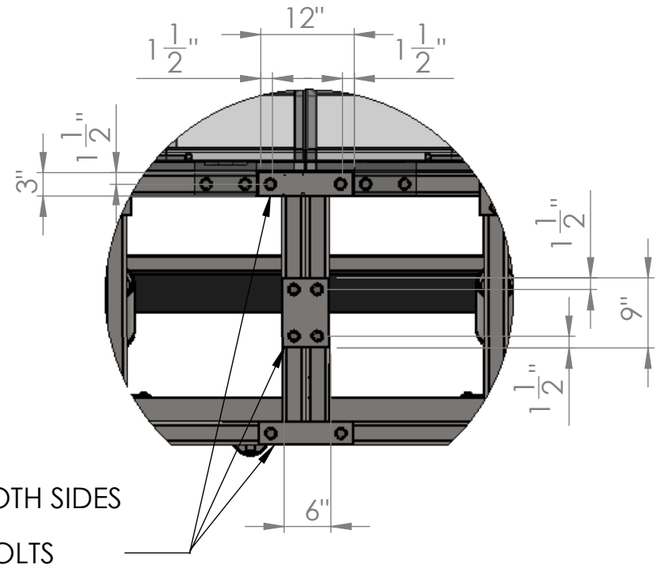
TITLE: M2 - 50ft 48inch Belt Conveyor		
CUSTOMER: TRANSFORM COMPOST SYSTEMS		REVISION: 3
DATE: 14/08/13	PART WEIGHT: 14670.98 lbs	PART MATERIAL: ----
DRAWN BY: KURT	SHEET NO.: 5 OF 8	SCALE: 1:85



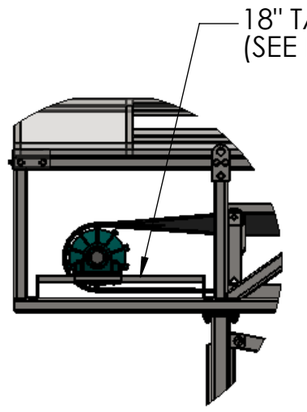
SECTION A-A
SCALE 1 : 20



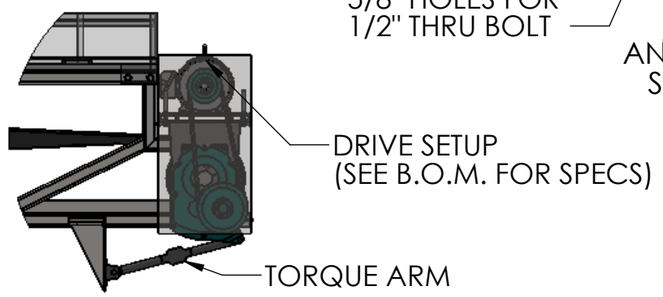
DETAIL 6
HINGED LID
SCALE 1 : 20



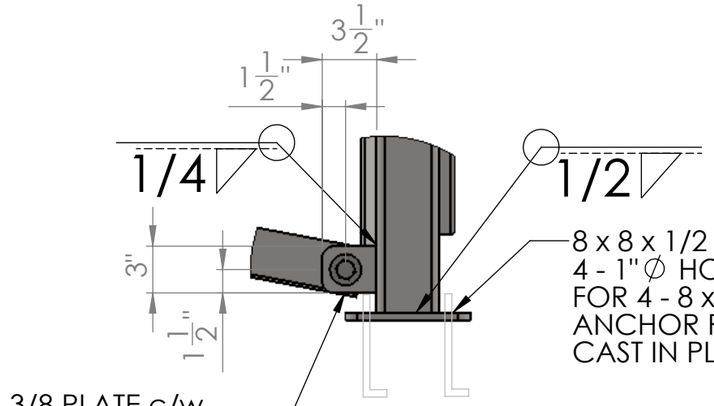
DETAIL 5
CONVEYOR JOINT
SCALE 1 : 20



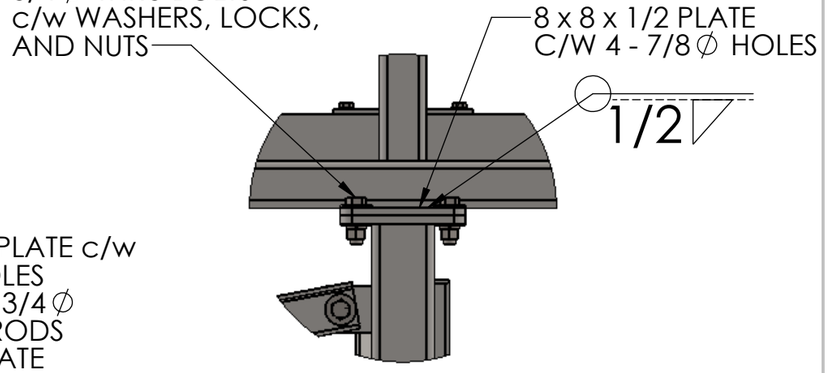
DETAIL 1
TAKE-UP
SCALE 1 : 35



DETAIL 2
HEAD END
SCALE 1 : 35



DETAIL 3
ANCHOR PLATE
SCALE 1 : 10



DETAIL 4
LEG JOINT
SCALE 1 : 10

Job No. 112-494

lang structural engineering inc.

#201-2313 West Railway Street
Abbotsford, B.C.
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Abbotsford (604) 853-8522
Toll Free (604) 857-1757
Fax (604) 853-0158
E-mail mail@langeng.com

1-34581 4th Ave
Abbotsford, BC
V2S 8E5

TITLE: M2 - 50ft 48inch Belt Conveyor - Misc Det's		
CUSTOMER: TRANSFORM COMPOST SYSTEMS		REVISION: 3
DATE: 14/08/13	PART WEIGHT: --------	PART MATERIAL: MILD STEEL
DRAWN BY: KURT	SHEET NO.: 6 OF 8	SCALE: AS NOTED

Reference Number:
1500000000205099

Inputs:

Identification	M2	Conveyor Number	M2
Design Capacity (TPH)	198	Conveyor Length (FT)	50
Conveyor Lift (FT)	7	Material Density (LB/FT3)	40
Material Repose Angle (DEG)	35	Idler Angle (DEG)	20
Design Belt Speed (FPM)	350	Design Belt Width (IN)	48
		Number of Belt Scrapers	1
Skirtboard Length (FT)	40	Skirtboard Height (IN)	6
Material Group	Group 3 - Lumpy		
Conveyor Profile	1 - Manual Takeup		

Design:

Required H.P.	13.9	Motor H.P. (1750 RPM)	15
Starting Torque (LB-FT)	79.5	Conveyor Incline (DEG)	8
Tight Side Tension (LB)	2546	Slack Side Belt Tension (LB)	1131
Tail Belt Tension (LB)	1052	Max Running Tension (PIW)	53
Max Bearing Centers (IN)	64.0	Drive Pulley Speed (RPM)	78
Volumetric Capacity (TPH)	598	System Capacity (TPH)	198
Design Belt Speed (FPM)	350	Design Belt Width (IN)	48
Idler Angle (DEG)	20	Idler Spacing for 2% SAG (FT)	4.5

Pulleys:

	Diameter	Face	Hub	Lagging	Shaft Diameter	Est Length
Drive	16.0	51.0	HE35	.375 HBG	3.4375	89
Tail	14.0	51.0	HE30		2.9375	71

Bearings:

	Bearing Size	SCM L10	Type E L10	TAF L10	S2000 L10	ISAF L10	USAF L10
Drive	3.4375	316826	500000	500000	500000	500000	500000
Tail	2.9375	500000	500000	500000	500000	500000	500000

The Belt-Drive is based on the following:

Motor Frame:	254	Minimum Motor Sheave:	4.4 in
Min. Reducer Sheave:	5.4 in	Belt Center Distance:	25.4 to 29.4 in
Reducer Mechanical Rating:	30.8 HP	Net Weight for Above:	570.43 lbs
Reducer Thermal Rating:	23.8 HP	Net Weight for Qty 1:	570.43 lbs
Actual Service Factor:	2.05		

Selection:

Name:	Description:	Part Number:
Reducer	TXT515CT,CTV TAPER BUSH REDUCER	245551
Bushing	2 15/16 TDT5 TAPERED BUSH ASSY	245112
Motor Mount	TA5M MOTOR MOUNT ASSY	245391
Electric Motor	15HP,1765RPM,3PH,60HZ,254T,0944M,TEFC,F	EM2333T

M2 Conveyor
Parts List

Item No.	Quantity	Description
EM3774T	1	15Hp 1760 TEFC 254T 575 Volt Motor
Drive package	1	Reducer TXT315 x 2 3/16, C/W Motor mount
Drive package	1	Backstop bearing BS 315 for Reducer
		Head pulley Bearings
Head Shaft	1	Special Head shaft 3-7/16" Dia Machined per Drawing
Head Shaft	2	Dodge P2BS2307R, 2 bolt Spherical
Bearings		Pillow Block bearings
V-belt drive	1	2B74, SK x 1 5/8, 2B110, SKx1 15/16
		2 of B80 V belt
Head pulley	1	Drum 16' dia x 51" face x 3 7/16 Bushed c/w Lagging
Tail Pulley	1	Wing 14" dia x 51" Face x 2 15/16 bushed
Tail Shaft	2	Dodge P2BS2215R - 2 bolt Spherical
Bearings		Pillow block bearings
Tail shaft take up frame	2	ATU215-18"
Tail Shaft	1	Special Tail Shaft 2-15/16 Dia Machined per Drawing
Tail Shaft Sensor	1	Wirligig mount, M300 sensor adaptor
Trough roller	5	C20-48 - 20 deg Troughing idler
Return Roller	2	CR-48 - 5" x 51" Return roller c/w drop brackets
Belt Cleaner	1	Mini Sabre Belt Cleaner for 48" belt c/w Frame mount.
Skirt Rubber	50ft	1/2 x 6 Skirt Rubber
Safety Pull	1	2-Schneider Electric XY2 CE Pull Hardware, Tension adjustment
System		50 ft Red PVC Cable
Gear box oil		Shell Omala 220
Belting		2Ply-220-48 100ft belting c/w SS Lacing

Quality control sheet
M2 Conveyor

Sections	Quantity	Check
Frame Section		
All welding completed on frame		x
All assembly Bolts tightened		x
Emergency switches	2	x
emergency switch cable	2	x
Emergency switch cable guides	12	x
Skirting	4	x
Trough rollers	12	x
Return rollers	4	x
Lift lugs	12	x
Roof Section (3 sections)		
Welding completed		x
Hinges completed	26	x
Lift Handles	13	x
Latches	13	x
Roof Cladding	13	x
Bolts and washers supplied		x
Lift lugs	4	x
Legs and Cross bracing		
Legs	8	x
Cross bracing	16	x
Bolts, nuts and washers		x
Painted		x
Head Assembly		
Motor	1	x
Gear box	1	x
Sheaves	2	x
Belts	2	x
Mounting hardware	1	x
Cover	1	x
Bearings	2	x
Belt Scraper	1	x
Head pulley	1	x
All bolts tightened		x
Tail Assembly		
tail pulley	1	x
Bearings	2	x
Belt Take up	2	x
All bolts tightened		x
Zero Speed switch	1	x

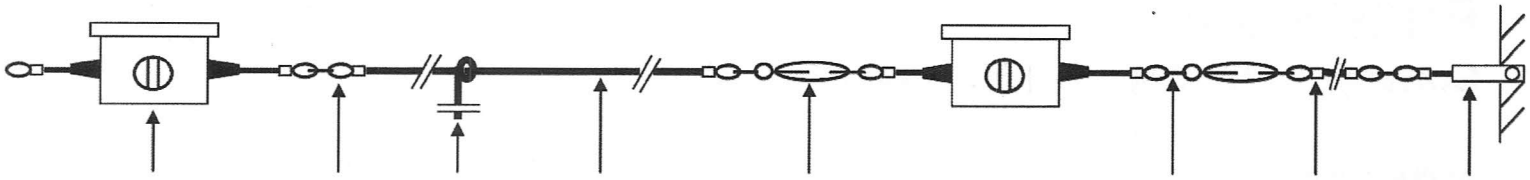
4B Components Limited

Product Information

Pullswitch

TECHNOLOGY · INNOVATION · QUALITY · VALUE

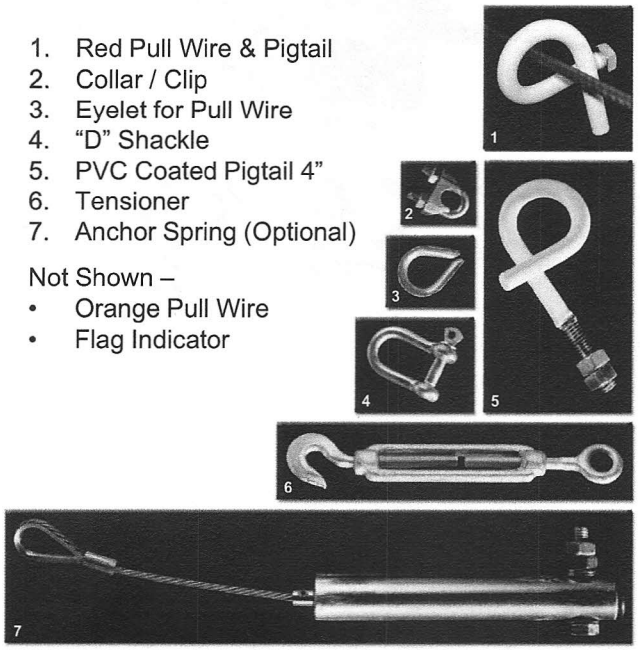
TYPICAL CONFIGURATION



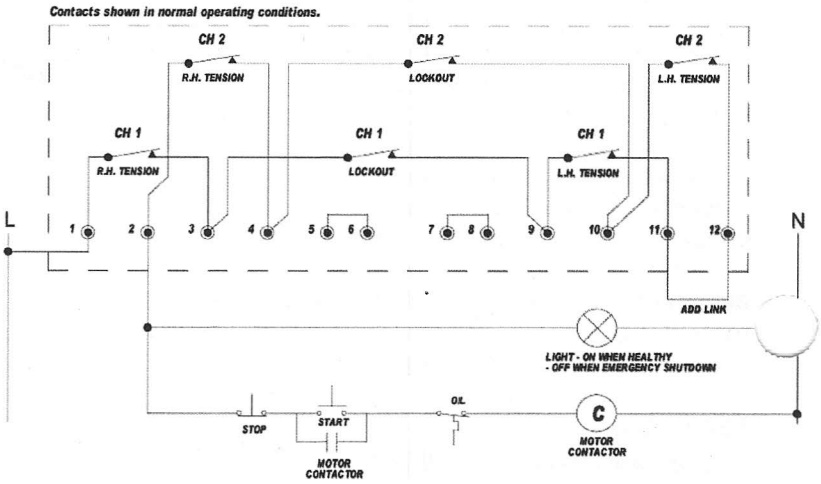
ACCESSORIES

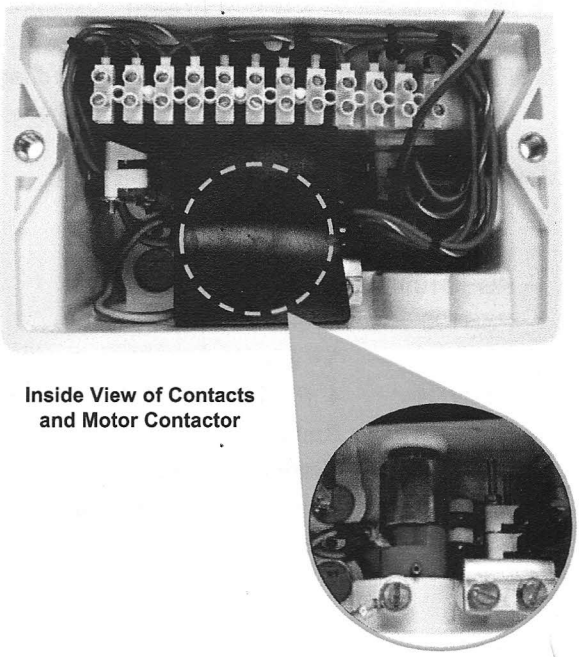
1. Red Pull Wire & Pigtail
2. Collar / Clip
3. Eyelet for Pull Wire
4. "D" Shackle
5. PVC Coated Pigtail 4"
6. Tensioner
7. Anchor Spring (Optional)

Not Shown –
- Orange Pull Wire
- Flag Indicator



CONTACT ARRANGEMENT





Inside View of Contacts and Motor Contactor

TECHNICAL SPECIFICATIONS

Pullswitch - Conveyor Pull Cord Safety Stop Switch

Pullswitch - PST1000C	
Enclosure:	Polycarbonate and Stainless Steel Plated
Weight:	4 lbs. (1.8 Kgs)
Dimensions:	4" x 8" x 5" (100 x 200 x 125 mm)
Contacts:	10 Amps (120 VAC)
Conduit Entries:	Two 1/2" NPT
Mechanism:	Double Ended Taut Wire
Operating Temperature:	-13° F to 158° F (-25° C to 70° C)
Protection:	IP65 / NEMA 4, 4X, 9
Approvals:	Class 2 Division 1 Groups E, F & G

Please refer to instruction manual for correct installation.
Information subject to change or correction. July 2009.

4B COMPONENTS LIMITED 729 Sabrina Drive, East Peoria, IL 61611 USA
Tel: 309-698-5611 Fax: 309-698-5615 Email: 4b-usa@go4b.com

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SPECIFICATION

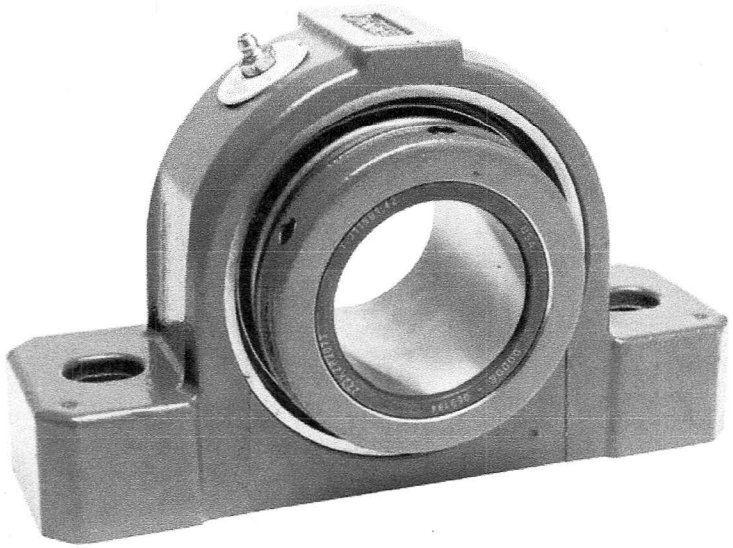
S-2000

INCH

DODGE Spherical Bearings, including S-2000 bearings, are general purpose, high-capacity, double-row spherical roller bearings. All are mounted in single piece precision machined housings. Bearings are mounted to shafts by means of set screw collars, with 65 degree set screw spacing for maximum clamping force.

ASTM A48 Class 30 cast iron is the standard material used in S-2000 housings. A-27 Grade 70-36 Class 1 Steel is the standard material used in Steel S2000-HD housings. Housing designs are available for survival in extreme harsh environments, through the use of special finishes and stainless hardware.

Housings are available in a variety of standard configurations, including pillow blocks, flanges, piloted flanges and take-up bearings. TRIDENT triple lip contact seal and Labyrinth seals are available on S-2000 bearings.



HOW TO ORDER

There are two ways to specify DODGE Bearings. Most of the product offerings have part numbers with listings shown throughout this catalog. Use of part numbers ensures accurate order processing.

When part numbers are not shown, the product may be specified by description or part name. This method is used when ordering units that include modifications or options. To order by description, use the nomenclature key shown on page B12-5 and add any special instructions to the end of the description for options not covered by the nomenclature.

DODGE Spherical Bearings are factory adjusted and pre-lubricated. For applications where extreme ambient temperatures, high speeds, or high loads are expected, a variety of specialty lubricants is available. Standard grease provided is lithium complex base Mobilgrease XHP222. High temperature greases available include Mobil HTS #2. Other special lubricants are available upon request. Special lubricant options usually involve set-up charges, minimum quantities and list price premiums. To order, specify type of lubricant required at the end of the product name or after the standard part number.

Example: 070320 except with Mobil HTS #2 grease
or
P2BS2108L except with Mobil HTS #2 grease

For applications requiring modifications not listed, we encourage you to contact our Application Engineering Department for Bearings at 864-284-5700.

INSTRUCTION MANUAL FOR DODGE®S-2000 SPHERICAL ROLLER BEARINGS

These instructions must be read thoroughly before installing or operating this product.

WARNING
TO ENSURE THAT DRIVE IS NOT UNEXPECTEDLY STARTED, TURN OFF AND LOCK OUT OR TAG POWER SOURCE BEFORE PROCEEDING. FAILURE TO OBSERVE THESE PRECAUTIONS MAY RESULT IN BODILY INJURY.

INSTALLATION:

GENERAL INFORMATION

DODGE S-2000 Spherical Roller Bearing mounted units incorporate a unique way of sealing the internal components of the bearing while still allowing a full + or - 1 degree of misalignment. The patented sealing system (Pat. #5,908,249) has proven effective, due to its constant contact pressure, in protecting the internal bearing components under maximum allowable misaligned conditions.

NON-EXPANSION BEARING

1. Clean shaft and bore of bearing. The shaft should be straight, free of burrs and nicks, and correct size (see shaft tolerance table). If used shafting is utilized, then the bearing should be mounted on unworn section of shafting.
2. Lubricate shaft and bearing bore with grease or oil to facilitate assembly. Slip bearing into position. When light press fit is required, press against the end of the inner ring of bearing. Do not strike or exert pressure on the housing or seals.
3. Bolt bearing to support, using shims where necessary to align bearing so inner ring does not rub on seal carrier. Use full shims which extend across the entire housing base.
4. Determine final shaft position and tighten setscrews in the locking collar(s) of non-expansion bearing to recommended torque while the other bearings remain free. Rotate the shaft slowly under load, if possible, to properly center the rolling elements with respect to the raceways. Then tighten setscrews into the locking collar of the remaining bearings to the recommended torque.
5. Check rotation. If there is any strain, irregular rotational torque or vibration, it could be due to incorrect alignment, bent shaft or bent supports. Installation should be rechecked and correction made where necessary.

WARNING: Because of the possible danger to persons(s) or property from accidents which may result from the improper use of products, it is important that correct procedures be followed: Products must be used in accordance with the engineering information specified in the catalog. Proper installation, maintenance and operation procedures must be observed. The instructions in the instruction manuals must be followed. Inspections should be made as necessary to assure safe operation under prevailing conditions. Proper guards and other suitable safety devices or procedures as may be desirable or as may be specified in safety codes should be provided, and are neither provided by Baldor Electric Company nor are the responsibility of Baldor Electric Company. This unit and its associated equipment must be installed, adjusted and maintained by qualified personnel who are familiar with the construction and operation of all equipment in the system and the potential hazards involved. When risk to persons or property may be involved, a holding device must be an integral part of the driven equipment beyond the speed reducer output shaft.

EXPANSION BEARING

Steps (1, 2, 3) Same as Non-Expansion Bearing.

4. Position expansion bearing in the housing. For normal expansion conditions, the bearing insert should be positioned in the center of the housing. To center bearing insert in housing, move bearing insert to extreme position and mark shaft. Then using bearing maximum total expansion table, move bearing insert in opposite direction one-half the total expansion to center bearing in the housing. If maximum expansion is required, move bearing insert to the extreme position in the housing to permit full movement in direction of expansion. After expansion bearing has been positioned in the housing, tighten the setscrews in the locking collar to the recommended torque.
5. Same as Non-Expansion Bearing.

FIELD CONVERSION (RE-OP) OF A NON-EXPANSION BEARING INTO AN EXPANSION BEARING

All non-expansion bearing sizes can be re-oped to become expansion bearings. To re-op a non-expansion to an expansion bearing follow these steps:

1. Move the snap ring, opposite from the collar side of bearing, to the outermost snap ring groove.
2. Install bearing per Expansion Bearing instructions listed above.

NOTE: Bearing nameplate has a non-expansion Part Number. When bearing is re-oped the bearing should be marked as expansion for future reference.

BEARING MAXIMUM TOTAL EXPANSION TABLE

Shaft Size	Total Expansion
in.	in.
1 3/8 – 1 1/2	3/16
1 11/16 – 3 7/16	1/14
3 15/16	5/16
4 7/16 – 4 15/16	3/8

DODGE®

LUBRICATION INSTRUCTIONS

OPERATION IN PRESENCE OF DUST, WATER OR CORROSION VAPORS

This bearing is factory lubricated with No. 2 consistency lithium complex base grease which is suitable for most applications. However, extra protection is necessary if bearing is subjected to excessive moisture, dust, or corrosive vapor. In these cases, bearing should contain as much grease as speed will permit (a full bearing with consequent slight leakage through the seal is the best protection against contaminant entry).

In extremely dirty environments, the bearing should be purged daily to flush out contaminants. For added protection, it is advisable to shroud the bearing from falling material.

HIGH SPEED OPERATION

At higher operation speeds, too much grease may cause overheating. In these cases, the amount of lubrication can only be determined by experience. If excess grease causes overheating, remove grease fittings and run for ten minutes. This will allow excess grease to escape. Then wipe off excess grease and replace grease fittings.

In higher speed applications, a small amount of grease at frequent intervals is preferable to a large amount at infrequent intervals. However, the proper volume and interval of lubrication can best be determined by experience.

AVERAGE OPERATIONS

The following table is a general guide for normal operating conditions. However, some situations may require a change in lubricating periods as dictated by experience. If the bearing is exposed to unusual operating conditions, consult a reputable grease manufacturer.

LUBRICATION GUIDE

READ PRECEDING PARAGRAPHS BEFORE ESTABLISHING LUBRICATION SCHEDULE

Suggested Lubrication Period in Weeks

Hours run per day	1 to 250 rpm	251 to 500 rpm	501 to 750 rpm	751 to 1500 rpm	1001 to 2000 rpm	1501 to 2000 rpm	2001 to 2500 rpm	2501 to 3000 rpm
8	12	12	10	7	5	4	3	2
16	12	7	5	4	2	2	2	1
24	10	5	3	2	1	1	1	1

OPERATING TEMPERATURE

Abnormal bearing temperatures may indicate insufficient lubrication. If the housing is too hot to touch for more than a few seconds, check the temperature by applying a thermometer at the top of the pillow block with the thermometer tip surrounded by putty.

Because the thermometer reading will be approximately 10°F lower than the actual bearing temperature, add ten degrees to the reading and compare to the temperature rating of your grease. If the bearing temperature reading is consistent and operating within the recommended limits of your grease, the bearing is operating satisfactorily. The recommended maximum operating temperature for S-2000 Spherical Roller Bearings is 200 °F.

STORAGE OR SPECIAL SHUT DOWN

If equipment will be idle for some time, before shutting down, add grease to the bearing until grease purges from the seals. This will ensure protection of the bearing, particularly when exposed to severe environmental conditions. After storage or idle period, add fresh grease to the bearing before starting.

Set Screw Torque Table

Shaft Size	Socket Set Screw Size	Tightening Torque
1-3/8 – 1-3/4 in.	5/16 in.	165 Inch Pounds
11-15/16 – 2-7/16 in.	3/8 in.	290 Inch Pounds
12-11/16 – 3-7/16 in.	1/2 in.	620 Inch Pounds
13-15/16 – 4-15/16 in.	5/8 in.	1325 Inch Pounds

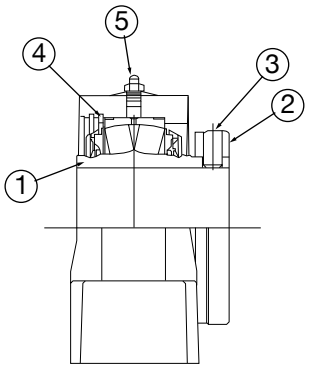
Recommended Shaft Tolerance Table

Normal Shaft Size	Low to Normal Equlvalent Load and Catalog Speed*	
Up to 1-1/2 in.	+.000 in.	–.0005 in.
Over 1-1/2 to 2-1/2 in.	+.000 in.	–.001 in.
Over 2-1/2 to 4 in.	+.000 in.	–.001 in.
Over 4 to 5 in.	+.000 in	–.0015 in.

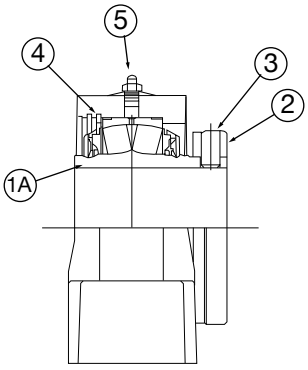
On severe applications and where dynamic balance and minimum runout are important, a snug to light press fit may be required to obtain optimum bearing performance. Consult factory.

*Normal equivalent load .08C to .18C.

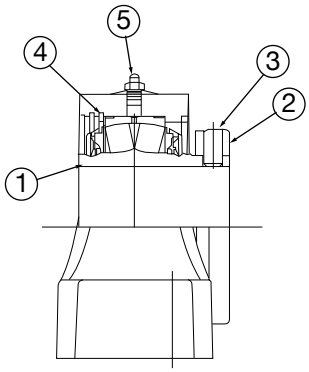
DODGE®



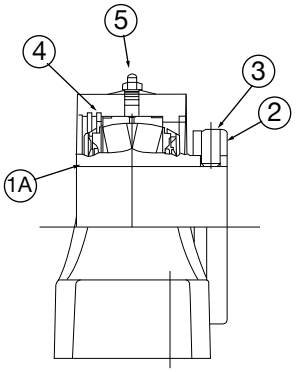
2 BOLT PILLOW
BLOCK S2000-R



2 BOLT PILLOW
BLOCK S2000-L



4 BOLT PILLOW
BLOCK S2000-R



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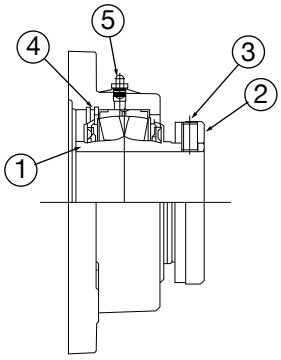
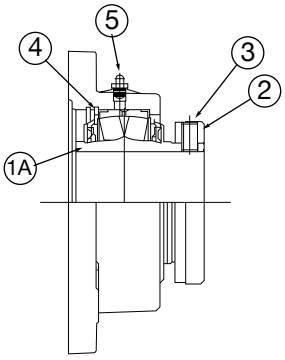
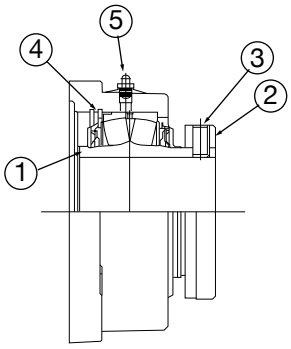
BLOCK S2000-L



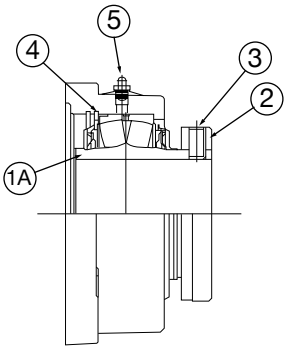
3 & 4 BOLT ROUND
FLANGE S2000-R



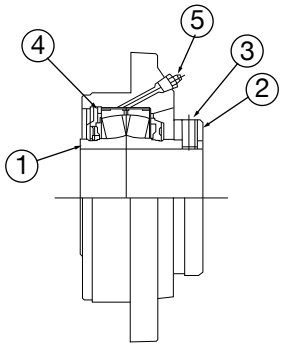
3 & 4 BOLT ROUND
FLANGE S2000-L



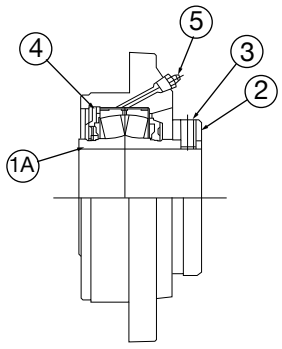
4 BOLT SQUARE
FLANGE S2000-R



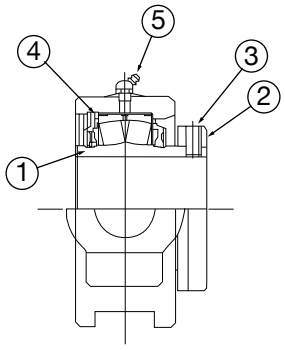
4 BOLT SQUARE
FLANGE S2000-L



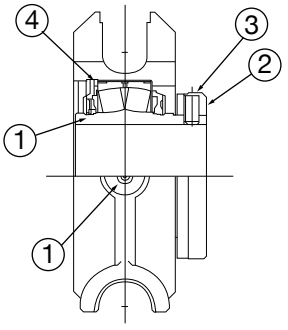
PILOTED FLANGE
S2000-R



PILOTED FLANGE
S2000-L



WIDE SLOT TAKE-UP
S2000-R



TPHU TAKE-UP
S2000-R

DODGE®

COMPONENT PART NUMBERS (1 3/8” - 4 15/16”)

ITEM	1	1A	2	3	4	5
Shaft Size	**Bearing Insert Assembly (R) Seal**	**Bearing Inert Assembly (L) Seal**	***Collar**	***Set Screw**	**Snap Ring**	****Grease Fitting**
1 3/8	070000	070016	040050	400058	069276	405015
1 7/16	070001	070017	040050	400058	069276	405015
1 1/2	070002	070018	040050	400058	069276	405015
1 11/16	070003	070019	040051	400058	069277	405015
1 3/4	070004	070020	040051	400058	069277	405015
1 15/16	070005	070021	070587	400094	069278	405015
2	070006	070022	070587	400094	069278	405015
2 3/16	070007	070023	070588	400094	069279	405015
2 7/16	070008	070024	040054	400094	069280	405015
2 11/16	070009	070025	070589	400150	069281	405015
2 15/16	070010	070026	070589	400150	069281	405015
3	070011	070027	070589	400150	069281	405015
3 7/16	070012	070028	040056	400154	069282	405015
3 15/16	070013	070029	060946	400186	069283	405015
4 7/16	070014	070030	* 060947	* 400186	069284	405015
4 15/16	070015	070031	* 040059	* 400190	069285	405015
QTY/PER	1	1	1	2	1	1

*Shaft sizes 4 7/16” - 4 15/16” have two collars a

** WSTU and TPHU TU take a 405016 grease fitting.

World Headquarters

P.O. Box 2400, Fort Smith, AR 72902-2400 U.S.A., Ph: (1) 479.646.4711, Fax (1) 479.648.5792, International Fax (1) 479.648.5895

Dodge Product Support

6040 Ponders Court, Greenville, SC 29615-4617 U.S.A., Ph: (1) 864.297.4800, Fax: (1) 864.281.2433

www.baldor.com

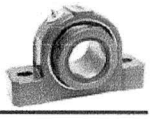
MN3033 (Replaces 499330)

3033-0110

1/09 TCP 20,000

NOMENCLATURE

DODGE®



S-2000

S E P2B - S2 - 207 - R E

	HOUSING STYLE	BEARING TYPE	SIZE	SEAL	OTHER DATA
"E" prefix denotes Type E dimensioned housing with S2000 spherical roller bearing insert *	P2B = Pillow Block 2-Bolt Base, Cast Iron	S2 = S-2000	Inches and 16th	R = TRIDENT Triple Lip Rubbing Seal	E = Expansion Type Bearing - If "E" Does Not Appear, Bearing Is Non Expansion Type
"S" prefix denotes cast steel housing	P4B = Pillow Block 4-Bolt Base, Cast Iron		2 = 2"		
	F3R = Flange Bearing 3-Bolt, Cast Iron, Round		07 = 7/16"	L = Labyrinth Metallic Seal	
	F4S = Flange Bearing 4-Bolt, Cast Iron, Square		207 = 2-7/16"		
	F4R = Flange Bearing 4-Bolt, Cast Iron, Round				
	FC = Piloted Flanged (Flanged Cartridge)				
	WSTU = Wide Slot Take-Up Bearing For Use In Center-Pull Frames				
	TPHU = TPHU Take-up Bearing For Use In TPHU Or Top Angle Take-Up Frames				

* Available in two or four bolt pillow blocks, four bolt square flanges and piloted flanges

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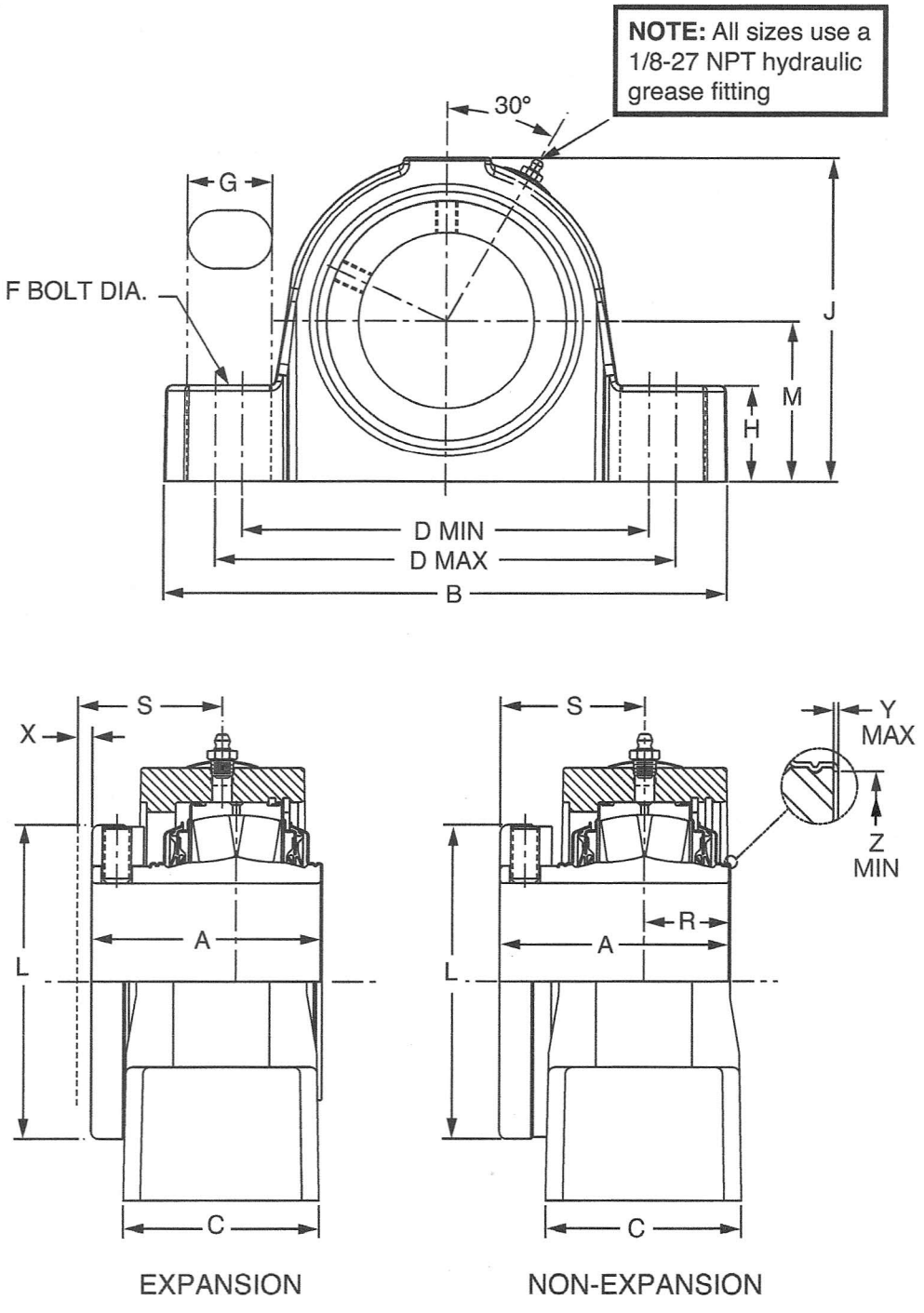
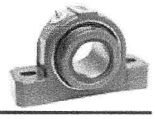
DIMENSIONS

S-2000 Pillow Block
2-BOLT BASE - INCH



DIMENSIONS

DODGE®



S-2000 Pillow Block
2-BOLT BASE - INCH

Bearing	Shaft Size Inch	TRIDENT Seal				Labyrinth Seal			
		Non-Expansion		Expansion		Non-Expansion		Expansion	
		Part No.	Part Name	Part No.	Part Name	Part No.	Part Name	Part No.	Part Name
22208	1-3/8	**070272**	P2B-S2-106R	**070295**	P2B-S2-106RE	**070318**	P2B-S2-106L	**070341**	P2B-S2-106LE
	1-7/16	**070273**	P2B-S2-107R	**070296**	P2B-S2-107RE	**070319**	P2B-S2-107L	**070342**	P2B-S2-107LE
	1-1/2	**070274**	P2B-S2-108R	**070297**	P2B-S2-108RE	**070320**	P2B-S2-108L	**070343**	P2B-S2-108LE
22209	1-11/16	**070276**	P2B-S2-111R	**070299**	P2B-S2-111RE	**070322**	P2B-S2-111L	**070345**	P2B-S2-111LE
	1-3/4	**070277**	P2B-S2-112R	**070300**	P2B-S2-112RE	**070323**	P2B-S2-112L	**070346**	P2B-S2-112LE
22210	1-15/16	**070278**	P2B-S2-115R	**070301**	P2B-S2-115RE	**070324**	P2B-S2-115L	**070347**	P2B-S2-115LE
	2	**070279**	P2B-S2-200R	**070302**	P2B-S2-200RE	**070325**	P2B-S2-200L	**070348**	P2B-S2-200LE
22211	2-3/16	**070280**	P2B-S2-203R	**070303**	P2B-S2-203RE	**070326**	P2B-S2-203L	**070349**	P2B-S2-203LE
22213	2-7/16	**070282**	P2B-S2-207R	**070305**	P2B-S2-207RE	**070328**	P2B-S2-207L	**070351**	P2B-S2-207LE
22215	2-11/16	**070284**	P2B-S2-211R	**070307**	P2B-S2-211RE	**070330**	P2B-S2-211L	**070353**	P2B-S2-211LE
	2-15/16	**070285**	P2B-S2-215R	**070308**	P2B-S2-215RE	**070331**	P2B-S2-215L	**070354**	P2B-S2-215LE
	3	**070286**	P2B-S2-300R	**070309**	P2B-S2-300RE	**070332**	P2B-S2-300L	**070355**	P2B-S2-300LE
22218	3-7/16	**070288**	P2B-S2-307R	**070311**	P2B-S2-307RE	**070334**	P2B-S2-307L	**070357**	P2B-S2-307LE
22220	3-15/16	**070290**	P2B-S2-315R	**070313**	P2B-S2-315RE	**070336**	P2B-S2-315L	**070359**	P2B-S2-315LE

Shaft Size	A	B	C	D		F Bolt Dia.	G	H	J	L	M	R	S	X Total Exp.	Y	Z
				Min	Max											
1-3/8 1-7/16 1-1/2	2.53	6.88	1.95	4.81	5.20	1/2	0.81	1.13	3.88	2.75	1.88	0.88	1.66	3/16	0.020	1.80
1-11/16 1-3/4	2.67	7.38	2.06	5.31	5.70	1/2	0.81	1.25	4.27	3.19	2.13	0.81	1.86	1/4	0.020	2.08
1-15/16 2	2.84	8.38	2.50	6.06	6.44	5/8	0.95	1.31	4.56	3.44	2.25	0.86	1.98	1/4	0.020	2.30
2-3/16	2.94	8.88	2.63	6.56	6.94	5/8	0.95	1.50	5.00	3.75	2.50	0.91	2.03	1/4	0.025	2.60
2-7/16	3.20	9.25	2.81	6.94	7.31	5/8	0.95	1.63	5.59	4.06	2.75	1.13	2.08	1/4	0.025	2.95
2-11/16 2-15/16 3	3.59	10.44	3.08	7.94	8.31	3/4	1.06	1.88	6.38	4.70	3.25	1.14	2.45	1/4	0.025	3.47
3-7/16	4.02	13.00	3.42	9.38	10.63	7/8	1.63	2.25	7.50	5.50	3.75	1.41	2.61	1/4	0.025	4.05
3-15/16	4.47	15.25	3.94	10.63	12.88	1	2.25	2.44	8.38	6.00	4.25	1.56	2.91	5/16	0.025	4.50

M1 - Head Bearings P2BS2307R (070288)
M1 - Tail ✓ P2BS2215R (070285)
M2 - Head ✓ P2BS2307R (070288)
M2 - Tail ✓ P2B2215R (070285)

FEATURES/BENEFITS PAGE B12-2	SPECIFICATION PAGE B12-4	HOW TO ORDER/NOMENCLATURE PAGE B12-4	SELECTIONS PAGE B12-7

BALDOR
A MEMBER OF THE ABB GROUP

BALDOR • RELIANCE

Product Information Packet

EM2333T-5

15HP,1760RPM,3PH,60HZ,254T,0942M,TEFC,F1

Part Detail

Revision:	A	**Status:**	PRD/A	**Change #:**		**Proprietary:**	No
Type:	AC	**Prod. Type:**	0942M	**Elec. Spec:**	09WGX130	**CD Diagram:**	
Enclosure:	TEFC	**Mfg Plant:**		**Mech. Spec:**	09P11	**Layout:**	
Frame:	254T	**Mounting:**	F1	**Poles:**	04	**Created Date:**	02-21-2013
Base:	RG	**Rotation:**	R	**Insulation:**	F	**Eff. Date:**	07-03-2013
Leads:	3#12	**Literature:**		**Elec. Diagram:**		**Replaced By:**	

Nameplate NP1259L

CAT.NO.	EM2333T-5						
SPEC.	09P011X130						
HP	15						
VOLTS	575						
AMP	14.5						
RPM	1760						
FRAME	254T	**HZ**	60	**PH**	3		
SER.F.	1.15	**CODE**	H	**DES**	B	**CL**	F
NEMA-NOM-EFF	92.4	**PF**	84				
RATING	40C AMB-CONT						
CC	010A	**USABLE AT 208V**					
DE	6309	**ODE**	6208				
ENCL	TEFC	**SN**					

Parts List

Part Number	Description	Quantity
SA259175	SA 09P011X130	1.000 EA
RA245936	RA 09P011X130	1.000 EA
37FN3002A02	EXFN, PLASTIC, 9.00 OD, 1.503 ID	1.000 EA
S/P107-000-005	SUPER-E PROC'S(254/6 FR.) ZK PLANT - POL	1.000 EA
HW1002A63	WASHER, 5/8 HI-COLLAR SPRLCKWASHER	1.000 EA
09CB3002SP	CB W/1.38 LEAD HOLE FOR 37, 39, 307 & 30	1.000 EA
09GS1000SP	GASKET-CONDUIT BOX, 1/16 THICK LEXIDE	1.000 EA
10XN2520K12	1/4-20 X.75 GRD 5	2.000 EA
HW1001A25	LOCKWASHER 1/4, ZINC PLT .493 OD, .255 I	2.000 EA
WD1000B17	T&B CX35TN TERMINAL	1.000 EA
11XW1032G06	10-32 X .38, TAPTITE II, HEX WSHR SLTD U	1.000 EA
09EP1100A194	ENDPLATE, MACH	1.000 EA
XY3816A12	3/8-16 FINISHED NUT	4.000 EA
HW1001A38	LOCKWASHER 3/8, ZINC PLT .688 OD, .382 I	4.000 EA
HW5100A08	W3118-035 WVY WSHR (WB)	1.000 EA
10XN2520K28	1/4-20 X 1.75" HX HD SCRWGRADE 5, ZINC P	2.000 EA
HW1001A25	LOCKWASHER 1/4, ZINC PLT .493 OD, .255 I	2.000 EA
09EP1101A136	PU ENDPLATE, MACH	1.000 EA
HW4600B44SP	V-RING SLINGER 1.500 X 2.290 X 0.280	1.000 EA
10XN2520K36	1/4-20 X 2.25" HX HD SCRWGRADE 5, ZINC P	4.000 EA
HW1001A25	LOCKWASHER 1/4, ZINC PLT .493 OD, .255 I	4.000 EA
HA3113A02	THRUBOLT 3/8-16 X 16.750	4.000 EA
HW1001A38	LOCKWASHER 3/8, ZINC PLT .688 OD, .382 I	4.000 EA
09FH4000SP	FAN COVER, STAMPED	1.000 EA

Parts List (continued)

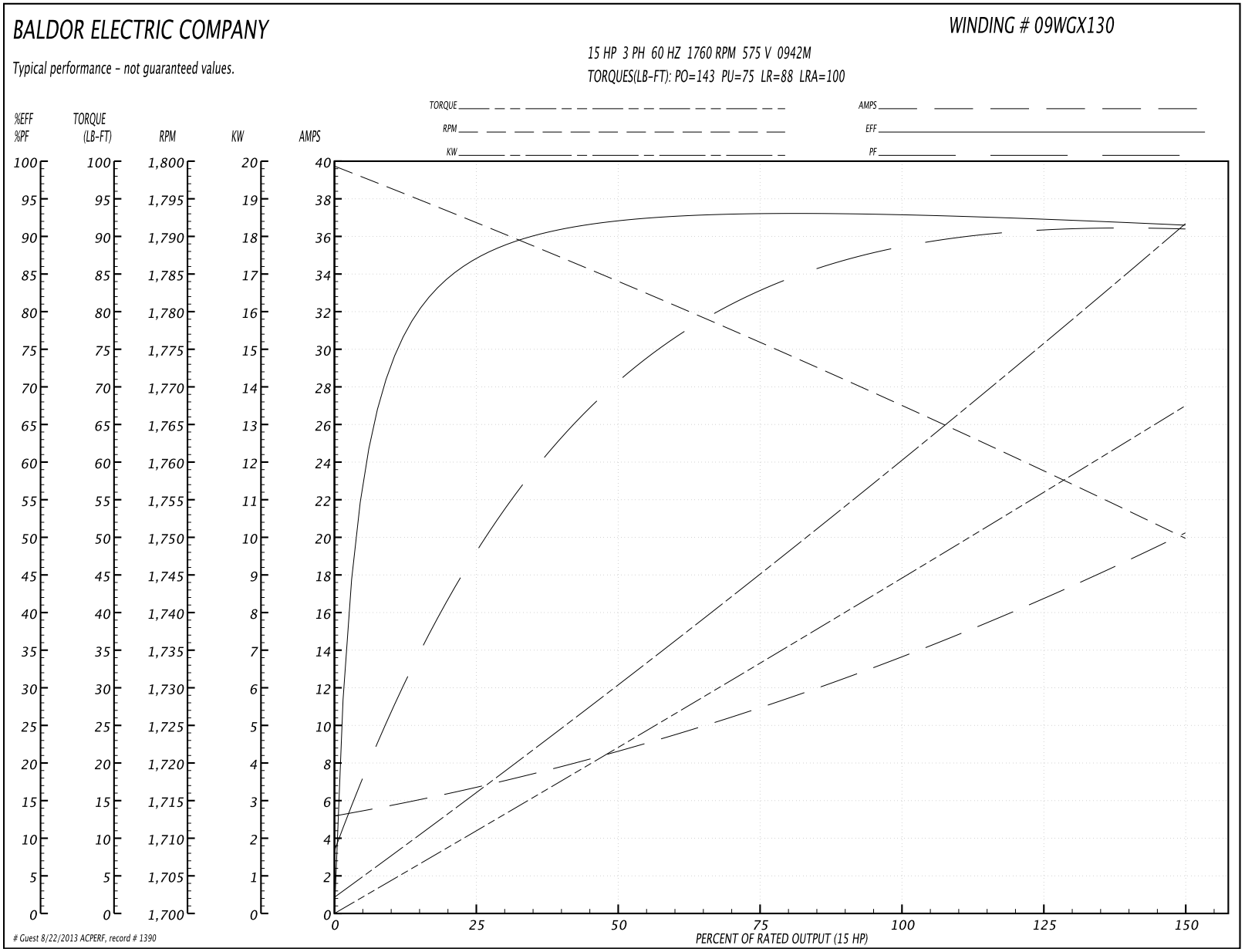
Part Number	Description	Quantity
HA2081A05	SPACER TUBE, 309 FAN HSG, 2.00 LONG	4.000 EA
XY3816A12	3/8-16 FINISHED NUT	4.000 EA
HW1001A38	LOCKWASHER 3/8, ZINC PLT .688 OD, .382 I	4.000 EA
09CB3501SP	CONDUIT BOX LID FOR 09CB3001 & 09CB3002	1.000 EA
09GS1013SP	09 GS FOR 09CB3501 LID - LEXIDE	1.000 EA
51XW2520A12	.25-20 X .75, TAPTITE II, HEX WSHR SLTD	2.000 EA
HW2501G25	KEY, 3/8 SQ X 2.875	1.000 EA
LB1115	LABEL,LIFTING DEVICE	1.000 EA
LB5040	INSTRUCTION TAG, AC & DC	1.000 EA
HA4051A00	PLASTIC CAP FOR GREASE FITTING	1.000 EA
HW4500A05	1669B ALEM/UNIV860 GR FTG X	1.000 EA
HW4500A17	317400 ALEMITE GREASE RELIEF	1.000 EA
HA4066A01	PUSH IN T-DRAIN FITTING (BLACK)	1.000 EA
MJ1000A75	GREASE, POLYREX EM EXXON	0.080 LB
HA4051A00	PLASTIC CAP FOR GREASE FITTING	1.000 EA
HW4500A03	GREASE FITTING, .125 NPT 1610(ALEMITE) 8	1.000 EA
HW4500A17	317400 ALEMITE GREASE RELIEF	1.000 EA
HA4066A01	PUSH IN T-DRAIN FITTING (BLACK)	1.000 EA
HW2500A25	WOODRUFF KEY USA #1008 #BLOW CARBON STEE	1.000 EA
51XB1214A20	12-14X1.25 HXWSSLD SERTYB	1.000 EA
MG1000Y03	WILKO 689.710 GOLD PAINT SUPER E	0.050 GA
85XU0407A04	#4-7 X 1/4 DRIVE PIN	2.000 EA
LB1119	WARNING LABEL	1.000 EA
LB1125C02	SUPER-E (STOCK CTN LABEL SUPER-E WITH FL	4.000 EA

Parts List (continued)

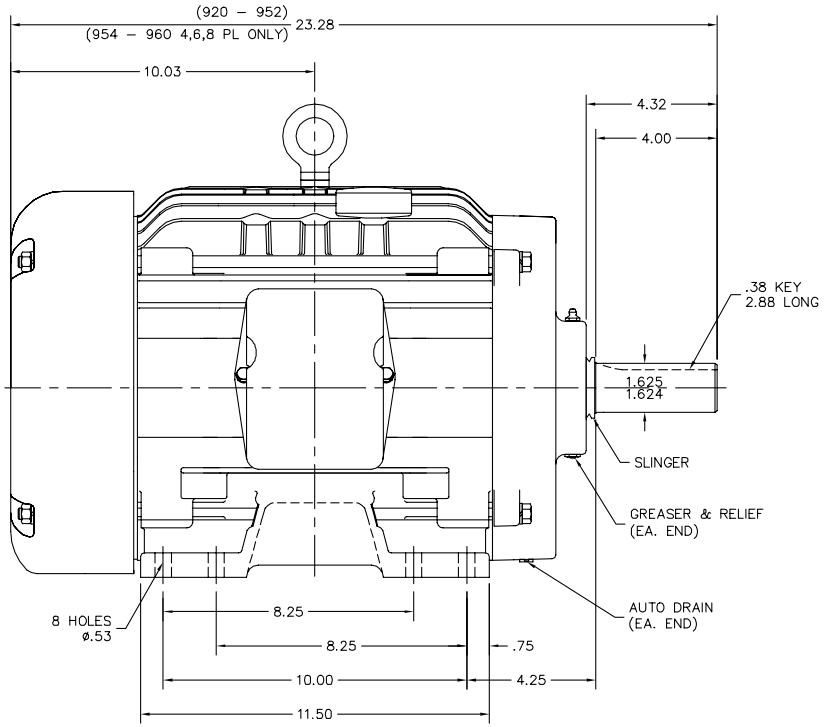
Part Number	Description	Quantity
LC0006	CONNECTION LABEL	1.000 EA
NP1259L	ALUM SUPER-E UL CSA-EEV CC NEMA PREMIUM	1.000 EA
09PA1000	PACKAGING GROUP COMBINED PRINT	1.000 EA

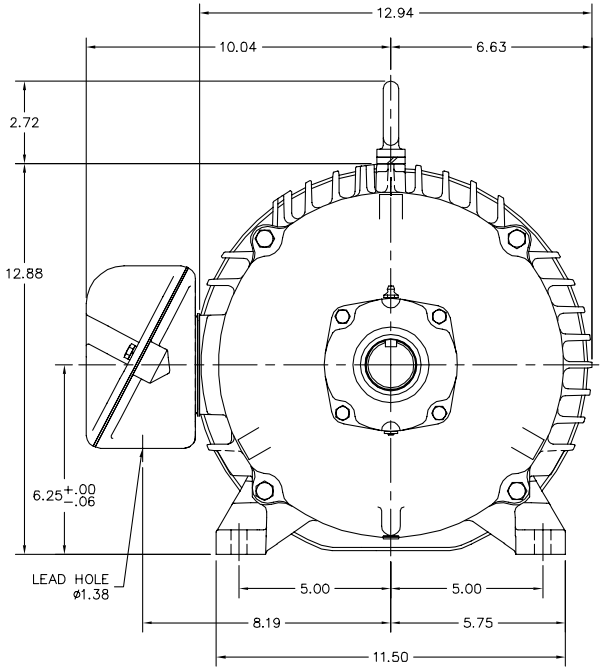
Performance Data at 575V, 60Hz, 15.0HP (Typical performance - Not guaranteed values)							
General Characteristics							
Full Load Torque:	45.0 LB-FT			**Start Configuration:**		DOL	
No-Load Current:	5.56 Amps			**Break-Down Torque:**		143.0 LB-FT	
Line-line Res. @ 25°C.:	0.908 Ohms A Ph / 0.0 Ohms B Ph			**Pull-Up Torque:**		75.0 LB-FT	
Temp. Rise @ Rated Load:	47 C			**Locked-Rotor Torque:**		88.0 LB-FT	
Temp. Rise @ S.F. Load:	56 C			**Starting Current:**		100.0 Amps	
Load Characteristics							
% of Rated Load	**25**	**50**	**75**	**100**	**125**	**150**	**S.F.**
Power Factor:	49.0	71.0	81.0	86.0	88.0	89.0	87.0
Efficiency:	87.9	92.1	93.0	92.8	92.3	91.5	92.5
Speed:	1792.0	1784.0	1776.0	1766.0	1759.0	1750.0	1762.0
Line Amperes:	6.32	8.42	10.9	14.5	16.8	20.0	15.6

Performance Graph at 575V, 60Hz, 15.0HP Typical performance - Not guaranteed values



09LYP011





09LYP011

CUSTOMER IS RESPONSIBLE FOR DETERMINING THAT BALDOR'S PRODUCT WILL PERFORM SUITABLY IN THE INTENDED APPLICATION.

REV. DESC: CHG FH SPACER TO MATCH BOM AND ADJUST OAL		
REV. LTR: K	VERSION: 05	TDR: 000000793196
FILE: \AAA\00026\716	REVISED: 02:17:51 04/03/2013	BY: ENODIDO
MTL: –		

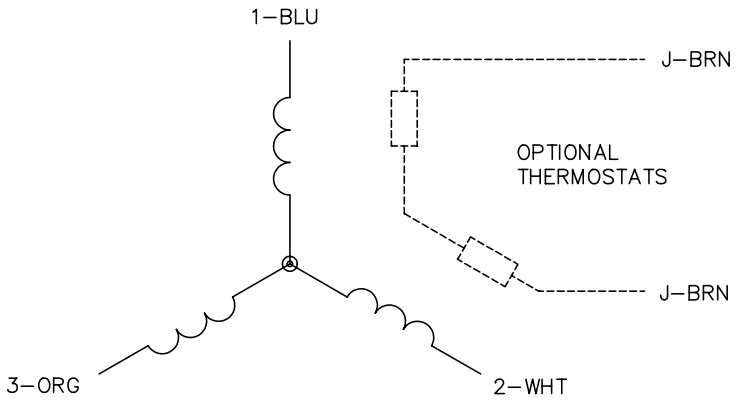
BALDOR

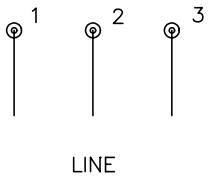
HORZ TEFC 254–6T SUPER–E

SH 1 of 1

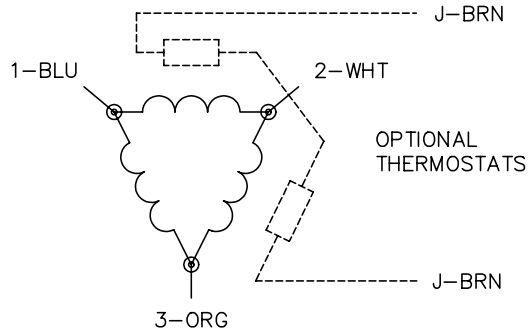
CD0006

TYPICAL WYE–CONNECTED MOTOR





TYPICAL DELTA–CONNECTED MOTOR



NOTES:

1. THREE LEAD MOTOR MAY BE EITHER WYE CONNECTED OR DELTA CONNECTED.
2. INTERCHANGE ANY TWO LINE LEADS TO REVERSE ROTATION.
3. OPTIONAL THERMOSTATS ARE PROVIDED WHEN SPECIFIED.
4. ACTUAL NUMBER OF INTERNAL PARALLEL CIRCUITS MAY VARY.
5. LEAD COLORS ARE OPTIONAL. LEADS MUST BE NUMBERED AS SHOWN.

REV. DESC: REVISE TO SHOW OPTIONAL COLORS			BALDOR ELECTRIC Co.
REV. LTR: D	BY: JLP	REVISED: 01/21/99 4:02	TDR: 0171435
9000CD		FILE: AAA00005141	MDL: –
		MTL: –	3PH, SV, 3 LEADS, WYE OR DELTA CONNECTED

CD0006

Heavy Duty Conveyor Pulleys

ICC pulleys offer an exceptional combination of reliability, quality, and value in an off-the-shelf conveyor pulleys. Using one piece tubes for head pulleys, and heavy duty fabricated tail pulleys, these pulleys are ideal for medium duty aggregate applications.

The pulleys use engineered end discs and standard XT style bushings for attachment on shafting. The pulleys are available in a wide range of standard sizes .

All ICC pulleys come with a standard one-year warranty. With the best pricing in the industry, and off-the-shelf availability, these pulleys are ideal for today's competitive environment.

For common, off-the shelf pulley requirements, the popular sizes that comprise the line are intended to become a reliable alternative to existing sources.

The components are stocked in locations across the country, and are often available for delivery with minimal lead time and freight.

Savona Equipment Ltd
P.O. Box 176, Savona, BC Canada V0K 2J0
Tel: (250) 373-2424 Fax: (250) 373-2323
www.savonaequip.com sales@savonaequip.com

Features

- Heavy-duty fabrication
- XT or QD hubs
- Drums made from 1/2" pipe tubing
- Machined crowns
- Vulcanized lagging
- 1-1/4" end discs on wings
- Flat or round bar wing designs available
- 3/8" and 1/2" end discs on drums

Available Diameters

- 12"
- 14"
- 16"
- 18"

Available Widths

- 26"
- 32"
- 38"
- 44"
- 51"

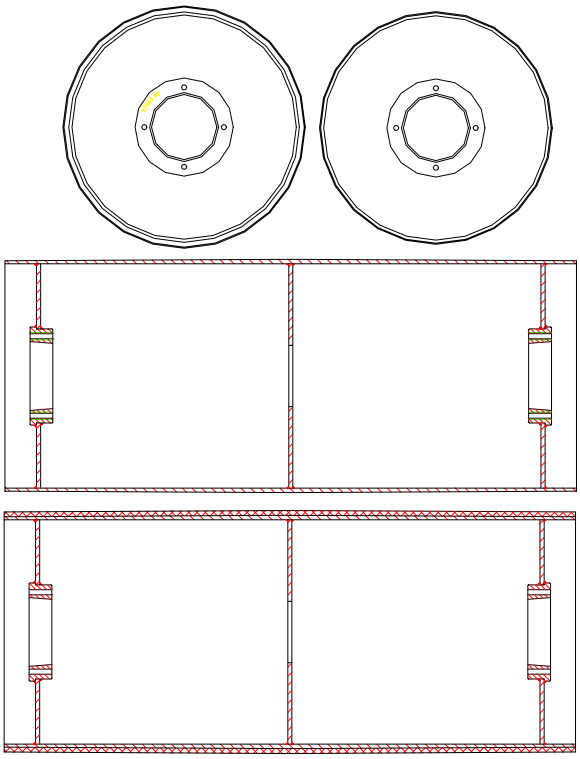
Other Considerations

- *Low Price Guarantee*
- *Minimal Lead Times*
- *Off-the-shelf parts*
- *Nationwide distribution*
- *One Year Replacement Warranty*

Heavy Duty Conveyor Pulleys

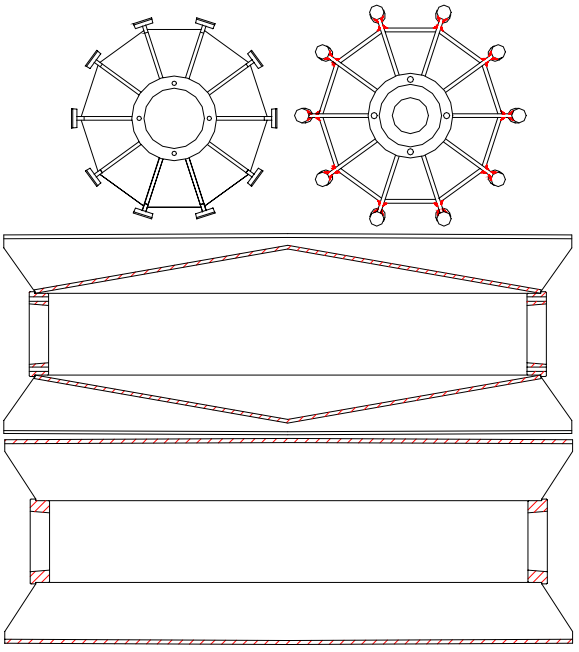
Head/Drum Pulleys

Diameter	Width	Hub	Weight
12	26	25	122
12	32	25	146
12	38	25	172
14	26	25	149
14	32	25	177
14	38	25	207
14	32	30	180
14	38	30	210
14	44	30	241
16	26	30	180
16	32	30	213
16	38	35	246
16	44	35	277
16	51	35	319
18	32	35	250
18	38	35	285
18	44	35	325
18	51	35	367



Wing/Tail Pulleys

Diameter	Width	Hub	Weight
12	26	25	122
12	32	25	153
12	38	25	179
14	26	25	160
14	32	25	199
14	38	25	243
14	32	30	196
14	38	30	234
14	44	30	271
16	26	30	185
16	32	30	228
16	38	35	266
16	44	35	317
16	51	35	361
18	38	35	310
18	44	35	356
18	51	40	411



Operating Instructions · July 2009

million
in one

milltronics

ZSS

SIEMENS

Safety Guidelines: Warning notices must be observed to ensure personal safety as well as that of others, and to protect the product and the connected equipment. These warning notices are accompanied by a clarification of the level of caution to be observed.

Qualified Personnel: This device/system may only be set up and operated in conjunction with this manual. Qualified personnel are only authorized to install and operate this equipment in accordance with established safety practices and standards.

Unit Repair and Excluded Liability:

- The user is responsible for all changes and repairs made to the device by the user or the user's agent.
- All new components are to be provided by Siemens Milltronics Process Instruments Inc.
- Restrict repair to faulty components only.
- Do not reuse faulty components.

Warning: Cardboard shipping package provides limited humidity and moisture protection. This product can only function properly and safely if it is correctly transported, stored, installed, set up, operated, and maintained.
This product is intended for use in industrial areas. Operation of this equipment in a residential area may cause interference to several frequency based communications.

Note: Always use product in accordance with specifications.

Contact SMPI Technical Publications at the following address:
Technical Publications
Siemens Milltronics Process Instruments Inc.
1954 Technology Drive, P.O. Box 4225
Peterborough, Ontario, Canada, K9J 7B1
Email: **techpubs.smpi@siemens.com**

European Authorized Representative

Siemens AG
Industry Sector
76181 Karlsruhe
Deutschland

- For a selection of Siemens Milltronics level measurement manuals, go to: **www. siemens.com/processautomation**. Under Process Instrumentation, select *Level Measurement* and then go to the manual archive listed under the product family.
- For a selection of Siemens Milltronics weighing manuals, go to: **www. siemens.com/processautomation**. Under Weighing Technology, select *Continuous Weighing Systems* and then go to the manual archive listed under the product family.

Table of Contents

Milltronics ZSS Motion Sensing Switch

Milltronics ZSS motion sensing switch is a heavy-duty zero speed alarm. It is used to detect the absence or presence of motion of rotating, reciprocating, or conveying equipment. The ZSS has a circuit card and a magnetic assembly potted in the probe body. The ZSS is powered from the line voltage and provides a set of dry relay contacts to indicate motion when the ferrous targets of the machinery being monitored pass in front of the probe.

Safety Notes

Special attention must be paid to warnings and notes highlighted from the rest of the text by grey boxes.

WARNING: relates to a caution symbol on the product, and means that failure to observe the necessary precautions can result in death, serious injury, and/or considerable material damage.

! **WARNING[1]: means that failure to observe the necessary precautions can result in death, serious injury, and/or considerable material damage.**

CAUTION: means that failure to observe the necessary precautions can result in considerable material damage.

Note: means important information about the product or that part of the operating manual.

Safety marking symbols

In manual	On Product	Description
		Caution: refer to accompanying documents (manual) for details.
		Protective Conductor Terminal

1. This symbol is used when there is no corresponding caution symbol on the product.

The Manual

Notes:

- The Milltronics ZSS product is to be used only in the manner outlined in this instruction manual.
- This product is intended for use in industrial areas. Operation of this equipment in a residential area may cause interference to several frequency based communications.

This instruction manual covers the installation, operation and maintenance of the Milltronics ZSS. It is essential that this manual be referred to for proper installation and operation of your unit. Adhering to the installation and operating procedures will ensure a quick, trouble free installation and allow for the maximum accuracy and reliability of your motion sensing probe.

If you have any questions, comments, or suggestions about the manual contents, please email us at techpubs.smpi@siemens.com.

For the complete library of Siemens manuals, go to www.siemens.com/processautomation.

Specifications

Power

- 115 V AC, 50/60 Hz, 7 VA
  or
- 230 V AC, 50/60 Hz, 7 VA
- ±10% of rated voltage

Output

- 1 form C (SPDT) dry relay contacts, rated 5 A at 250 V AC non-inductive, fail-safe operation
- time delay :
  - start up : 10 to 14 seconds (or 5 to 7 seconds with 5 sec/12 PPM jumper installed)
  - zero speed : 5 seconds ±1 (minimum speed 10 to 15 ppm)[1] or 10 seconds ±2 (minimum speed 5 to 7.5 ppm)[1]
  - LED indicates detection of changes in magnetic field (resets zero speed timer)

Operating Temperature

- – 40 to +60 °C (– 40 to +140 °F)

Environmental

- location: indoor/outdoor
- altitude: 2000 m (6562 ft.) max.
- ambient temperature: -40 to +60°C (-40 to +140°F)
- relative humidity: suitable for outdoor (Type 4 / NEMA 4, Type 4X / NEMA 4X, Type 6 / NEMA 6, IP67)
- installation category: II
- pollution degree: 4

Dynamic Range

- minimum 6 or 12 pulses per minute[1]
- maximum 3000 pulses per minute

Shipping Weight

- 2 kg (4.4 lbs.)

Approvals

- CSA
- CE

1. Selected via a common jumper. Refer to Operation.

Installation

WARNING: The probe face is magnetic. Keep it away from magnetosensitive materials such as computer discs and audio or video tapes.

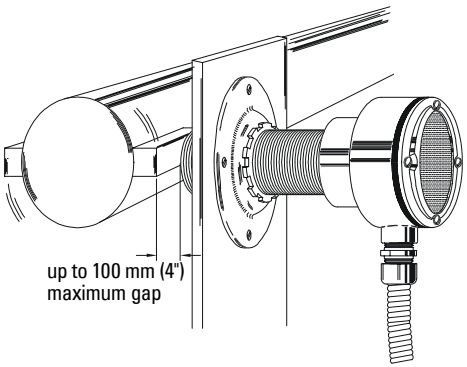
WARNING: All field wiring must have insulation suitable for at least 250 V and the maximum ambient temperature of +60°C (+140 °F).

Notes:

- The Protective Earth Terminal indicated by (⏚) must be connected to reliable ground.
- All wiring must be done by qualified personnel in accordance with all governing regulations.
- The equipment must be protected by a 15 A fuse or circuit breaker in the building installation.
- A circuit breaker or switch in the building installation, marked as a disconnect switch, shall be in close proximity to the equipment and within easy reach of the operator.
- Relay contact terminals are for use with equipment which has no accessible live parts and wiring which has insulation suitable for at least 250 V.

Environment

The ZSS must be mounted in an area that is non-hazardous, within the ambient temperature range and non-corrosive to the materials of construction. Refer to Dimensions for materials of construction.



The probe should be mounted using the supplied mounting flange, onto a vibration free structure. The gap between the probe and the target should be sufficient such that there is no danger of the target damaging the probe. The maximum allowable gap ranges from 20 mm to over 100 mm from the face of the target to the face of the probe. The range is dependent on the target type and range of speed expected. See typical performance graphs on page 9 for examples.

The ZSS is sensitive to lateral disturbances to its magnetic field. If the ZSS is responding to motion from an interfering target, move the ZSS or install a ferrous plate (steel) as a shield between the ZSS and the interfering target.

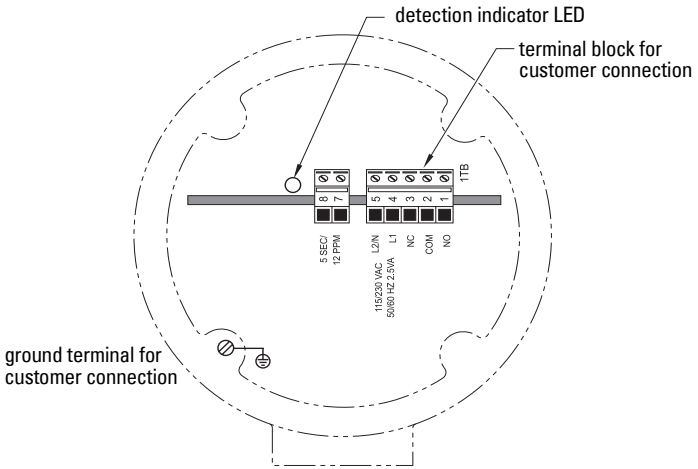
Where possible, the probe should be mounted so the conduit entry is pointing down to avoid accumulation of condensation in the casing. Connection of the probe should be made via flexible conduit for easier removal or adjustment of the probe.

Note: In climates where direct sunlight may cause the Milltronics ZSS temperature to rise above the specified limit, shade the unit by installing a sun shield.

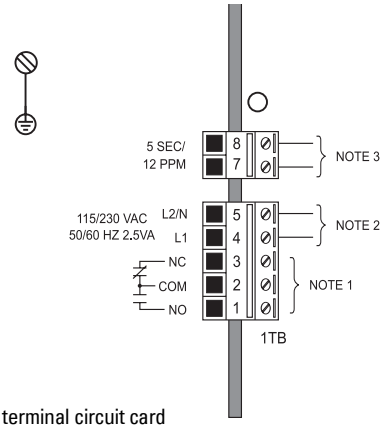
ZSS Circuit Card

⚠ **WARNING: Disconnect power before opening top cover.**

Note: Check nameplate for proper operation voltage (115 V AC or 230 V AC).



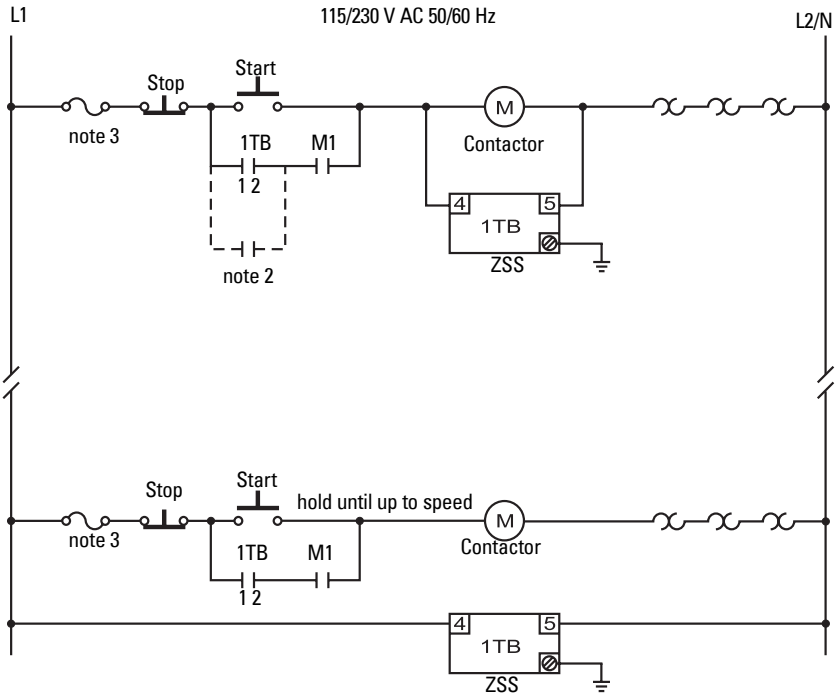
ZSS Connection



Notes:

1. Dry contacts shown in de-energized (alarm or shelf) state.
2. ZSS is manufactured for either 115 or 230 V AC operation. Check ZSS nameplate for applicable voltage. Correct voltage must be supplied. Voltages lower than specified will result in an inoperative condition. Voltages higher than specified will severely damage unit.
3. For 5 second time delay and minimum 12 ppm range, connect jumper across terminals 7 and 8. Without a jumper, the default is 10 second time delay and minimum 6 ppm range.

ZSS Typical Wiring



Should the time delay feature on start up not be required, power should be applied continuously from a separate source. Typically this would be desirable for automatic up-stream start up of conveying devices after down stream drive has reached its operation speed.

Notes:

1. Interlocks and safety pull switches are not shown.
2. If 'START' is initiated by programmable logic controller, closure time may be of insufficient duration to allow ZSS contact to latch. In such a case, program a timer contact into circuit.
3. CSA requires a 3 A or less fuse to protect contacts. For 240 V AC, protect contacts with a 1500 VA transformer as well.

Operation

When power is initially applied to the ZSS, the alarm relay is energized and held artificially by the timing circuit. This will simulate the normal operation of the ZSS for a start up delay of >10 seconds (or >5 seconds if a jumper is wired across terminals 7 and 8).

As a ferromagnetic object passes through the probe's permanent magnet field, the distortion of the flux is sensed by the magnetic detection circuit. If the distortion is of suitable magnitude, a short pulse is generated to reset the timing circuit, visible to the user by the LED shown in the lid window. This action keeps the alarm relay energized providing fail-safe operation of the contacts.

If no change in flux (target motion) is sensed for a period of 10 seconds (or 5 seconds if a jumper is wired across terminals 7 and 8), the timing circuit will not be reset. This will cause the alarm relay to de-energize and the contacts to change state.

Thus the ZSS cannot detect the motion of uniform ferromagnetic masses such as a rotating pulley or a keyless shaft.

When adjusting the ZSS mounting position, it may take up to 10 seconds for the detection circuit to adjust to the new ambient magnetic environment. During this adjustment period, the LED may fail to flash for an otherwise normally detectable moving target.

Typical Performance

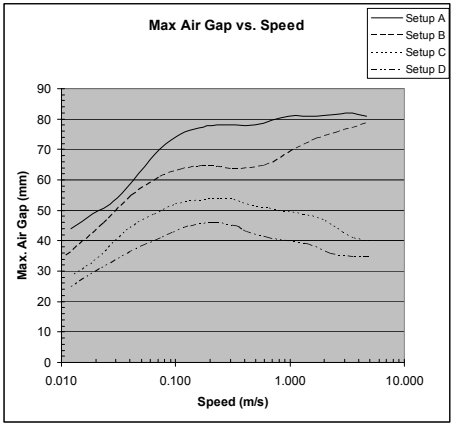
The maximum air gap for which the ZSS will reliably detect the moving ferrous target varies according to the target's size, shape, orientation and direction of motion, as well as the material to which the target is attached.

An example shown below compares typical results from steel blocks used as targets on a wheel (either ferrous or non-ferrous). As shown, a larger detection range can typically be achieved when there is a ferrous object behind the target. The ZSS provides excellent detection of a relatively small target, such as a 3/16" (~5 mm) shaft key installed in a 5/8" (~16 mm) motor shaft with < 0.125" (~3 mm) of the key protruding beyond the shaft envelope.

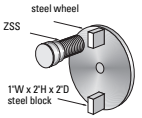
To ensure proper operation in any setup, use the LED indicator to confirm consistent detection of the target over the full range of expected operational speeds. Note that detection range may vary slightly with voltage supply and temperature, so it is recommended to use the minimum air gap that is physically safe to implement.

Performance Examples

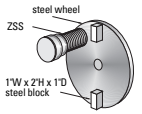
Wheel Driven Examples



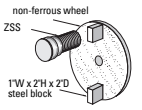
Setup A: ZSS with two 1"x2"x2" steel targets mounted on steel wheel



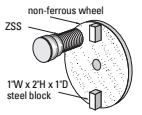
Setup B: ZSS with two 1"x2"x1" steel targets mounted on steel wheel



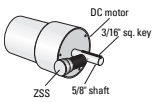
Setup C: ZSS with two 1"x2"x2" steel targets mounted on non-ferrous wheel



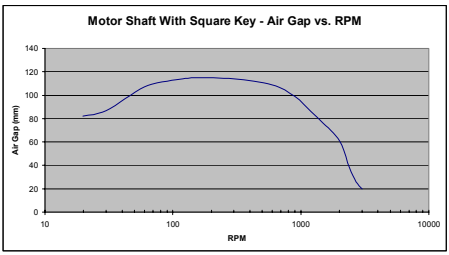
Setup D: ZSS with two 1"x2"x1" steel targets mounted on non-ferrous wheel



Setup E: DC motor with 5/8" drive shaft and 3/16" square key

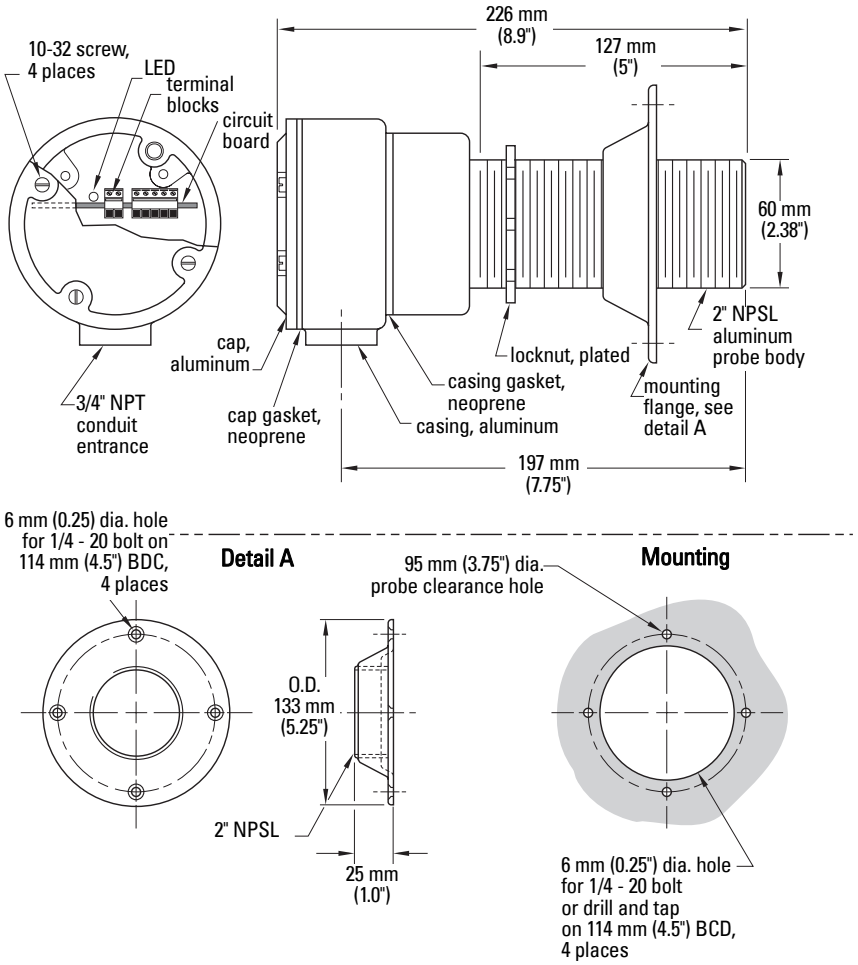


Shaft Driven Example



Note: 1 m/s ~ 200 ft/min; 25 mm ~ 1.0"

Dimensions



Maintenance

The Zero Speed Switch can be cleaned by wiping the enclosure exterior with a damp cloth. No further maintenance is required for the device.

CONVEYOR EFFICIENCY SPECIALISTS

ARCH ENVIRONMENTAL EQUIPMENT, INC.
CONVEYOR EFFICIENCY SPECIALISTS

P.O. Box 1760 5929 Benton Road Paducah, KY 42002-1760
1-800-553-4567 / 270-898-6821 Fax: 1-800-230-9462 / 270-898-8061
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Gordon Belt Cleaning Systems • Tri-Return Training Idler • Wyatt Alignment Disks • Simplicity Access Doors • Gordon "At-Last-A-Seal" Skirt Rubber Flexiskirt Sealing System • Gordon Dust Seal • Simplicity Slider System • Dust Shark Dust Suppression System • Simplicity Chute Liner • Fogger System Simplicity Impact System • Conveyor Controls & Belt Protection Equipment • ArchWeigh Belt Scales • Metasearch Metal Detector

Arch Environmental Equipment, Inc.
GORDON "MINI"
SABER BLADE BELT CLEANER

INSTALLATION INSTRUCTIONS

THE INSTALLATION OF THE GORDON "MINI" SABER BELT CLEANER IS VERY SIMPLE. IT ONLY REQUIRES A FEW TOOLS AND A SHORT AMOUNT OF TIME.

THE TOOLS & RESOURCES REQUIRED ARE:

1. STRAIGHT EDGE
2. LEVEL
3. TAPE MEASURE
4. CUTTING TORCH
5. WELDING EQUIPMENT
6. CHALK
7. ADJUSTABLE WRENCH

SHUT DOWN AND LOCKOUT CONVEYOR BEFORE PERFORMING ANY MAINTENANCE

STEP 1

Determine the diameter of the head pulley and the thickness of the conveyor belt. Example: head pulley diameter = 24" (609.6mm), belt thickness = 3/4" (19.05mm). Take one half of the head pulley measurement (in this case 12" (304.8mm) and add the belt thickness. This will give an effective radius of 12 3/4" (325.85mm). To this number add 2 3/8" (60.375mm) (See FIG 1- dimension A). This will give the "Z" dimension. (SEE FIG. 1 – Dimension Z)

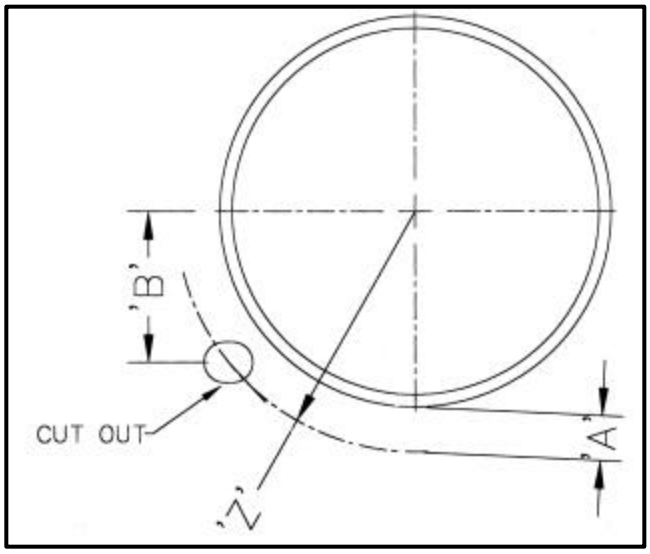

Fig. 1

STEP 2

Using the "Z" dimension, as described in step 1, draw an arc or radius to define the area for cutting the mounting holes on the chute wall.

STEP 3

From the centerline of the head pulley, measure down 6 1/2" (165.1mm). (SEE FIG.1-dimension B). This is the highest point that the cleaner should be mounted. It can be mounted anywhere along the radius that was marked off in step 2. The limiting factor is the restriction of a dribble chute or lack of a dribble chute at the point where the belt leaves the head pulley on the return side.

STEP 4

After you have located the correct position to mount the cleaner, mark two holes approximately 1 7/8" (47.62mm) x 2 7/8" (73.02mm) size. These should now be torched or cut out. You can use the urethane installation rings included with the cleaner to verify the correct location (see Step 6 below). **NOTE: DO NOT USE EXISTING HOLES FROM ANOTHER BRAND OF CLEANER.**

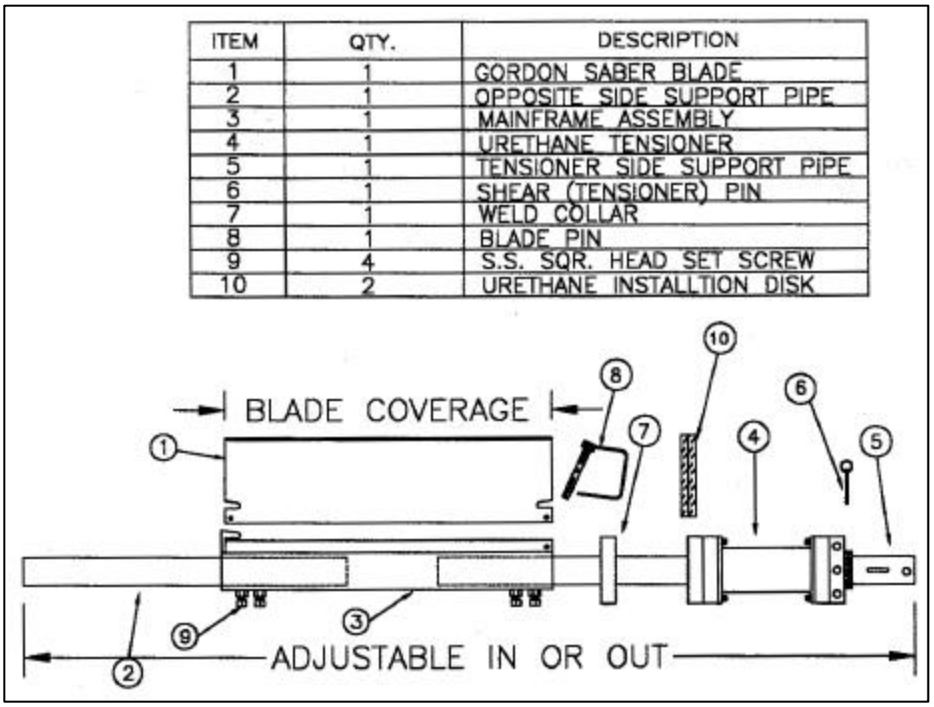

Fig. 2

STEP 5

Disassemble the cleaner (FIG. 2). This is done by removing the pin (item 6 – FIG.2) at the end of the tensioner hub. Remove the tensioner (item 4 - FIG. 2) from the tensioner pipe. You will notice that when the tensioner is removed, there is an extra hub (item 7- FIG. 2) behind it. This is the weld collar for the opposite side. You should also find there are two urethane rings included in the packaging materials included with the cleaner. The installation rings are used to verify the “Z" dimension. Loosen the set screws (item 9 - FIG. 2) on the mainframe. CAUTION! Loosen them only enough to allow both pipes (items 2 and 5 - FIG. 2) to be removed from the cleaner mainframe (item 3 - FIG. 2).

STEP 6

Put the cleaner (items 1 & 3 - FIG. 2) inside the chute, and slide the support and tensioner pipes (items 2 and 5 - FIG. 2) through the slots previously cut. Then slide the weld collar (item 7 - FIG. 2) and the tensioner (item 4 - FIG. 2) onto the support and tensioner pipes. Next, level the cleaner in relation to the head pulley. Verify the "Z" dimension by slipping the installation rings onto the support and tensioner pipe. Then the installation rings should be placed against the belt. Tack weld the weld collar and tensioner into place. Set the cleaner blade against the belt and insert the pin (item 6 - FIG. 2) into the tensioner hub. Tighten the sets crews on the mainframe. Now, complete welding on the hubs (3 - 1" (25.4mm) welds on each hub is enough). Pull the pin again to check if the cleaner rotates freely in the hubs; if it doesn't, realign the hubs until it rotates freely.

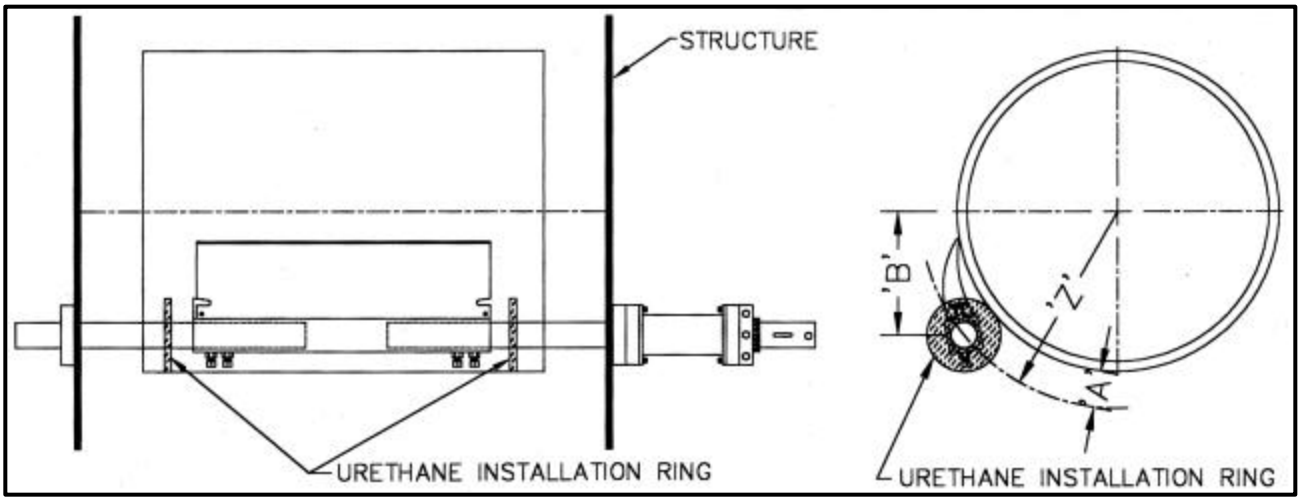

Fig. 3

STEP 7

Finally, pull the pin (item 6 - FIG. 2) and rotate the tensioner away from the head pulley, until the next hole shows (SEE FIG. 4) in the tensioner hub. Reinstall the pin.
THATS IT!!

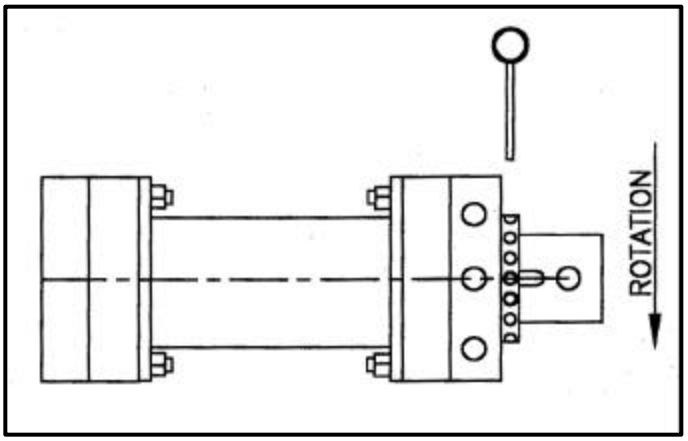

Fig. 4

Installation and Parts Replacement Manual for DODGE® Torque-Arm™ TXT Double Reduction Taper Bushed and Straight Bore Speed Reducers

TXT/HXT 1A
TXT/HXT 2A
TXT/HXT 3B
TXT/HXT 4B
TXT/HXT 5C
TXT/HXT 6A
TXT/HXT 7A
TXT 8A
TXT 9A
TXT 10A

Includes Char-Lynn 6B Hydroil Reducers

HXT 3B – 6B
HXT 4B – 6B
HXT 5C – 6B
HXT 6A – 6B
HXT 7A – 6B

These instructions must be read thoroughly before installation or operation.

INSTALLATION:

1. Use lifting bracket where applicable to lift reducer.
2. Determine the running positions of the reducer. (See Fig. 1)

   Note that the reducer is supplied with six plugs; four around the sides for horizontal installations and one on each face for vertical installations. These plugs must be arranged relative to the running positions as follows:

   Horizontal Installations - Install the magnetic drain plug in the hole closest to the bottom of the reducer. Install the filter/ventilation plug in topmost hole. Of the two remaining plugs on the sides of the reducer, the lowest plug is the minimum oil level plug.

   Vertical Installations - Install the filter/ventilation plug in the hole provided in the upper face of the reducer housing. If space is restricted on the upper face, install the vent in the highest hole on the side of the reducer per Figure 1 using the optional vertical vent kit. Install a plug in the hole in the bottom face of the reducer. Do not use this hole for the magnetic drain plug. Install the magnetic drain plug in the lowest hole on the sides of the reducer. Of the remaining holes on the sides of the reducer, use the plug in the upper housing half for the minimum oil level plug,

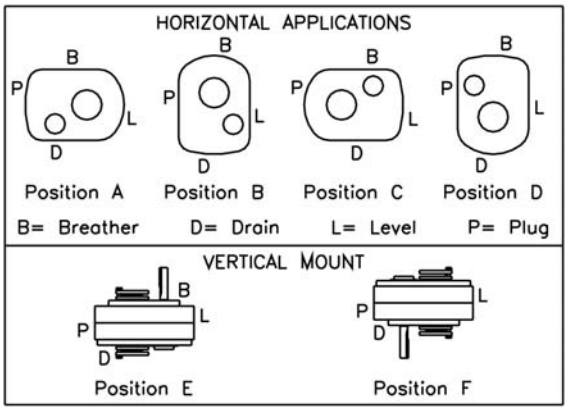

Figure 1 - Mounting Positions

WARNING Because of the possible danger to persons(s) or property from accidents which may result from the improper use of products, it is important that correct procedures be followed. Products must be used in accordance with the engineering information specified in the catalog. Proper installation, maintenance and operation procedures must be observed. The instructions in the instruction manuals must be followed. Inspections should be made as necessary to assure safe operation under prevailing conditions. Proper guards and other suitable safety devices or procedures as may be desirable or as may be specified in safety codes should be provided, and are neither provided by Baldor Electric Company nor are the responsibility of Baldor Electric Company. This unit and its associated equipment must be installed, adjusted and maintained by qualified personnel who are familiar with the construction and operation of all equipment in the system and the potential hazards involved. When risk to persons or property may be involved, a holding device must be an integral part of the driven equipment beyond the speed reducer output shaft.

Below 15 RPM output speed, oil level must be adjusted to reach the highest oil level plug. If reducer position is to vary from those shown in Figure 1, either more or less oil may be required. Consult Dodge.

The running position of the reducer in a horizontal application is not limited to the four positions shown in Fig. 1. However, if running position is over 20° in position “B” & “D” or 5° in position “A” & “C”, either way from sketches, the oil level plug cannot be used safely to check the oil level, unless during the checking, the torque arm is disconnected and the reducer is swung to within 20° for position “B” & “D” or 5° for position “A” & “C” of the positions shown in Fig. 1. Because of the many possible positions of the reducer, it may be necessary or desirable to make special adaptations using the lubrication filling holes furnished along with other standard pipe fittings, stand pipes and oil level gauges as required.

3. Mount reducer on driven shaft as follows:

WARNING: To ensure that drive is not unexpectedly started, turn off and lock out or tag power source before proceeding. Remove all external loads from drive before removing or servicing drive or accessories. Failure to observe these precautions could result in bodily injury.

For Taper Bushed Reducer: Mount the reducer on the driven shaft per instruction sheet for the tapered bushing kit.

4. Install sheave on input shaft as close to reducer as practical. (See Fig. 2)
5. If not using a Dodge Torque-Arm motor mount, install motor and V-belt drive so belt will approximately be at right angles to the centerline between driven and input shaft. (See Fig. 3) This will permit tightening the V-belt with the torque arm.
6. Install torque arm and adapter plates using the long reducer bolts. The adapter plates may be installed in any position around the input end of the reducer.
7. Install torque arm fulcrum on a flat and rigid support so that the torque arm will be approximately at right angles to the centerline through the driven shaft and the torque arm anchor screw. (See Fig. 4) Make sure that there is sufficient take-up in the turnbuckle for belt tension adjustment when using V-belt drive.

CAUTION: Unit is shipped without oil. Add proper amount of recommended lubricant before operating. Failure to observe this precaution could result in damage to or destruction of the equipment.

8. Fill gear reducer with the recommended volume of lubricant.

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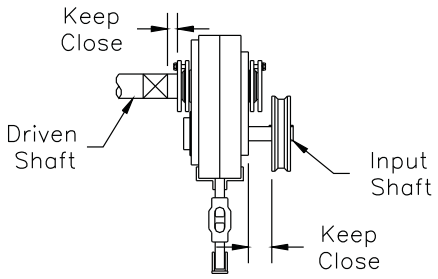


Figure 2 - Reducer and Sheave Installation

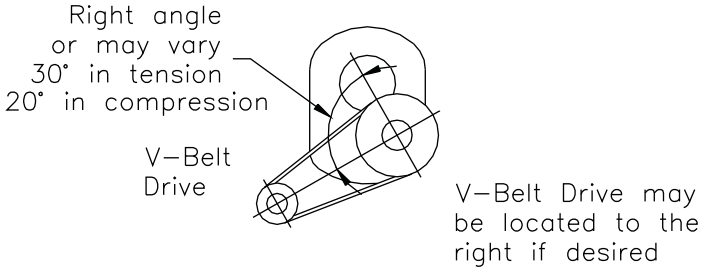


Figure 3 - Angle of V-Drive

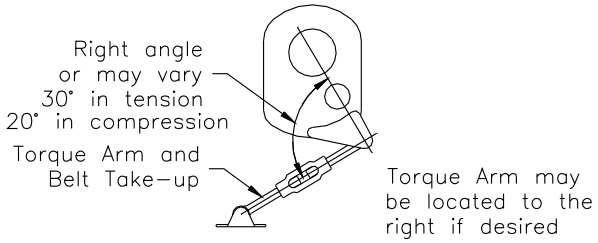


Figure 4 - Angle of Torque Arm

TXT TAPERED BUSHING INSTALLATION

WARNING: To ensure that drive is not unexpectedly started, turn off and lock out or tag power source before proceeding. Remove all external loads from drive before removing or servicing drive or accessories. Failure to observe these precautions could result in bodily injury.

Taper Bore Bushings:

1. One bushing assembly is required to mount the reducer on the driven shaft. An assembly consists of two tapered bushings, bushing screws and washers, and necessary shaft keys or key.

   The driven shaft must extend through the full length of the reducer. The minimum shaft length, as measured from the end of the shaft to the outer edge of the bushing flange (see Figure 5), is given in Table 1. This dimension does not include dimension “A”. Dimension “A” should be added to the minimum shaft length to allow for the removal of the bushings at disassembly.
2. Place one bushing, flange end first, onto the driven shaft and position per dimension “A”, as shown in Table 1. This will allow the bolts to be threaded into the bushing and for future bushing and reducer removal. If the reducer must be positioned closer to the equipment than dimension “A”, place the screws, with washers installed, into the unthreaded holes of the bushing flange prior to placing the bushing on the shaft and position as required.
3. Insert the output key in the shaft and bushing. For ease of installation, rotate the driven shaft so that the shaft keyseat is at the top position.
4. Mount the reducer on the driven shaft and align the shaft key with the reducer hub keyway. Maintain the recommended minimum distance “A” from the shaft bearing.
5. Insert the screws, with washers installed, in the unthreaded holes in the bushing flange and align with the threaded holes in the bushing backup plate. If necessary, rotate the bushing backup plate to align with the bushing screws. Tighten the screws lightly. If the reducer must be positioned closer than dimension “A”, place the screws with washers installed, in the unthreaded holes in the bushing before positioning reducer making sure to maintain at least 1/8” between the screw heads and the bearing.
6. Place the second tapered bushing in position on the shaft and align the bushing keyway with the shaft key. Align the unthreaded holes in the bushing with the threaded holes in the bushing backup plate. If necessary, rotate the bushing backup plate to align with the bushing holes. Insert bushing screws, with washers installed in the unthreaded holes in the bushing. Tighten screws lightly.
7. Alternately and evenly tighten the screws in the bushing nearest the equipment to the recommended torque given in Table 1. Repeat procedure on outer bushing.

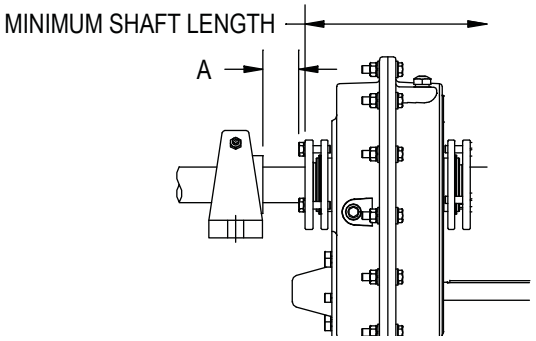


Figure 5 - Minimum Recommended Dimensions

Table 1 - Minimum Mounting Dimensions and Bolt Torques

Minimum Required Shaft Length		
Reducer Size	**Taper Bushing**	**Straight Bushing**
TXT1A	6-1/2	5-5/8
TXT2A	6-3/4	5-13/16
TXT3B	8-9/16	7-11/16
TXT4B	9-5/16	8-1/4
TXT5C	9-3/4	8-11/16
TXT6A	10-3/4	9-5/8
TXT7A	11-15/16	10-3/4
TXT8A	13-1/8	11-3/8
TXT9A	13-0	11-3/8
TXT10A	14-3/16	12-3/8

Bushing Screw Information and Minimum Clearance for Removal			
Reducer Size	**Fastener Size**	**Torque in In.-Lbs.**	**Dim. “A”**
TXT1A	5/16-18	200	1-1/4
TXT2A	5/16-18	200	1-1/4
TXT3B	3/8-16	200	1-1/2
TXT4B	3/8-16	360	1-3/4
TXT5C	3/8-16	360	1-13/16
TXT6A	1/2-13	360	1-13/16
TXT7A	1/2-13	800	2-1/16
TXT8A	1/2-13	800	2-1/16
TXT9A	1/2-13	900	2-7/16
TXT10A	5/8-11	900	2-7/16

Straight Bore Bushings:

1. One bushing assembly is required to mount the reducer on the driven shaft. An assembly consists of one keyed straight bushing, one plain straight bushing, required set screws, and necessary shaft key or keys. The driven shaft must extent through the reducer to operate properly. The minimum shaft length, as measured from the end of the shaft to the outer edge of the retaining collar, is given in Table 1.
2. Install the plain bushing into the reducer output hub on the side toward the equipment or bearing. Remove two short set screws from the retaining collar and install two of the longer set screws supplied with the bushing kit. Line up the bushing holes with the set screws. Thread the set screws in until they locate into the bushing holes. Make sure the set screws are threaded in only enough to locate the bushing in the reducer hub and does not extend thru the bushing.
3. Install the keyed bushing into the opposite end of the reducer hub as the plain bushing. Remove one short set screw from the retaining collar and install the remaining set screw from the bushing kit into the collar. Line up the bushing hole with the set screw. Thread the set screw in until it locates into the bushing hole. Make sure the set screw is threaded in only enough to locate the bushing in the reducer hub and does not extend through the bushing.
4. Mount the reducer on the driven shaft as close to the equipment or bearing as practical.
5. Line up the keyway in the bushing with the keyway in the driven shaft. Insert the key supplied with the bushing kit into the keyway. Gently tap the key into position until the key is flush with the edge of the reducer. Securely tighten all set screws.

Standard Tapered Bushings Removal:

1. Remove bushing screws.
2. Place the screws in the threaded holes provided in the bushing flanges. Tighten the screws alternately and evenly until the bushings are free on the shaft. For ease of tightening screws make sure screw threads and threaded holes in the bushing flanges are clean. If the reducer was positioned closer than the recommended minimum distance "A" as shown in Table 1, loosen the inboard bushing screws until they are clear of the bushing flange by 1/8". Locate two (2) wedges at 180 degrees between the bushing flange and the bushing backup plate. Drive the wedges alternately and evenly until the bushing is free on the shaft.
3. Remove the outside bushing, the reducer, key(s), and inboard bushing.

LUBRICATION

IMPORTANT: Because Torque-Arm reducers are shipped without oil, it is extremely important to add the proper amount of lubricant prior to operating reducer. For most applications a high-grade petroleum-base rust and oxidation inhibited (R&O) gear oil is suitable. See Table 2 and Table 3 for proper oil volume and viscosity requirements.

Under severe conditions EP oil can be used provided the reducer is not equipped with an internal backstop. Internal backstops are designed to rely on friction to operate correctly. EP lubricants contain friction modifiers that will alter backstop performance and therefore must not to be used on reducers equipped with internal backstops.

Follow instructions on reducer warning tags.

Lubrication is very important for satisfactory operation. The proper oil level must be maintained at all times. Frequent inspection, at least monthly, with the unit not running and allowing sufficient time for the oil to cool and the entrapped air to settle out of the oil should be made by removing the level plug and verifying the level is being maintained. If oil level is low, add the proper lubricant until the oil volume is increased to the correct level.
After an initial operation of about two weeks, the oil should be changed. If desired, this oil may be filtered and reused. After the initial break in period, under average industrial operating conditions, the lubricant should be changed every 2500 hours of operation. At every oil change, drain reducer and flush with kerosene, clean magnetic drain plug and refill to proper level with new lubricant.

Under extreme operating conditions, such as rapid rise and fall of temperature, dust, dirt, chemical particles, chemical fumes, or oil sump temperatures above 200°F, the oil should be changed every 1 to 3 months, depending on severity of conditions.

CAUTION: Too much oil will cause overheating and too little will result in gear failure. Check oil level regularly. Failure to observe this precaution could result in equipment damage and/or bodily injury.

Heating is a natural characteristic of enclosed gearing. A maximum gear case temperature approaching 200°F is not uncommon for some units operating in normal ambient temperatures of 80°F. When operating at the rated capacity with proper lubrication, no damage will result from this temperature. This maximum temperature was taken into consideration during the design of the reducer.

Table 2 - Oil Volumes

Reducer		Approximate Volume of Oil to Fill Reducer to Oil Level Plug ① ⑤ ⑥											
		② Position A		② Position B		② Position C		② Position D		② Position E		② Position F	
Size	Ratio	③ Qt	④ L	③ Qt	④ L	③ Qt	④ L	③ Qt	④ L	③ Qt	④ L	Qt	L
TXT1A	9,15,25	1/2	1/2	1/2	1/2	5/8	5/8	3/4	3/4	1	1	1-1/4	1-1/8
TXT2A	9,15,25	7/8	7/8	1	1	5/8	5/8	1	1	1-5/8	1-1/2	1-3/4	1-5/8
TXT3B	9,15,25	1-1/2	1-3/8	1-1/2	1-3/8	3/4	3/4	2-1/4	2-1/8	2-5/8	2-1/2	3	2-7/8
TXT4B	9,15,25	1-7/8	1-3/4	2-1/4	2-1/8	1-1/4	1-1/8	1-3/4	1-5/8	3-3/8	3-1/8	4-1/4	4
TXT5C	9,15,25	3-1/4	3-1/8	4	3-3/4	3-1/4	3-1/8	4	3-3/4	7	6-5/8	8-5/8	8-1/8
TXT6A	9,15,25	4-1/4	4	5	4-3/4	4-1/4	4	5	4-3/4	8-5/8	8-1/8	9-1/8	8-5/8
TXT7A	9,15,25	6-1/2	6-1/8	8	7-1/2	7-1/4	6-7/8	9-1/4	8-3/4	15-3/8	14-1/2	16-3/8	15-1/2
TXT8A	15,25	8-1/2	8	11	10-3/8	10-1/2	9-7/8	8-1/2	8	19-1/8	18-1/8	19-1/8	18-1/8
TXT9A	15,26	13	12-1/4	13	12-1/4	12-1/2	11-7/8	14-1/4	13-1/2	25-3/8	24	25-3/8	24
TXT10A	15,24	23	21-3/4	14	13-1/4	15-3/4	14-7/8	18-3/4	17-3/4	41	38-3/4	41	38-3/4

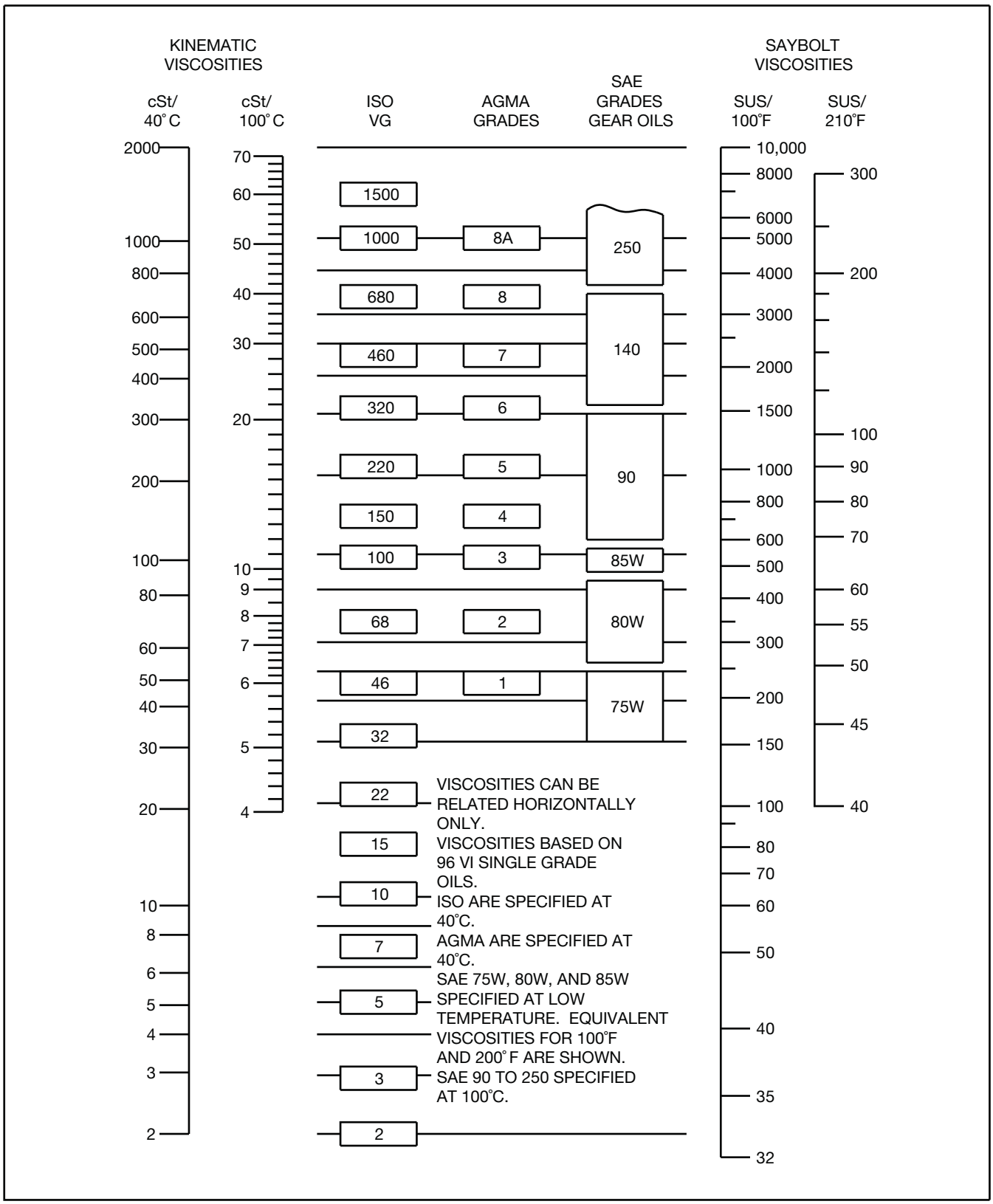
① Oil quantity is approximate. Service with lubricant until oil runs out of oil level hole.
② Refer to Figure 1 for mounting positions.
③ US measure: 1 quart = 32 fluid ounces = .94646 liters.
④ Conversion from quarts rounded values.
⑤ Below 15 RPM output speed, oil level must be adjusted to reach the highest oil level plug. If reducer position is to vary from those shown in Figure 1, either more or less oil may be required. Consult Dodge.
⑥ Consult Dodge for proper oil level for reducers equipped with backstops and which are mounted in either the C position or D position.

Table 3 - Oil Recommendations										
ISO Grades For Ambient Temperatures of 50°F to 125°F (Refer to Notes below)										
Output RPM	Torque-Arm Reducer Size									
	TXT1A	TXT2A	TXT3B	TXT4B	TXT5C	TXT6A	TXT7A	TXT8A	TXT9A	TXT10A
301 – 400	320	320	220	220	220	220	220	220	220	220
201 – 300	320	320	220	220	220	220	220	220	220	220
151 – 200	320	320	220	220	220	220	220	220	220	220
126 – 150	320	320	320	220	220	220	220	220	220	220
101 – 125	320	320	320	320	220	220	220	220	220	220
81 – 100	320	320	320	320	320	220	220	220	220	220
41 – 80	320	320	320	320	320	220	220	220	220	220
11 – 40	320	320	320	320	320	320	320	320	320	320
1 – 10	320	320	320	320	320	320	320	320	320	320

ISO Grades For Ambient Temperatures of 15°F to 60°F (Refer to Notes below)										
Output RPM	Torque-Arm Reducer Size									
	TXT1A	TXT2A	TXT3B	TXT4B	TXT5C	TXT6A	TXT7A	TXT8A	TXT9A	TXT10A
301 – 400	220	220	150	150	150	150	150	150	150	150
201 – 300	220	220	150	150	150	150	150	150	150	150
151 – 200	220	220	150	150	150	150	150	150	150	150
126 – 150	220	220	220	150	150	150	150	150	150	150
101 – 125	220	220	220	220	150	150	150	150	150	150
81 – 100	220	220	220	220	220	150	150	150	150	150
41 – 80	220	220	220	220	220	150	150	150	150	150
11 – 40	220	220	220	220	220	220	220	220	220	220
1 – 10	220	220	220	220	220	220	220	220	220	220

Notes:
1. Assumes auxiliary cooling where recommended in the catalog.
2. Pour point of lubricant selected should be at least 10°F lower than expected minimum ambient starting temperature.
3. Extreme pressure (EP) lubricants are not necessary for average operating conditions. TORQUE-ARM internal backstops are not suitable for use with EP lubricants.
4. Special lubricants may be required for food and drug industry applications where contact with the product being manufactured may occur. Consult a lubrication manufacturer's representative for his recommendations .
5. For reducers operating in ambient temperatures between -22°F (-30°C) and 20°F (–6.6°C) use a synthetic hydrocarbon lubricant, 100 ISO grade or AGMA 3 grade (for example, Mobil SHC627) . Above 125°F (51°C), consult DODGE Gear Application Engineering (864) 284-5700 for lubrication recommendation .
6. Mobil SHC630 Series oil is recommended for high ambient temperatures.

OIL VISCOSITY EQUIVALENCY CHART



GUIDELINES FOR TXT REDUCER LONG-TERM STORAGE

During periods of long storage, or when waiting for delivery or installation of other equipment, special care should be taken to protect a gear reducer to have it ready to be in the best condition when placed into service.

By taking special precautions, problems such as seal leakage and reducer failure due to lack of lubrication, improper lubrication quantity, or contamination can be avoided. The following precautions will protect gear reducers during periods of extended storage:

Preparation:

1. Drain oil from the unit. Add a vapor phase corrosion inhibiting oil (VCI-105 oil by Daubert Chemical Co.) in accordance with Table 4.
2. Seal the unit airtight. Replace the vent plug with a standard pipe plug and wire the vent to the unit.
3. Cover all unpainted exterior parts with a waxy rust preventative compound that will keep oxygen away from the bare metal. (Non-Rust X-110 by Daubert Chemical Co. or equivalent)
4. The instruction manuals and lubrication tags are paper and must be kept dry. Either remove these documents and store them inside, or cover the unit with a durable waterproof cover which can keep moisture away.
5. Protect reducer from dust, moisture, and other contaminants by storing the unit in a dry area.
6. In damp environments, the reducer should be packed inside a moisture-proof container or an envelope of polyethylene containing a desiccant material. If the reducer is to be stored outdoors, cover the entire exterior with a rust preventative.

When placing the reducer into service:

1. Fill the unit to the proper oil level using a recommended lubricant. The VCI oil will not affect the new lubricant.
2. Clean the shaft extensions with petroleum solvents.
3. Assemble the vent plug into the proper hole.

Follow the installation instructions provided in this manual.

Table 4 - Quantities of VCI #105 Oil

Reducer Size	Quantity (Ounces / Mililiter)
TXT1A	1 / 30
TXT2A	1 / 30
TXT3B	1 / 30
TXT4B	1 / 30
TXT5C	1 / 30
TXT6A	2 / 59
TXT7A	2 / 59
TXT8A	3 / 89
TXT9A	4 / 118
TXT10A	6 / 177

VCI #105 and #10 are interchangeable.
VCI #105 is more readily available.

Motor Mounts

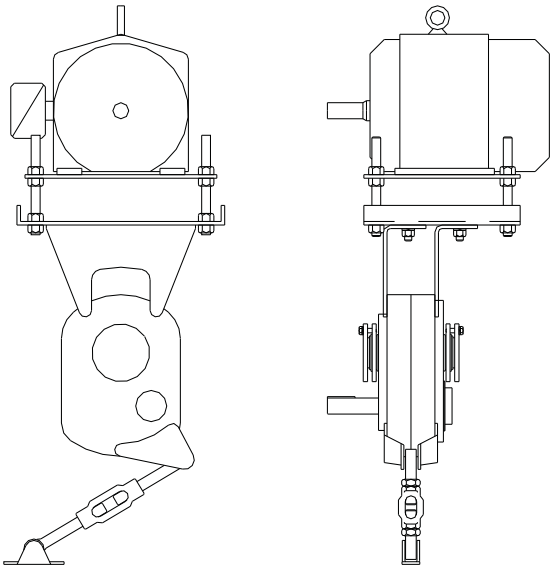


Figure 6 - Motor Mounts

Warning: Belt guard removed for illustration purposes. Do not operate if belt guard is not in place.

Motor Mount Installation:

The TA motor mount is designed to be installed on the output end of the reducer as shown in Figure 6. If bottom mounting is desired, use the optional TAB style.

TA1M thru TA7M Motor Mount:

Remove the required housing bolts on the output end of the reducer. Place the motor mount brackets in position and install the longer housing bolts supplied with the motor mount assembly. Do not fully tighten the housing bolts at this time.

Install the bottom plate to the motor mount brackets and tighten with the hardware provided. Next, tighten the housing bolts to the torque values listed in Table 6.

Install the four adjusting studs to the bottom plate using the jam nuts provided and securely tighten. These nuts will not require any further adjustment. Add one additional jam nut to each stud and thread approximately to the middle of the stud. Install the top motor plate on top of the jam nuts. Assemble the remaining jam nuts on studs to secure top motor plate. Do not fully tighten these nuts yet.

Mount motor, drive and driven sheaves, and v-belts.

Note: Mount driven sheave as close to the reducer housing as practical.

Adjust v-belts to the proper tension by adjusting the jam nuts and securely tighten.

Check all bolts to insure that they are securely tightened.

TA8 thru TA10 Motor Mount:

Remove the required housing bolts on the output end of the reducer. Place the motor mount brackets in position and install the longer housing bolts supplied with the motor mount assembly. Do not fully tighten the housing bolts at this time.

Install the four adjusting studs to the top plate as shown using the jam nuts provided and securely tighten. Add one additional

jam nut to each stud and thread approximately to the middle of the stud. Install this assembly to the motor mount brackets and install the remaining jam nuts onto the studs to secure the top plate to the brackets. Tighten the housing bolts to the torque values listed in Table 6.

Loosely install the front motor rail to the top plate. Measure the distance between the front and rear mounting holes on the motor and position the rear motor rail at this distance and loosely bolt to the top plate.

Center the motor on the motor rails and securely bolt the motor to the motor rails.

Install the motor sheave and reducer sheave on their shafts. Mount the reducer sheave as close to the housings as practical. Install the v-belts and adjust the motor rails to permit proper alignment of the v-belts to the sheaves. Securely tighten the motor rails to the mounting plate.

Adjust the v-belts to the proper tension and securely tighten the adjusting nuts.

Check all bolts to see that they are securely tightened.

WARNING: To ensure that drive is not unexpectedly started, turn off and lock out or tag power source before proceeding. Remove all external loads from drive before removing or servicing drive or accessories. Failure to observe these precautions could result in bodily injury.

REPLACEMENT OF PARTS

NOTE: Using tools normally found in a maintenance department, a Dodge Torque-Arm speed reducer can be disassembled and reassembled by careful attention to the instructions following.

Cleanliness is very important to prevent the introduction of dirt into the bearings and other parts of the reducer. A tank of clean solvent, an arbor press, and equipment for heating bearings and gears (for shrinking these parts on shafts) should be available.

The oil seals are designed with a contact lip. Considerable care should be used during disassembly and reassembly to avoid damage to the surface on which the seals rub.

The keyseat in the input shaft, as well as any sharp edges on the output hub should be covered with tape or paper before disassembly or reassembly. Also, be careful to remove any burrs or nicks on surfaces of the input shaft or output hub before disassembly or reassembly.

Ordering Parts:

When ordering parts for a Dodge Torque Arm reducer, specify reducer part number, part name, and quantity required.

It is strongly recommended that, when a pinion or gear is replaced, the mating pinion or gear is replaced also.

If the large gear on the output hub must be replaced, it is recommended that an output hub assembly consisting of a gear assembled on a hub be ordered to ensure undamaged surfaces on the output hub where the output seals rub. However, if it is desired to use the old output hub, press the gear and bearing off and examine the rubbing surface under the oil seal carefully for possible scratching or other damage resulting from the pressing operation. To prevent oil leakage at the shaft oil seals, the smooth surface of the output hub must not be damaged.

If any parts must be pressed from a shaft or from the output hub, this should be done before ordering parts to make sure that none of the bearings or other parts are damaged in removal. Do not press against rollers or cage of any bearing.
Because old shaft oil seals may be damaged in disassembly, it is advisable to order replacements for these parts.

Removing Reducer from Shaft:

WARNING: To ensure that drive is not unexpectedly started, turn off and lock out or tag power source before proceeding. Remove all external loads from drive before removing or servicing drive or accessories. Failure to observe these precautions could result in bodily injury.

Taper Bushed Reducer:

1. Disconnect and remove belt guard, v-drive, and motor mount as required. Disconnect torque arm rod from reducer adapter.
2. Remove bushing screws.
3. Place the screws in the threaded holes provided in the bushing flanges. Tighten the screws alternately and evenly until the bushings are free on the shaft. For ease of tightening screws, make sure screw threads and threaded holes in bushing flanges are clean. A tap can be used to clean out the threads. Use caution to use the proper size tap to prevent damage to the threads.
4. Remove the outside bushing, the reducer, and then the inboard bushing.

Straight Bore Reducer:

1. Disconnect and remove belt guard, v-drive, and motor mount as required. Disconnect torque arm rod from reducer adapter.
2. Loosen and remove the set screws in both output hub collars.
3. Remove the collar from the output hub closest to the end of the shaft. This will expose three puller holes in the output hub to permit the use of a three prong puller. In removing the reducer from the shaft, use care not to damage the reducer output hub.

Disassembly:

1. Drain all oil from the reducer.
2. Remove all locking collars, retaining rings, and bushing backup plated as required. Position the reducer on its side and remove all housing bolts. Using the three pry slots around the periphery of the flange, gently separate the housing halves and open evenly to prevent damage to the parts inside. Remove the two dowel pins.
3. Lift input shaft, all gear assemblies, and bearing assemblies from housing.
4. Remove seals from housing.
5. Remove bearings from shafts and hubs. Be careful not to scratch or damage any assembly or seal area during bearing removal. The hub assembly can be disassembled for gear replacement but if scratching or grooving occurs on the hub, seal leakage will occur and the hub will need to be replaced.

TXT Reassembly:

1. Output Hub Assembly: Heat gear to 325°F to 350°F to shrink onto hub. Heat bearings to 270°F to 290°F to shrink onto hub. Any damage to the hub surfaces where the oil seals rub will cause leakage, making it necessary to replace the hub.
2. Countershaft Assembly: Heat gear to 325°F to 350°F and bearings to 270°F to 290°F to shrink onto shaft.
3. Input Shaft Assembly: Heat bearings 270°F to 290°F to shrink onto shaft. Press bearings on shaft.
4. Drive the two dowel pins into place in the right-hand housing half (backstop side).
5. Place R.H. housing half on blocks to allow for protruding end of output hub.
6. Install all bearing cups on TXT3B thru TXT10A in right-hand housing half, making sure they are properly seated. TXT1A and TXT2A reducers use ball bearings on all shafts and do not incorporate bearing cups.
7. Mesh output hub gear and small countershaft gear together and set in place in housing. Set input shaft assembly in

place in the housing. Make sure bearing rollers (cones) are properly seated in their cups.

8. Make sure both housing halves are clean. Apply a continuous 1/8" diameter bead of Dow Corning RTV732 sealant on the flange surface of the R.H. housing (make sure RTV is placed around all bolt holes). Set the left-hand housing half into position onto the dowel pins and gently tap with a soft hammer (rawhide, not lead hammer) until housing bolts can be used to draw housing halves together. Make sure reducer shafts do not bind while tightening housing bolts. Torque housing bolts per torque values listed in Table 6.
9. On TXT1A and TXT2A reducers, skip to step number 12.
10. Place the output bearing cup into the housing and tap into place. Install the output seal carrier and draw down with two bolts 180° apart to 50 inch pounds of torque. Loosen both bolts then retighten finger tight only. Measure the clearance between the housing and carrier flange at each bolt and average the two values. Add 0.010" to the average reading and make up shim pack. Install shim pack between the carrier flange and the reducer housing. Torque the bolts to the value shown in Table 6. Using a magnetic base and dial indicator, check the axial end play. Add or remove shims until the axial endplay reading of the output hub is per Table 5.
11. Repeat step 9 above for installing and adjusting the countershaft and input bearings. Adjust the axial endplay per Table 5.
12. Install input and output seals. Lightly coat the seal lips with Mobilith AW2 All-Purpose grease or equivalent. The possibility of damage and consequent oil leakage can be decreased by covering all sharp edges with tape prior to seal installation. Seals should be pressed or tapped with a soft hammer evenly into place in the reducer housing, applying pressure only on the outer edge of the seals. Extreme care should be used when installing seals to avoid damage due to contact with sharp edges on the input shaft or output hub. A slight oil leak at the seals may be evident during initial running, but should disappear unless seals have been damaged.
13. Install bushing backup plates and snap rings on Taper Bushed reducers or hub collars on straight bore reducers and install backstop cover. Make sure all bolts are tightened to the correct torque values listed in Table 6.

Table 5 - Bearing Adjustment Tolerances

Reducer Size	Bearing Endplay Values		
	Input	Countershaft	Ouput
TXT1A	N / A	N / A	N / A
TXT2A	N / A	N / A	N / A
TXT3B	.002-.004 Loose	.0005-.003 Loose	.0005-.003 Loose
TXT4B	.002-.004 Loose	.0005-.003 Loose	.0005-.003 Loose
TXT5C	.002-.004 Loose	.0005-.003 Loose	.0005-.003 Loose
TXT6A	.002-.004 Loose	.0005-.003 Loose	.0005-.003 Loose
TXT7A	.002-.004 Loose	.0005-.003 Loose	.0005-.003 Loose
TXT8A	.002-.004 Loose	.0005-.003 Loose	.0005-.003 Loose
TXT9A	.002-.004 Loose	.0005-.003 Loose	.0005-.003 Loose
TXT10A	.002-.004 Loose	.0005-.003 Loose	.0005-.003 Loose

Table 6 - Recommended Bolt Torque Values

Recommended Torque Values (lbs.-ft.)				
Reducer Size	Housing Bolts	Output Seal Carrier	C/S Bearing Cover	Input Seal Carrier
TXT1A	30 - 27	N/A	N/A	N/A
TXT2A	30 - 27	N/A	N/A	N/A
TXT3B	50 - 45	17 – 15	17 – 15	17 – 15
TXT4B	50 - 45	30 – 27	30 – 27	30 – 27
TXT5C	75 - 68	30 – 27	30 – 27	30 – 27
TXT6A	75 - 68	30 – 27	30 – 27	30 – 27
TXT7A	150 - 135	30 – 27	50 - 45	50 - 45
TXT8A	150 - 135	30 – 27	30 – 27	30 – 27
TXT9A	150 - 135	30 – 27	30 – 27	30 – 27
TXT10A	150 - 135	30 – 27	30 – 27	30 – 27

Backstop Cover Bolt Recommended Torque Values

Reducer Size	Fastener Size	Torque in Ft.-Lbs.
TXT1A	10 - 24 x 3/8	5 – 4
TXT2A	10 - 24 x 3/8	5 – 4
TXT3B	10 - 24 x 3/8	5 – 4
TXT4B	¼ - 20 x ½	8 – 7
TXT5C	¼ - 20 x ½	8 – 7
TXT6A	¼ - 20 x ½	8 – 7
TXT7A	¼ - 20 x ½	8 – 7
TXT8A	¼ - 20 x ½	8 – 7
TXT9A	¼ - 20 x ½	8 – 7
TXT10A	¼ - 20 x ½	8 – 7

Replacement Part and Kit Numbers

Table 7 – Part Numbers for Replacement Bearings, Double Reduction Reducers		
Reducer Size	Output Hub Bearing – LH and RH Sides	
	Part Number	Manufacturer's Part Number
TXT1A	424020	6011NR
TXT2A	424022	6013NR
TXT3B	402272 / 403127	LM814849 / LM814810
TXT4B	402268 / 403163	498 / 492A
TXT5C	402193 / 403016	42381 / 42584
TXT6A	402050 / 403140	JM822049 / JM822010
TXT7A	402058 / 403111	48290 / 48220
TXT8A	402147 / 403105	36690 / 36620
TXT9A	402160 / 403110	46790 / 46720
TXT10A	402168 / 403116	67790 / 67720

Reducer Size	Countershaft Bearing – LH Input Side	
	Part Number	Manufacturer's Part Number
TXT1A	424006	6304NR
TXT2A	424000	305NR
TXT3B	402273 / 403094	15102 / 15245
TXT4B	402000 / 403000	M86649 / M86610
TXT5C	402203 / 403027	2789 / 2720
TXT6A	402054 / 403159	HM807040 / HM807010
TXT7A	402256 / 403053	JHM807045 / JHM807012
TXT8A	402057 / 403143	JH211749 / JH211710
TXT9A	402109 / 403078	655 / 652A
TXT10A	402232 / 402231	JH415647 / JH415610

Reducer Size	Countershaft Bearing – RH Backstop Side	
	Part Number	Manufacturer's Part Number
TXT1A	424006	6304NR
TXT2A	424000	305NR
TXT3B	402273 / 403094	15102 / 15245
TXT4B	402000 / 403000	M86649 / M86610
TXT5C	402203 / 403027	2789 / 2720
TXT6A	402052 / 403142	HM803149 / HM803110
TXT7A	402256 / 403053	JHM807045 / JHM807012
TXT8A	402148 / 403106	39585 / 39520
TXT9A	402109 / 403078	655 / 652A
TXT10A	402232/402231	JH415647 / JH415610

Reducer Size	Input Shaft Bearing – LH Input Side	
	Part Number	Manufacturer's Part Number
TXT1A	424112	6205NR
TXT2A	424019	206NR
TXT3B	402204 / 403139	LM48548A / LM48510
TXT4B	402280 / 403027	2788 / 2720
TXT5C	402144 / 403104	28579 / 28521
TXT6A	402196 / 403091	395A / 3920
TXT7A	402150 / 403106	39590 / 39520
TXT8A	402098 / 403072	566 / 563
TXT9A	402114 / 403080	745A / 742
TXT10A	402114 / 403080	745A / 742

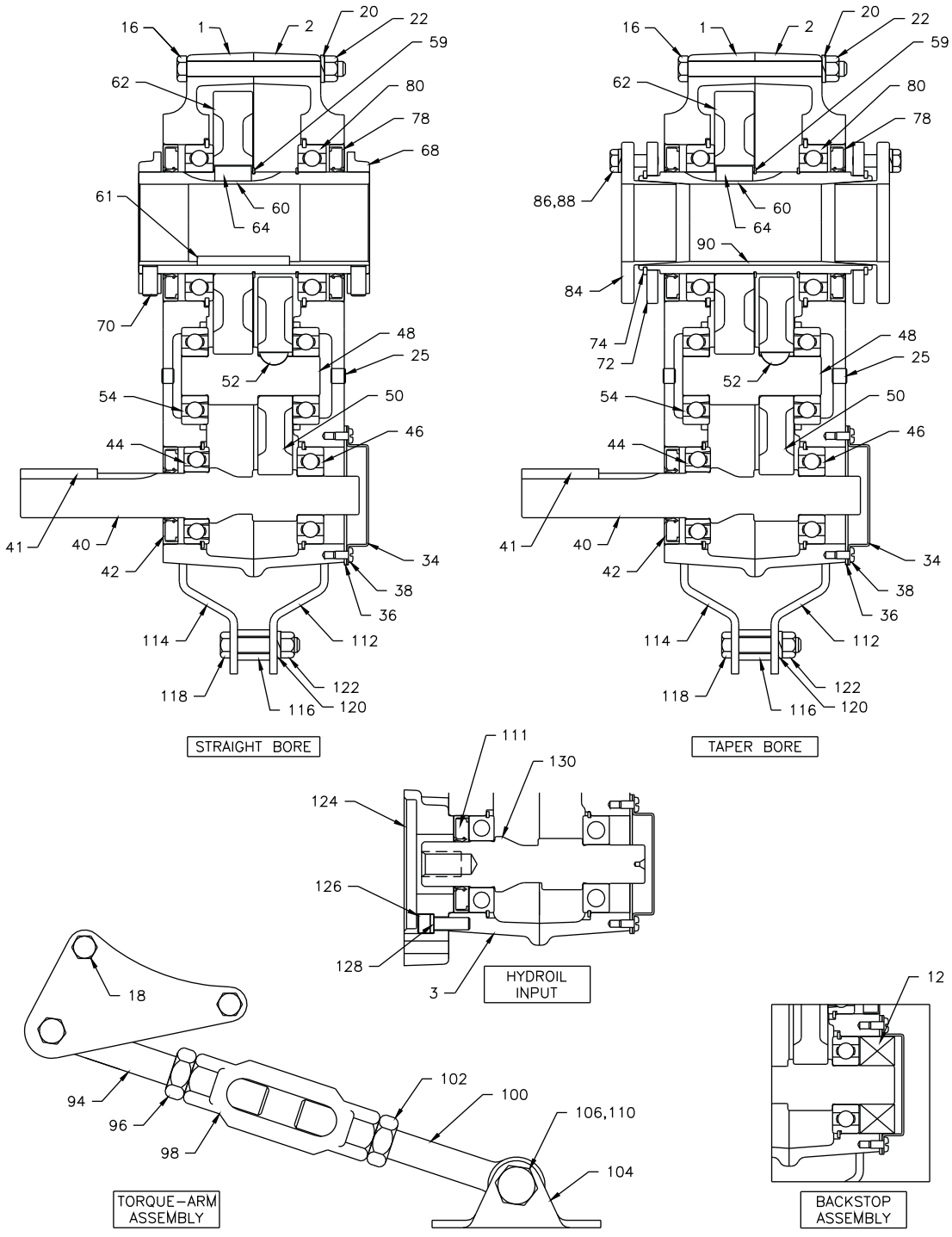
Reducer Size	Input Shaft Bearing – RH Backstop Side	
	Part Number	Manufacturer's Part Number
TXT1A	424111	6204NR
TXT2A	424090	6305NR
TXT3B	402273 / 403094	15102 / 15245
TXT4B	402142 / 403102	26118 / 26283
TXT5C	402266 / 403073	350A / 352
TXT6A	402197 / 403091	396 / 3920
TXT7A	402088 / 403047	455 / 452
TXT8A	402097 / 403072	565 / 563
TXT9A	402107 / 403076	639 / 633
TXT10A	402112 / 403080	745S / 742

Note: Bearing part numbers refer to Cup/Cone combinations, respectively, and apply to all ratios unless otherwise specified. For actual reducer ratios, refer to Table 9.

Table 8 - Replacement Parts Kit Numbers						
Reducer Size	Ratio	Seal Kit	Output Hub Assembly		Countershaft Assembly	Bearing Kit(s)
			Taper Hub	Straight Hub		
TXT1A	9:1	392119	390878	390151	392100	389905 All
	15:1				392090	
	25:1				392091	
TXT2A	9:01	392120	392111	392110	392101	389906 All
	15:1				392092	
	25:1				392093	
TXT3B	9:1	389720	389703	389702	389729	392345 All
	15:1				389700	
	25:1				389701	
TXT4B	9:1	389721	389710	389709	389730	392347 All
	15:1				389707	
	25:1				389708	
TXT5C	9:1	389722	389717	389716	389731	392350 All
	15:1				389714	
	25:1				389715	
TXT6A	9:1	246340	390935	390988	392140	335368 All
	15:1				391171	
	25:1				391186	
TXT7A	9:1	247345	390941	390990	392141	392353 All
	15:1				391196	
	25:1				391197	
TXT8A	15:1	248340	390944	390993	391184	392355 All
	25:1				391185	
TXT9A	15:1	249340	390949	390159	390124	392357 All
	26:1				390139	
TXT10A	15:1	272460	390954	390160	390983	392359 All
	24:1				390998	

Notes:
Seal Kit consists of Input Seal, Output Seals, Backstop Cover Gasket and RTV Sealant.
Output Hub Assembly consists of Output Hub, Output Gear and Gear Key.
Countershaft Assembly consists of Countershaft Pinion, Countershaft Gear and Gear Key.
Bearing Kit consists of LH and RH Output Bearing Cup/Cone, LH and RH Countershaft Bearing Cup/Cone (double reduction only) and LH and RH Input Bearing Cup/Cone.

Parts for TXT/HXT 1A & 2A Straight and Tapered Bushed Double Reduction Reducers



Parts for TXT/HXT 1A & 2A Straight and Tapered Bushed Double Reduction Reducers

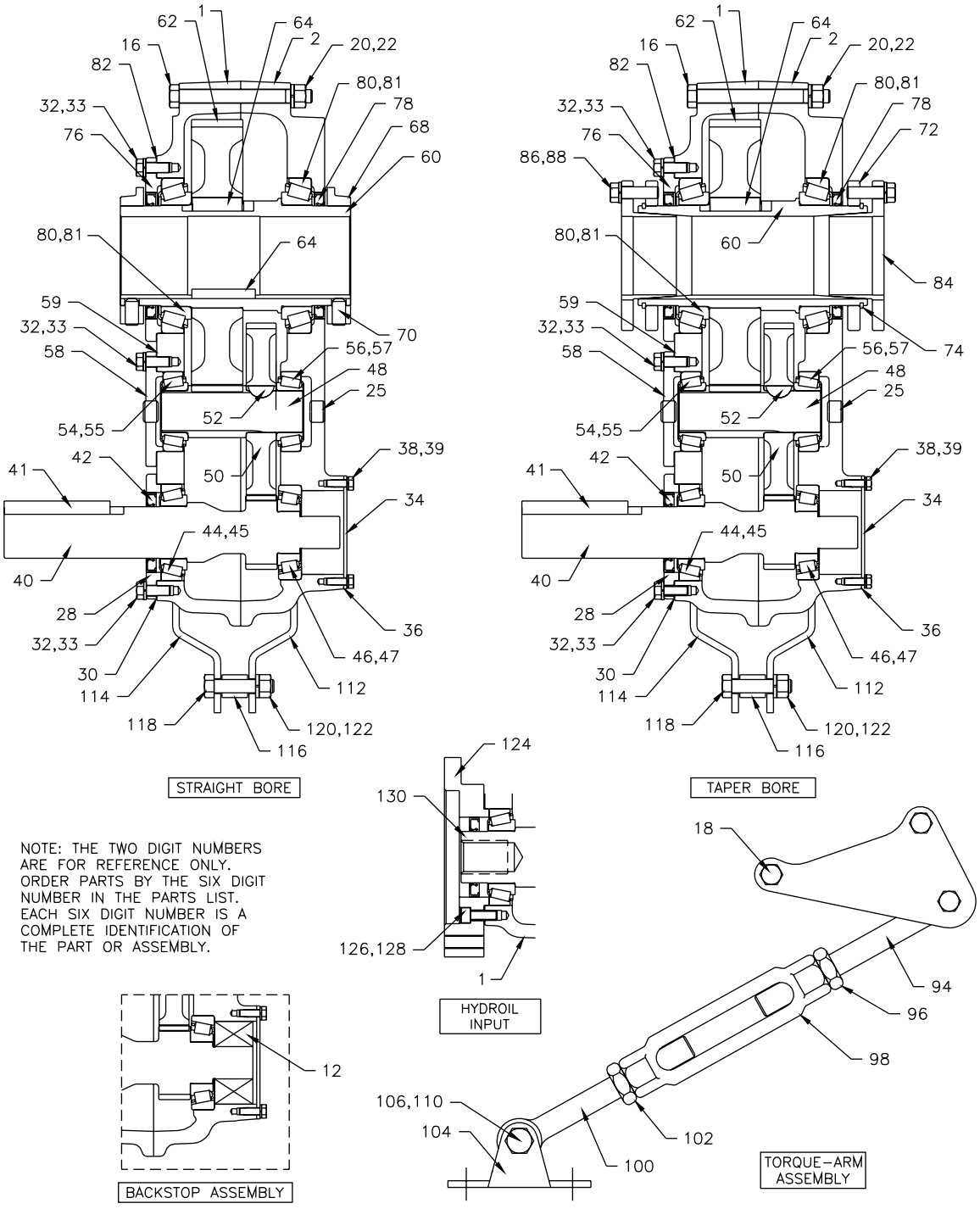
Ref.	Description	Qty.	TXT/HXT 1A	TXT/HXT 2A
12	Backstop Assembly	1	242101	252101
1	Housing-LH	1	241358	242353
2	Housing-RH	1	241359	242354
	Housing-RH, Flange Mount Drilled	1	241387	242393
3	Housing-Hydroil LH	1	241064	242067
①	RTV Sealant, Tube	1	465044	465044
①	Air Vent	1	900287	900287
16	Housing Bolt	⑦	411418	411418
18	Housing Bolt-Adapter	2	411420	411420
20	Lock-Washer	⑧	419011	419011
22	Hex Nut	⑧	407087	407087
①	Dowel Pin	2	420145	420145
①	Magnetic Oil Plug	1	430060	430060
25	Oil Plug	4	430031	430031
34	Backstop Shaft Cover	1	242221	243221
38	Backstop Cover Screw	4	415022	415022
	Seal Kit ②	1	392119	392120
36	Backstop Cover Gasket ④	1	242220	243220
42	Input Oil Seal ④	1	241457	242211
78	Output Hub Oil Seal ④	2	241210	242210
40	Input Pinion			
	9:1 Ratio ⑥	1	241481	242481
	15:1 Ratio ⑥	1	241302	242186
	25:1 Ratio ⑥	1	241200	242187
130	Hydroil Input Pinion			
	15:1 Ratio ⑥	1	241455	242188
	25:1 Ratio ⑥	1	241449	242189
41	Input Pinion Key	1	443008	443014
	Bearing Replacement Kit ②	1	389905	389906
44	Input Pinion Bearing-LH, Input Side ④	1	424112	424019
46	Input Pinion Bearing-RH, Backstop Side ④	1	424111	424090
54	Countershaft Pinion Bearing ④	2	424006	424000
80	Output Hub Bearings ④	2	424020	424022
	Countershaft Pinion Assembly ②			
	9:1 Ratio ⑥	1	392100	392101
	15:1 Ratio ⑥	1	392090	392092
	25:1 Ratio ⑥	1	392091	392093
48	Countershaft Pinion ④	1	241216	242185
50	First Reduction Gear ④			
	9:1 Ratio ⑥	1	241482	242482
	15:1 Ratio ⑥	1	241170	242008
	25:1 Ratio ⑥	1	241171	242005
52	Countershaft to First Gear Key ④	1	241309	242218
	Taper Bore Output Hub Assembly ②	1	390878	392111
	Straight Bore Output Hub Assembly ③	1	390151	392110
60	Output Hub			
	Straight Bore ⑤	1	241208	242208
	Taper Bore ④	1	241265	242134
62	Output Gear ④ ⑤	1	241007	242181
64	Output Gear Key ④ ⑤	1	241217	443399
59	Output Hub Snap Ring ④	2	421013	421017
61	Straight Bore Output Hub Key ⑤	2	241296	242296
68	Straight Bore Output Hub Collar	2	241209	242209
70	Straight Bore Output Hub Collar Screw	4	400062	400094
72	Taper Bore Bushing Backup Plate	2	241266	242137
74	Bushing Backup Plate Retaining Ring	2	421111	421112
84	Taper Bore Bushing Assembly ②			
	Bushing ④			
	1" Bore	1	241278	N/A
	1-1/16" Bore	1	241280	N/A
	1-1/8" Bore	1	241282	242146
	1-3/16" Bore	1	241286	242148
	1-1/4" Bore	1	241288	242150
	1-5/16" Bore	1	241290	242152
	1-3/8" Bore	1	241294	242154
	1-7/16" Bore	1	241292	242156
	1-11/16" Bore	1	N/A	242164
	1-1/2" Bore	1	N/A	242158
	1-5/8" Bore	1	N/A	242162
	1-3/4" Bore	1	N/A	242166
	1-15/16" Bore	1	N/A	242168

Parts for TXT/HXT 1A & 2A Straight and Tapered Bushed Double Reduction Reducers

Ref.	Description	Qty.	TXT/HXT 1A	TXT/HXT 2A
86	Bushing Screw ④	6	411405	411390
88	Lock Washer ④	6	419010	419010
90	Key, Taper Bore Bushing to Shaft ④			
	1" Bore	1	443274	N/A
	1-1/8" Bore	1	443271	443281
	1-3/16" Bore	1	241308	443281
	1-1/4" Bore	1	241307	443281
	1-5/16" Bore	1	241306	443264
	1-3/8" Bore	1	241310	443280
	1-7/16" Bore	1	241305	443282
	1-1/2" Bore	1	N/A	443282
	1-5/8" Bore	1	N/A	424172
	1-11/16"	1	N/A	242171
	1-3/4" Bore	1	N/A	242170
	1-15/16" Bore	1	N/A	443283
①	Key, Bushing to Output Hub ④			
	1" Bore	1	443272	N/A
	1-1/8" Bore	1	443273	N/A
	1-1/8" to 1-1/2" Bore	1	N/A	443284
	Torque-Arm Assembly ②	1	241097	243097
94	Torque-Arm Rod End ④	1	241245	243245
96	RH Nut ④	1	407093	407095
98	Torque-Arm Turnbuckle ④	1	241246	243246
100	Torque-Arm Extension ④	1	241247	243247
102	LH Nut ④	1	407242	407244
104	Torque-Arm Fulcrum ④	1	241249	243249
106	Fulcrum Screw ④	1	411456	411484
110	Hex Nut ④	1	407091	407093
	Adapter Assembly ②	1	259151	259152
112	RH Torque-Arm Adapter Bracket ④	1	241242	242136
114	LH Torque-Arm Adapter Bracket ④	1	241241	242135
116	Adapter Bushing ④	1	242243	243243
118	Adapter Bolt ④	1	411412	411437
120	Lock Washer ④	1	419011	419012
122	Hex Nut ④	1	407087	407089
124	Hydraulic Motor Adapter	1	241454	242454
126	Adapter Screw	6	417081	417081
128	Lockwasher	6	419046	419046
111	Input Pinion Seal, Hydroil	1	241457	242457
①	Motor to Adapter Screw	2	411408	411408
①	Motor to Adapter Lock Washer	2	419011	419011

Notes:
① Not shown on Drawing.
② Includes Parts Listed Immediately Below
③ Includes Parts Listed Immediately Below
④ Makes up Assembly Under Which it is Listed.
⑤ Makes up Assembly Under Which it is Listed.
⑥ See Table 9 for Actual Ratio.
⑦ 4 Required on TXT1A and 5 Required on TXT2A
⑧ 6 Required on TXT1A and 7 Required on TXT2A

Parts for TXT3B thru TXT5C Straight and Tapered Bushed Double Reduction Reducers



NOTE: THE TWO DIGIT NUMBERS ARE FOR REFERENCE ONLY. ORDER PARTS BY THE SIX DIGIT NUMBER IN THE PARTS LIST. EACH SIX DIGIT NUMBER IS A COMPLETE IDENTIFICATION OF THE PART OR ASSEMBLY.

Parts for TXT3B thru TXT5C Straight and Tapered Bushed Double Reduction Reducer

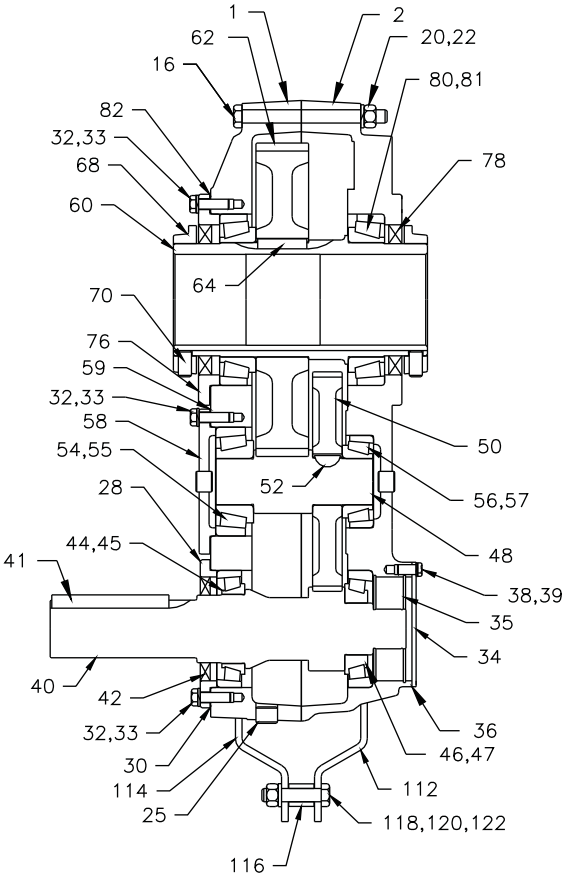
Ref.	Description	Qty.	TXT3B HXT3B	TXT4B HXT4B	TXT5C HXT5C
12	Backstop Assembly	1	243106	244106	245154
1	Housing - TXT and Hydroil LH	1	243228	244365	245369
2	Housing-RH	1	243229	244366	245370
	Housing-RH, Flange Mount Drilled	1	243384	244387	245373
①	RTV Sealant, Tube	1	465044	465044	465044
①	Air Vent	1	900287	900287	904287
16	Housing Bolt	6	411440	411442	411464
18	Housing Bolt-Adapter	2	411442	411444	411466
20	Lock-Washer	8	419012	419012	419013
22	Hex Nut	8	407089	407089	407091
①	Dowel Pin	2	420146	420146	420147
①	Magnetic Oil Plug	1	430060	430060	430062
25	Oil Plug	4	430031	430031	430033
28	Input Shaft Seal Carrier	1	243543	244577	245597
30	Input Shaft Bearing Shim Pack	⑧	389704	389711	389732
32	Input Seal Carrier Screw	⑦	411390	411407	411407
33	Lock Washer	⑦	419010	419011	419011
34	Backstop Cover	1	243560	244493	245226
38	Backstop Shaft Cover	4	416524	411035	411394
39	Backstop Cover Screw	4	N/A	N/A	419009
	Seal Kit ②	1	389720	389721	389722
36	Backstop Cover Gasket ④	1	243561	244593	245220
42	Input Pinion Shaft Seal ④	1	243558	244524	355011
78	Output Hub Oil Seal ④	2	243578	244673	245545
40	Input Pinion				
	9:1 Ratio ⑥	1	243549	244579	245599
	15:1 Ratio ⑥	1	243550	244580	245600
	25:1 Ratio ⑥	1	243551	244581	245601
130	15:1 Ratio Hydroil Pinion ⑥	1	243553	244583	245603
	25:1 Ratio Hydroil Pinion ⑥	1	243554	244584	245604
	15:1 Ratio Hydroil 6-B Pinion ⑥	1	N/A	244586	N/A
	25:1 Ratio Hydroil 6-B Pinion ⑥	1	243498	244587	245641
41	Input Pinion Shaft Key	1	443032	443082	443096
	Input Bearing Kit ②	1	389587	389590	389594
44	Input Shaft Bearing Cone, Input Side ④	1	402204	402280	402144
45	Input Shaft Bearing Cup, Input Side ④	1	403139	403027	403104
46	Input Shaft Bearing Cone, Backstop Side ④	1	402273	402142	402266
47	Input Shaft Bearing Cup, Backstop Side ④	1	403094	403102	403073
	Countershaft Pinion Assembly ②	1			
	9:1 Ratio ⑥	1	389729	389730	389731
	15:1 Ratio ⑥	1	389700	389707	389714
	25:1 Ratio ⑥	1	389701	389708	389715
48	Countershaft Pinion ④	1	243555	244590	245596
50	First Reduction Gear ④	1			
	9:1 Ratio ⑥	1	243237	244482	245482
	15:1 Ratio ⑥	1	243238	244214	245214
	25:1 Ratio ⑥	1	243239	244212	245212
52	First Stage Gear Key ④	1	D8242	D8243	D8243
	Countershaft Bearing Kit ②	1	389588	389591	389595
54	Countershaft Bearing Cone, Input Side ④	1	402273	402000	402203
55	Countershaft Bearing Cup, Input Side ④	1	403094	403000	403027
56	Countershaft Bearing Cone, Backstop Side ④	1	402273	402000	402203
57	Countershaft Bearing Cup, Backstop Side ④	1	403094	403000	403027
58	Countershaft Bearing Cover, Input Side ④	1	243545	244578	245594
59	Countershaft Bearing Shim Pack	⑧	389705	389712	389718
	Taper Bore Output Hub Assembly ②	1	389703	389710	389717
	Straight Bore Output Hub Assembly ③	1	389702	389709	389716
60	Output Hub				
	Straight Bore ⑤	1	243557	244589	245591
	Taper Bore ④	1	243556	244588	245590
62	Output Gear ④ ⑤	1	243570	244188	245186
64	Output Gear Key ④ ⑤	1	243216	354087	355064
68	Output Hub Collar, Straight Bore	2	243572	244658	245598
70	Output Hub Collar Screw	4	400098	400150	400154
72	Bushing Backup Plate, Taper Bore	2	243308	244099	245114
74	Bushing Backup Plate Retaining Ring	2	421109	421108	421107
76	Output Hub Seal Carrier, Input Side	1	243547	244591	245592
	Output Hub Bearing Kit	1	389589	389592	389596
80	Output Hub Bearing, Cone ④	2	402272	402268	402193
81	Output Hub Bearing, Cup ④	2	403127	403163	403016
82	Output Hub Bearing Shim Kit	⑧	389706	389713	389719

Parts for TXT3B thru TXT5C Straight and Tapered Bushed Double Reduction Reducer, continued

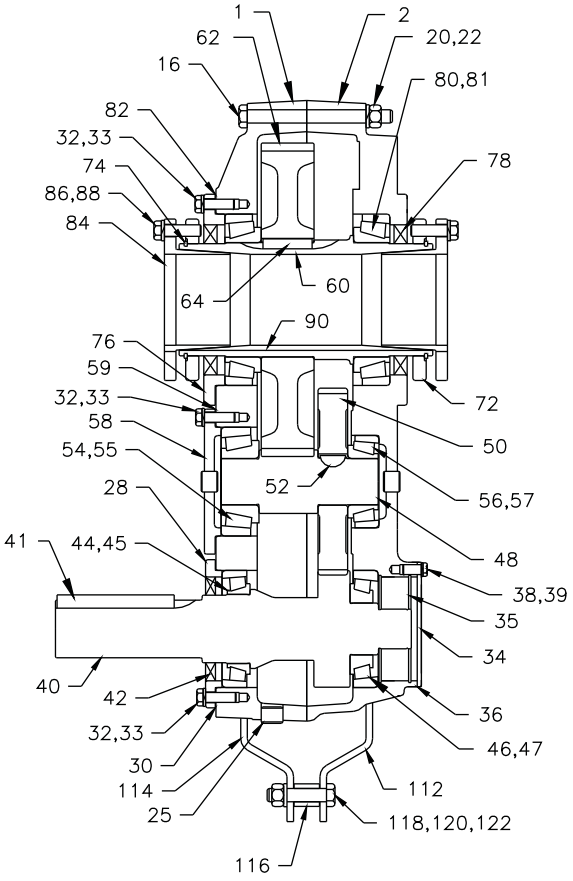
Ref.	Description	Qty.	TXT3B HXT3B	TXT4B HXT4B	TXT5C HXT5C
84	Taper Bore Bushing Assembly ②				
	Bushing ④				
	1-5/16" Bore	1	243282	N/A	N/A
	1-3/8" Bore	1	243284	N/A	N/A
	1-7/16" Bore	1	243260	244079	N/A
	1-1/2" Bore	1	243262	244081	N/A
	1-5/8" Bore	1	243264	244083	N/A
	1-11/16" Bore	1	243268	244085	N/A
	1-3/4" Bore	1	243266	244087	N/A
	1-7/8" Bore	1	243270	244089	245084
	1-15/16" Bore	1	243272	244093	245086
	2" Bore	1	243274	244095	245088
	2-1/8" Bore	1	N/A	244109	N/A
	2-3/16" Bore	1	243276	244111	245090
	2-1/4" Bore	1	N/A	244113	245092
	2-7/16" Bore	1	N/A	244115	245094
	2-1/2" Bore	1	N/A	N/A	245099
	2-11/16" Bore	1	N/A	N/A	245110
	2-15/16" Bore	1	N/A	N/A	245112
86	Taper Bushing Screw ④	6	411407	411408	411435
88	Taper Bushing Lockwasher ④	6	419011	419011	419012
90	Key, Bushing to Shaft ④				
	1-5/16" Bore	1	443264	N/A	N/A
	1-3/8" Bore	1	443264	N/A	N/A
	1-7/16" Bore	1	443265	443254	N/A
	1-1/2" Bore	1	443265	443254	N/A
	1-5/8" Bore	1	443265	443254	N/A
	1-11/16" Bore	1	443266	443254	N/A
	1-3/4" Bore	1	443266	443254	N/A
	1-7/8" Bore	1	443267	443255	443251
	1-15/16" Bore	1	443269	443255	443251
	2" Bore	1	443268	443255	443251
	2-1/8" Bore	1	N/A	443258	N/A
	2-3/16" Bore	1	443270	443259	443251
	2-1/4" Bore	1	N/A	443260	443251
	2-7/16" Bore	1	N/A	443261	443243
	2-1/2" Bore	1	N/A	N/A	443244
	2-11/16" Bore	1	N/A	N/A	443245
	2-15/16" Bore	1	N/A	N/A	443250
①	Key, Bushing to Output Hub ④				
	1-3/4" thru 1-15/16" Bore Bushing	1	443262	N/A	N/A
	1-7/16" thru 2-1/4" Bore Bushing	1	N/A	N/A	443202
	2-3/16" thru 2-15/16" Bore Bushing	1	N/A	443257	N/A
	Torque-Arm Rod Kit ②	1	243097	245097	245097
94	Torque-Arm Rod End ④	1	243245	243245	243245
96	RH Nut ④	1	407095	407095	407095
98	Torque-Arm Turnbuckle ④	1	243246	243246	243246
100	Torque-Arm Extension ④	1	243247	243247	243247
102	LH Nut ④	1	407244	407246	407246
104	Fulcrum ④	1	243249	243249	243249
106	Fulcrum Screw ④	1	411484	411484	411484
110	Hex Nut ④	1	407093	407093	407093
	Adapter Assembly ②	1	259153	259154	259155
112	RH Adapter Plate ④	1	243242	244244	245242
114	LH Adapter Plate ④	1	243241	244243	245241
116	Adapter Bushing ④	1	243243	245243	245243
118	Adapter Bolt ④	1	411437	411460	411460
120	Lockwasher ④	1	419012	419013	419013
122	Hex Nut ④	1	407089	407091	407091
	Hydroil Motor Adapter				
124	15:1 Ratio Motor Adapter	1	243539	244572	245606
	25:1 Ratio Motor Adapter	1	243541	244572	245607
	Hydroil 6-B Motor Adapter, 15:1 and 25:1 Ratio	1	243467	244573	245643
126	Adapter Screw	⑦	417081	417108	415023
128	Lockwasher	⑦	419046	419047	419047
①	Motor to Adapter Screw				
①	Motor to Adapter Lock Washer				

Notes:
① Not shown on drawing.
② Includes parts listed immediately below
③ Includes parts listed immediately below
④ Makes up assembly under which it is listed.
⑤ Makes up assembly under which it is listed.
⑥ See Table 9 for actual ratio.
⑦ 4 required on TXT3B and TXT4B, 5 required on TXT5C
⑧ Two sets recommended.

Parts for TXT6A thru TXT10A Straight and Tapered Bushed double Reduction Reducers

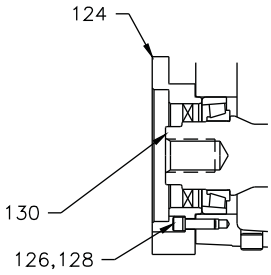


STRAIGHT BORE

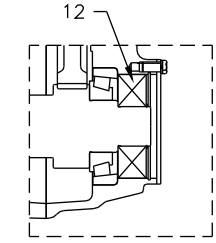


TAPER BORE

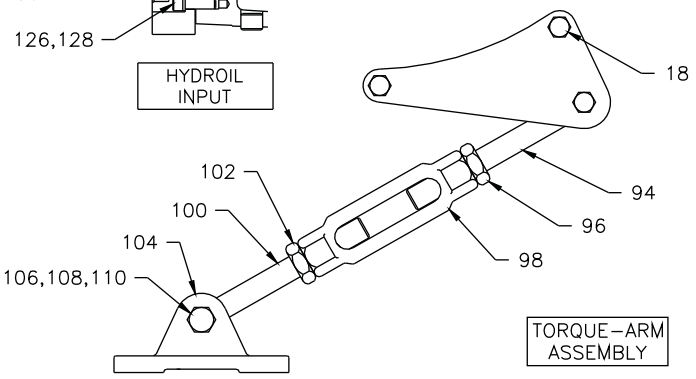
NOTE: THE TWO DIGIT NUMBERS ARE FOR REFERENCE ONLY. ORDER PARTS BY THE SIX DIGIT NUMBER IN THE PARTS LIST. EACH SIX DIGIT NUMBER IS A COMPLETE IDENTIFICATION OF THE PART OR ASSEMBLY.



HYDROIL INPUT



BACKSTOP ASSEMBLY



TORQUE–ARM ASSEMBLY

Parts for TXT6A thru TXT10A Straight and Tapered Bushed double Reduction Reducers

Ref.	Description	Qty.	TXT6A HXT6A	TXT7A HXT7A	TXT8A	TXT9A	TXT10A
12	Backstop Assembly	1	246092	247260	249260	249260	250260
1	Housing-TXT and Hydroil LH	1	246358	247358	248358	249358	250358
2	Housing-RH	1	246359	247359	248359	249359	250359
	Housing-RH, Flange Mount Drilled	1					
①	RTV Sealant, Tube	1	465044	465044	465044	465044	465044
①	Air Vent	1	904287	904287	904287	904287	904287
16	Housing Bolt	2	411466	411498	411499	411500	411502
18	Housing Bolt-Adapter	2	411468	411499	411502	411502	411506
20	Lock-Washer	1	419013	419016	419016	419016	419016
22	Hex Nut	4	407091	407095	407095	407095	407095
①	Dowel Pin	2	420147	420148	420148	420148	420148
25	Magnetic Oil Plug	1	430062	430064	430064	430064	430064
①	Oil Plug	4	430033	430035	430035	430035	430035
28	Input Shaft Seal Carrier	1	246184	247320	258023	249211	249211
30	Input Shaft Bearing Shim Pack	⑧	391164	390420	390038	390168	390168
32	Carrier and Cover Screw	⑨	411408	411433	411408	411408	411408
33	Lock Washer	⑨	419011	419012	419011	419011	419011
34	Backstop Cover	1	246226	246226	248226	248226	248226
35	Backstop Retaining Ring	⑦	421029	421029	421034	421034	421034
38	Backstop Cover Screw	6	411394	411394	411394	411394	411394
39	Backstop Cover Lock Washer	6	419009	419009	419009	419009	419009
	Seal Kit ②	1	246340	247345	248340	249340	272460
36	Backstop Cover Gasket ③	1	246220	246220	248220	248220	248220
42	Input Pinion Shaft Seal ③	1	242210	242210	248211	248211	248211
78	Output Hub Oil Seal ③	2	246310	247310	258019	249210	250010
40	Input Pinion						
	9:1 Ratio ⑥	1	246481	247479	N/A	N/A	N/A
	15:1 Ratio ⑥	1	246290	247370	248370	272074	250300
	25:1 Ratio ⑥ ⑩	1	246291	247371	248371	272106	250004
130	15:1 Ratio Hydroil Pinion ⑥	1	246230	247463	N/A	N/A	N/A
	25:1 Ratio Hydroil Pinion ⑥	1	246286	247462	N/A	N/A	N/A
	15:1 Ratio 6B Hydroil Pinion ⑥	1	N/A	N/A	N/A	N/A	N/A
	25:1 Ratio 6B Hydroil Pinion ⑥	1	246521	247521	N/A	N/A	N/A
41	Input Pinion Shaft Key	1	443113	443127	443133	443123	443123
	Input Bearings						
44	Input Shaft Bearing Cone, Input Side	1	402196	402150	402098	402114	402114
45	Input Shaft Bearing Cup, Input Side	1	403091	403106	403072	403080	403080
46	Input Shaft Bearing Cone, Backstop Side	1	402197	402088	402097	402107	402112
47	Input Shaft Bearing Cup, Backstop Side	1	403091	403047	403072	403076	403080
	Countershaft Pinion Assembly ②						
	9:1 Ratio ⑥	1	392140	392141	N/A	N/A	N/A
	15:1 Ratio ⑥	1	391171	391196	391184	390124	390983
	25:1 Ratio ⑥ ⑩	1	391186	391197	391185	390139	390998
48	Countershaft Pinion ③	1	246294	247002	248002	249006	272249
50	First Reduction Gear ③						
	9:1 Ratio ⑥	1	246482	247478	N/A	N/A	N/A
	15:1 Ratio ⑥	1	246492	247008	248213	249008	250301
	25:1 Ratio ⑥ ⑩	1	246293	247005	248214	249005	250005
52	First Stage Gear Key ③	1	245218	247218	248218	248218	248218
	Countershaft Bearings						
54	Countershaft Bearing Cone, Input Side	1	402054	402256	402057	402109	402232
55	Countershaft Bearing Cup, Input Side	1	403159	403053	403143	403078	402231
56	Countershaft Bearing Cone, Backstop Side	1	402052	402256	402148	402109	402232
57	Countershaft Bearing Cup, Backstop Side	1	403142	403053	403106	403078	402231
58	Countershaft Bearing Cover, Input Side	1	246185	247194	248223	249225	272251
59	Countershaft Bearing Shim Pack	⑧	391165	390429	391182	390168	390575
	Taper Bore Output Hub Assembly ②	1	390935	390941	390944	390949	390954
	Straight Bore Output Hub Assembly ④	1	390988	390990	390993	390159	390160
60	Straight Bore Hub ⑤	1	246338	247338	248332	250090	250008
	Taper Bore Hub ③	1	246269	272137	272036	249140	272241
62	Output Gear ③ ⑤	1	246295	247215	248215	021764	250007
64	Output Gear Key ③ ⑤	2	245217	245217	248217	443413	250017
68	Output Hub Collar, Straight Bore	2	246309	247309	248209	249209	250009
70	Output Hub Collar Screw	4	400154	400190	400190	400194	400194
72	Bushing Backup Plate, Taper Bore	2	246270	272138	272037	272082	272242
74	Output Hub Retaining Ring	2	421055	421099	421098	421097	421069
76	Output Hub Seal Carrier, Input Side	1	246187	247315	258021	249221	250011
	Output Hub Bearing Kit 1	1					
80	Output Hub Bearing, Cone	2	402050	402058	402147	402160	402168
81	Output Hub Bearing, Cup	2	403140	403111	403105	403110	403116
82	Output Hub Bearing Shim Kit	⑧	391187	390044	390048	390171	390172

Parts for TXT6A thru TXT10A Straight and Tapered Bushed double Reduction Reducers							
Ref.	**Description**	**Qty.**	**TXT6A**	**TXT7A**	**TXT8A**	**TXT9A**	**TXT10A**
84	Taper Bore Bushing Assembly ②						
	Bushing ③						
	2-3/16" Bore	1	246261	N/A	N/A	N/A	N/A
	2-1/4" Bore	1	246262	N/A	N/A	N/A	N/A
	2-7/16" Bore	1	246263	272125	N/A	N/A	N/A
	2-1/2" Bore	1	246264	N/A	N/A	N/A	N/A
	2-11/16" Bore	1	246265	272147	N/A	N/A	N/A
	2-13/16" Bore	1	N/A	272130	N/A	N/A	N/A
	2-7/8" Bore	1	246266	272131	N/A	N/A	N/A
	2-15/16" Bore	1	246267	272132	272048	N/A	N/A
	3" Bore	1	246283	272133	N/A	N/A	N/A
	3-3/16" Bore	1	N/A	272134	N/A	N/A	N/A
	3-7/16" Bore	1	246268	272135	272032	N/A272056	N/A
	3-15/16" Bore	1	N/A	272136	272033	272077	272214
	4-3/16" Bore	1	N/A	N/A	272034	N/A	N/A
	4-7/16" Bore	1	N/A	N/A	272035	272079	272238
	4-15/16" Bore	1	N/A	N/A	N/A	272080	272239
	5-7/16" Bore	1	N/A	N/A	N/A	N/A	272240
86	Taper Bushing Screw ③	6	411435	411456	411457	411484	411484
88	Taper Bushing Lockwasher ③	6	419012	419013	419013	419014	419014
90	Key, Bushing to Shaft ③	1	443211	N/A	N/A	N/A	N/A
	2-3/16" Bore	1	443211	N/A	N/A	N/A	N/A
	2-1/4" Bore	1	443214	443248	N/A	N/A	N/A
	2-7/16" Bore	1	443214	N/A	N/A	N/A	N/A
	2-1/2" Bore	1	443238	443248	N/A	N/A	N/A
	2-11/16" Bore	1	N/A	443199	N/A	N/A	N/A
	2-13/16" Bore	1	443236	443199	N/A	N/A	N/A
	2-7/8" Bore	1	443237	443199	N/A	N/A	N/A
	2-15/16" Bore	1	443252	443199	443247	N/A	N/A
	3" Bore	1	N/A	443216	N/A	N/A	N/A
	3-3/16" Bore	1	443213	443235	N/A	N/A	N/A
	3-7/16" Bore	1	N/A	443217	443171	443249	N/A
	3-15/16" Bore	1	N/A	443218	443173	272119	443192
	4-3/16" Bore	1	N/A	N/A	443174	N/A	N/A
	4-7/16" Bore	1	N/A	N/A	443196	272066	443193
	4-15/16" Bore	1	N/A	N/A	N/A	443161	443194
	5-7/16" Bore	1	N/A	N/A	N/A	N/A	443195
①	Key, Bushing to Output Hub ③						
	2-3/16" thru 2-1/2" Bore Bushing	1	443212	N/A	N/A	N/A	N/A
	2-7/16" thru 3" Bore Bushing	1	N/A	443198	N/A	N/A	N/A
	2-3/16" thru 2-15/16" Bore Bushing	1	N/A	N/A	N/A	N/A	N/A
	2-15/16" thru 3-7/16" Bore Bushing	1	N/A	N/A	443162	N/A	N/A
	3-7/16" thru 4-3/16" Bore Bushing	1	N/A	N/A	N/A	443121	N/A
	3-15/16" thru 4-7/16" Bore Bushing	1	N/A	N/A	N/A	N/A	443191
	Torque-Arm Rod Kit ②	1	246097	247098	390129	390129	390129
94	Torque-Arm Rod End ③	1	245245	247239	271050	271050	271050
96	RH Nut ③	1	407097	407099	407104	407104	407104
98	Torque-Arm Turnbuckle ③	1	245246	247246	271051	271051	271051
100	Torque-Arm Extension ③	1	245247	247240	271052	271052	271052
102	LH Nut ③	1	407246	407248	407250	407250	407250
104	Fulcrum ③	1	247248	247248	271054	271054	271054
106	Fulcrum Screw ③	1	411489	411489	411516	411516	411516
108	Lockwasher ③	1	419014	419014	419020	419020	419020
110	Hex Nut ③	1	407093	407093	407099	407099	407099
	Adapter Assembly ②	1	259156	259157	248110	249110	250110
112	RH Adapter Plate ③	1	246242	247242	272053	249241	250041
114	LH Adapter Plate ③	1	246241	247241	272053	249241	250041
116	Adapter Bushing ③	1	245243	247244	271046	271046	211046
118	Adapter Bolt ③	1	411460	411489	411510	411512	411512
120	Lockwasher ③	1	419013	419014	419020	419020	419020
122	Hex Nut ③	1	407091	407093	407099	407099	407099
124	Hydroil Motor Adapter	1	246465	247464	N/A	N/A	N/A
	Hydroil 6B Motor Adapter	1	246522	247522	N/A	N/A	N/A
126	Hydroil Adapter Screw	6	417108	417141	N/A	N/A	N/A
128	Lockwasher	6	906406	907406	N/A	N/A	N/A
①	Motor to Adapter Screw						
①	Motor to Adapter Lock Washer						

Notes:
① Not shown on drawing
② Includes parts listed immediately below
③ Makes up assembly under which it is listed
④ Includes parts listed immediately below marked
⑤ Makes up assembly under which it is listed
⑥ See Table 9 for actual ratio
⑦ Required only with optional backstop, 1 required on TXT6A and TXT7A, 2 required on TXT8A, TXT9A, & TXT10A.
⑧ 2 sets recommended
⑨ 18 Required on TXT6A, 20 Required on TXT7A, and 24 Required on TXT8A, TXT9A, & TXT10A
⑩ Nominal Ratio on TXT6A, TXT7A, and TXT8A is 25:1, Nominal Ratio on TXT9A is 26:1, and Nominal Ratio on TXT10A is 24:1

ACTUAL RATIOS

Table 9 – Actual Ratios			
Reducer Size	Nominal Ratios		
	9:1	15:1	25:1*
TXT1A	9.44	15.35	25.64
TXT2A	9.25	14.10	23.46
TXT3B	8.91	14.88	24.71
TXT4B	9.67	15.13	24.38
TXT5C	8.95	15.40	25.56
TXT6A	9.20	15.33	25.13
TXT7A	9.61	15.23	24.59
TXT8A	N/A	15.08	24.62
TXT9A	N/A	15.12	25.66
TXT10A	N/A	15.16	24.30

* TXT9A is 26:1 Nominal Ratio and TXT10A is 24:1 Nominal Ratio

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P.O. Box 2400, Fort Smith, AR 72902-2400 U.S.A., Ph: (1) 479.646.4711, Fax (1) 479.648.5792, International Fax (1) 479.648.5895

Dodge Product Support

6040 Ponders Court, Greenville, SC 29615-4617 U.S.A., Ph: (1) 864.297.4800, Fax: (1) 864.281.2433

www.baldor.com

MN1610 (Replaces 499304)

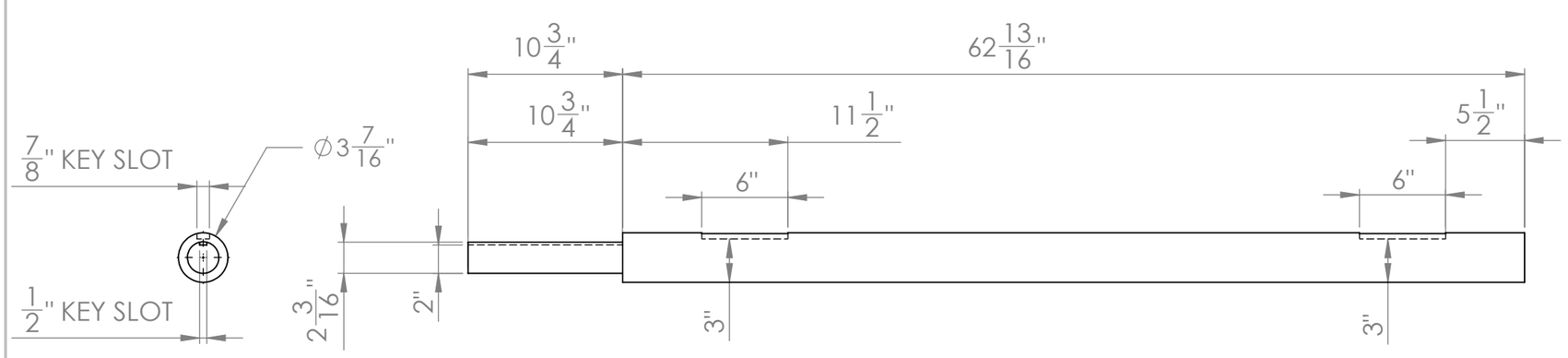
16 10 – 08 11

7/12 TCP 25,000

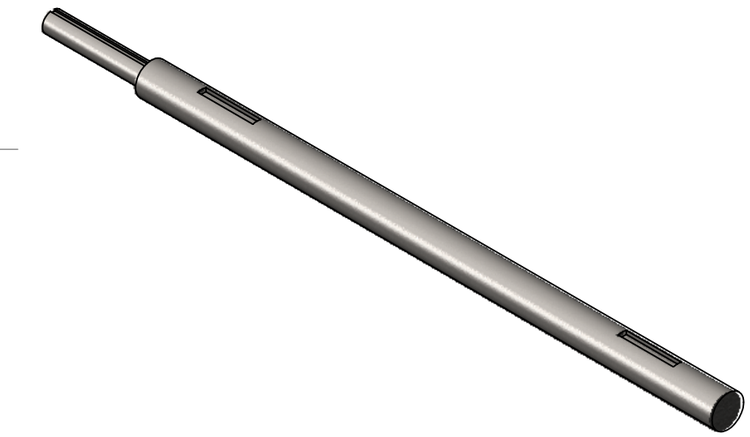
CONVEYOR BELT INFORMATION FOR M2

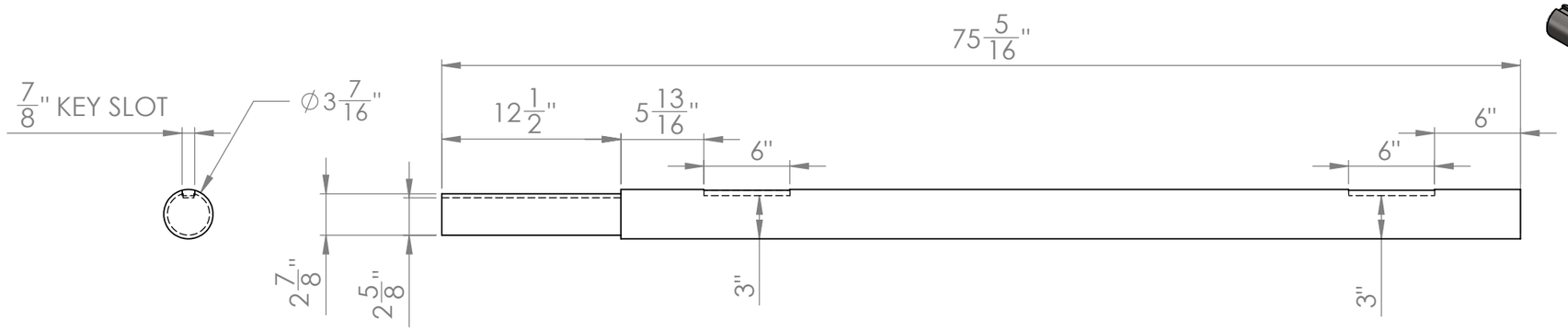
1. The effective conveyor belt tension is
   Tight side – 2546 lbs
   Slack Side – 1131 lbs

2. Conveyor belt HP is 15
3. Maximum conveyor belt unit stress, PIW
   - 53 PIW
4. L – 10 bearing life for head, tail and snub pulleys is 500000 hrs
5. Shaft Specifications

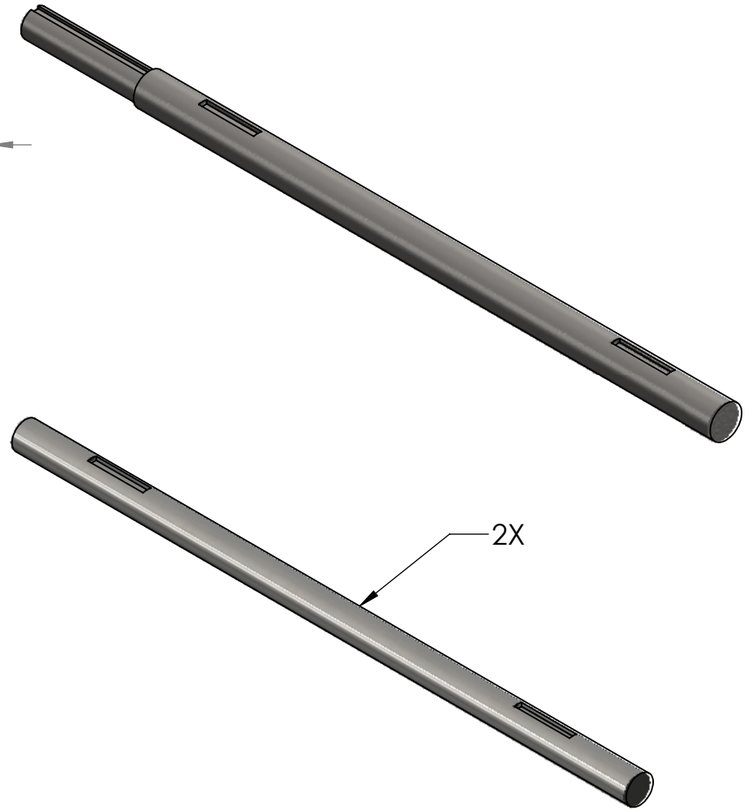


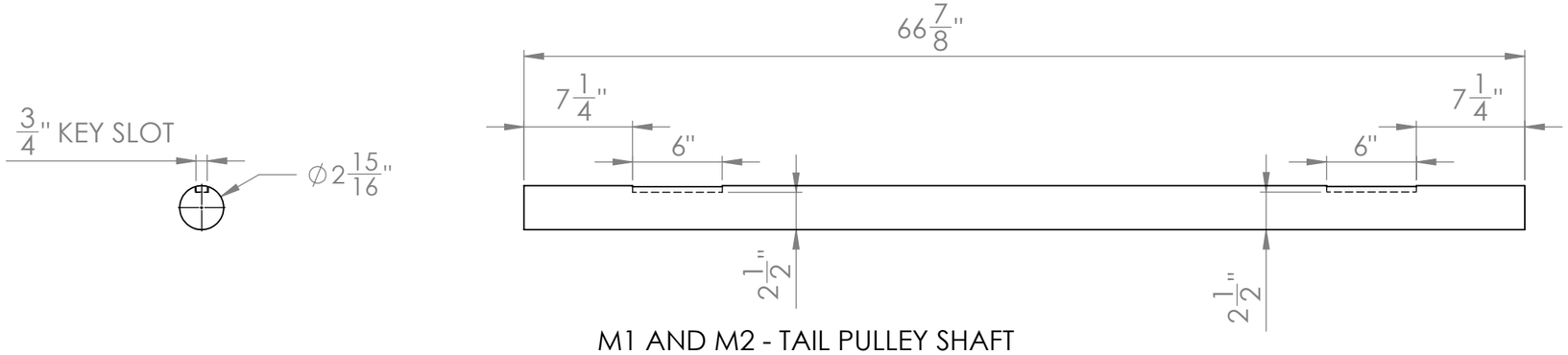
M1 - STEP DOWN HEAD PULLEY SHAFT





M2 - HEAD PULLEY SHAFT





M1 AND M2 - TAIL PULLEY SHAFT

NOTES:

- STANDARD DEPTH OF KEY SLOTS
- 4 SHAFTS IN TOTAL

RMS

1-34581 4th Ave
Abbotsford, BC
V2S 8E5

TITLE: Winnipeg Conveyor Shaft Lengths		
CUSTOMER: TRANSFORM COMPOST SYSTEMS		REVISION: 1
DATE: 12/11/13	PART WEIGHT: ----------	PART MATERIAL: ----------
DRAWING #: TRANS-SHDM-001	SHEET NO.: 1 OF 1	SCALE: 1:10

M1 Conveyor manual:

City of Winnipeg
Brady Rd Compost Facility

Supplied by:

RMS Industrial Maintenance
#1 34581 4th Ave
Abbotsford, B.C.
V2R 8E5

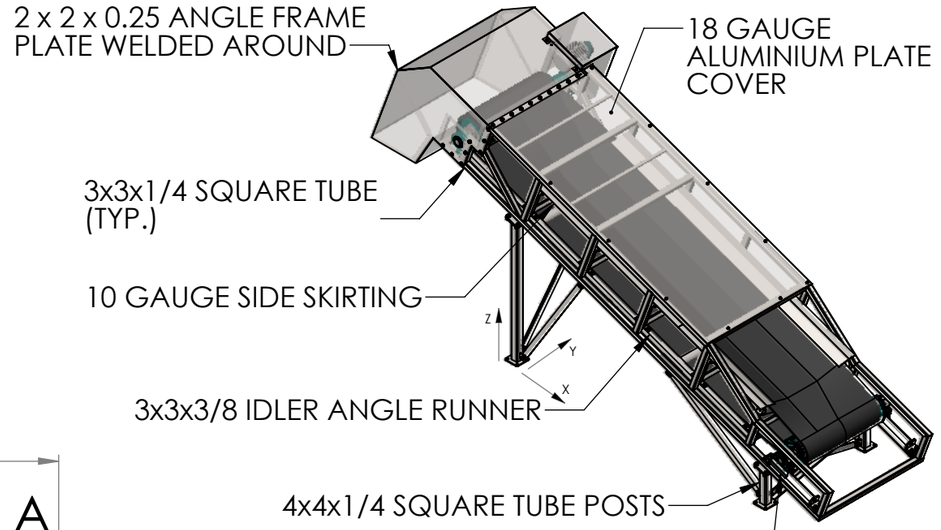
BILL OF MATERIALS			
CONVEYOR NUMBER	M2		WEIGHT
QUANTITY REQUIRED	1		EA. LBS
GENERAL DESIGN DATA	BELT WIDTH	1.2m	
	BELT SPEED	1908 linear ft. per/min	
	DESIGN CAPACITY	5 m3 per min.	
	MATERIAL	COMPOST	
	MATERIAL SIZE	1 cm TO 15 cm	
	BULK DENSITY	600kg/m3	
	MATERIAL LOAD/m	266 cubic inches per foot	
HEAD PULLEY	DIA, & FACE	16inch, 52inch	539.2 lbs
	BELT WRAP DEGREES	-210°	
	LAGGING THK. & TYPE	0.5inch	
SHAFT PILLOW BLOCKS	DIA. & MATERIAL	3.4375 TO. 2.9375 inch, AISI Steel:1040 (APPROVAL?)	
	MAKE & TYPE	BALDOR DODGE - ALIGN	LIFE: 500,000h
	NUMBER	070389	2 @ 30.4lbs
TAIL PULLEY SHAFT PILLOW BLOCKS	DIA, & FACE	12inch, 52 inch	480.8 lbs
	DIA, & MATERIAL	2.9375inch, ANSI Steel:1040	
	MAKE & TYPE	BALDOR DODGE - ALIGN	LIFE: 500,000h
	NUMBER	070368	2 @ 25.2 lbs
TAKE-UP	TYPE	SCREW TYPE	
	WEIGHT (TOTAL)	51.5lbs	
	TRAVEL	12 inch	
IDLERS - TROUGH	NUMBER OF:	5	55 lbs
	ROLL DIA. & DEG	5 inch, 20°	
	MAKE, TYPE & HAND	ICC, TYPE C	
IDLERS - RETURN	NUMBER OF:	2	40 lbs
	ROLL DIA. & DEG.	5 inch	
	MAKE, TYPE & HAND	ICC, TYPE C	
BELT SCRAPER			
DRIVE PULLEY	R.P.M.	398 RPM	2 BELTS
MOTOR	H.P.	10	
	R.P.M.	1760	
	FRAME & ASSEMBLY	215T	
	VOLTS/PH/CYCLE	575/3/60HZ	
MOTOR SHEEVE	MAKE & SIZE	DODGE, 6.35 inch	
REDUCER	TYPE	SHAFT MOUNTED, V-BELT DRIVE	
	MAKE	BALDOR DODGE	
	SIZE & ASSEMBLY	3, TXT315 x 2.9375inch	
	RATIO	3:1	
GEARBOX SHEEVE	MAKE & SIZE	DODGE, 7.75 inch	
BELTING	LENGTH W/O SPLICE	48inch x 220 piw MECHANICAL FASTENER	
	PLY & TYPE	2 PLY	
	TOP & BOTTOM COVER	0.1875inch, 0.0625inch	

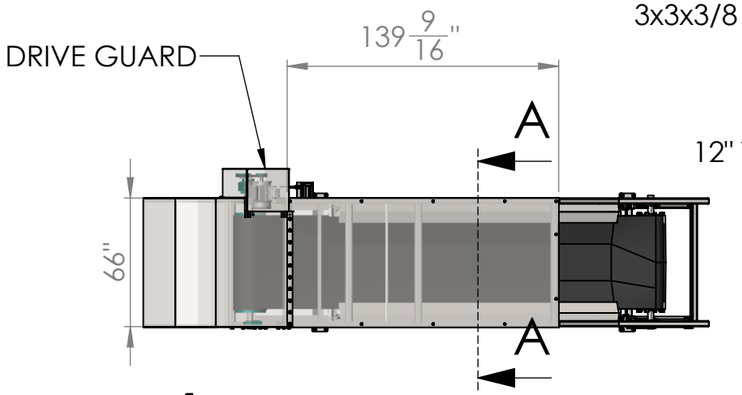
TYPICAL POST BASE FACTORED REACTIONS:

Fx = 750 lbs

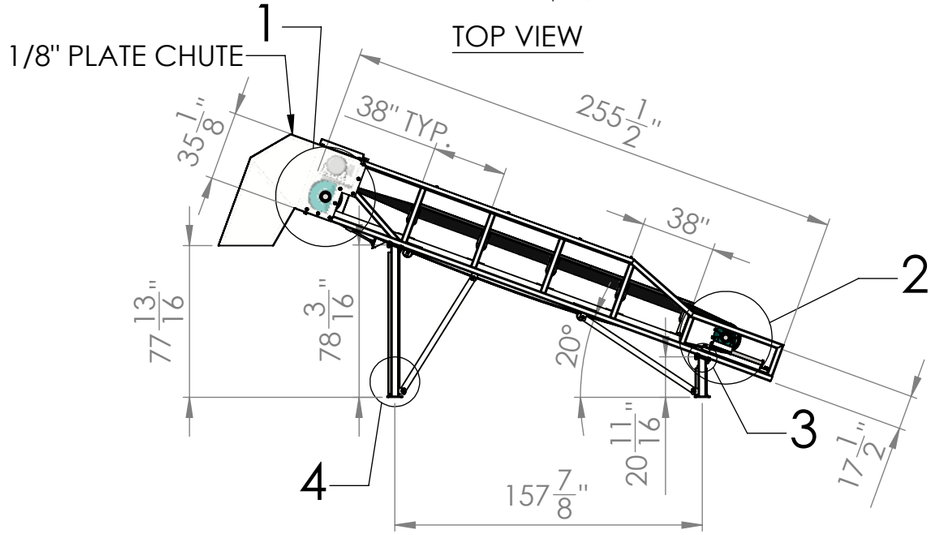
Fy = 750 lbs

Fz = 3000 lbs DOWNWARD,
500 lbs UPLIFT

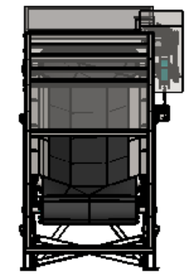




TOP VIEW



FRONT VIEW



RIGHT SIDE VIEW

EFFECTIVE THROAT OF FILLET/BEVEL/PENETRATION WELDS TO MATCH STEEL MEMBER WALL THICKNESS TYPICAL UNLESS NOTED OTHERWISE

Job No. 112-494

lang structural engineering inc.

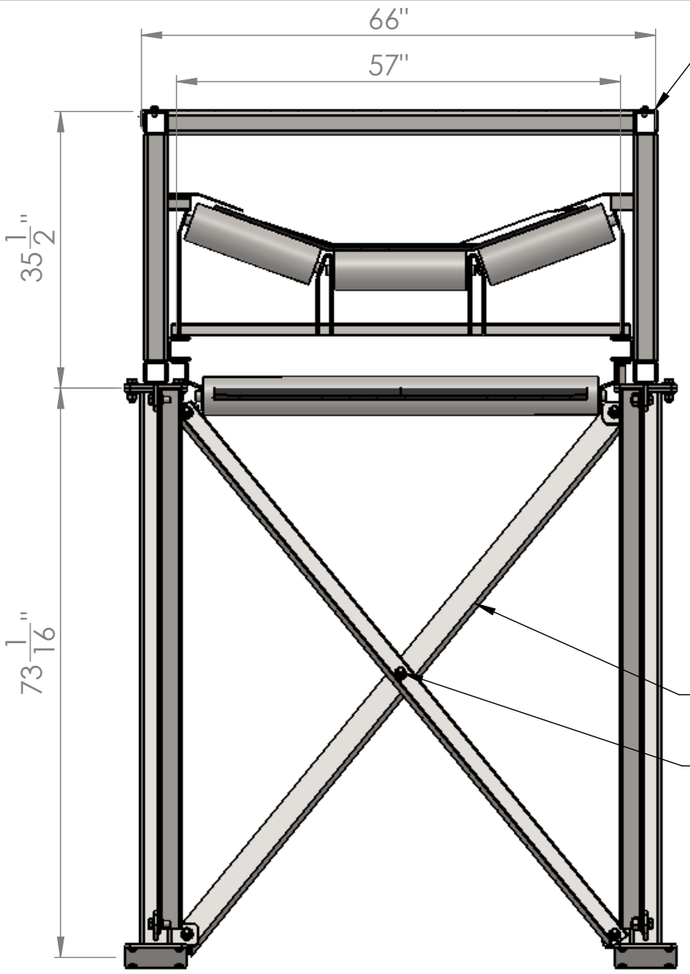
#201-2313 West Railway Street
Abbotsford, B.C.
V2S 2E3
Abbotsford (604) 853-8522
Toll Free (604) 857-1757
Fax (604) 853-0158
E-mail mail@langeng.com

1-34581 4th Ave
Abbotsford, BC
V2S 8E5

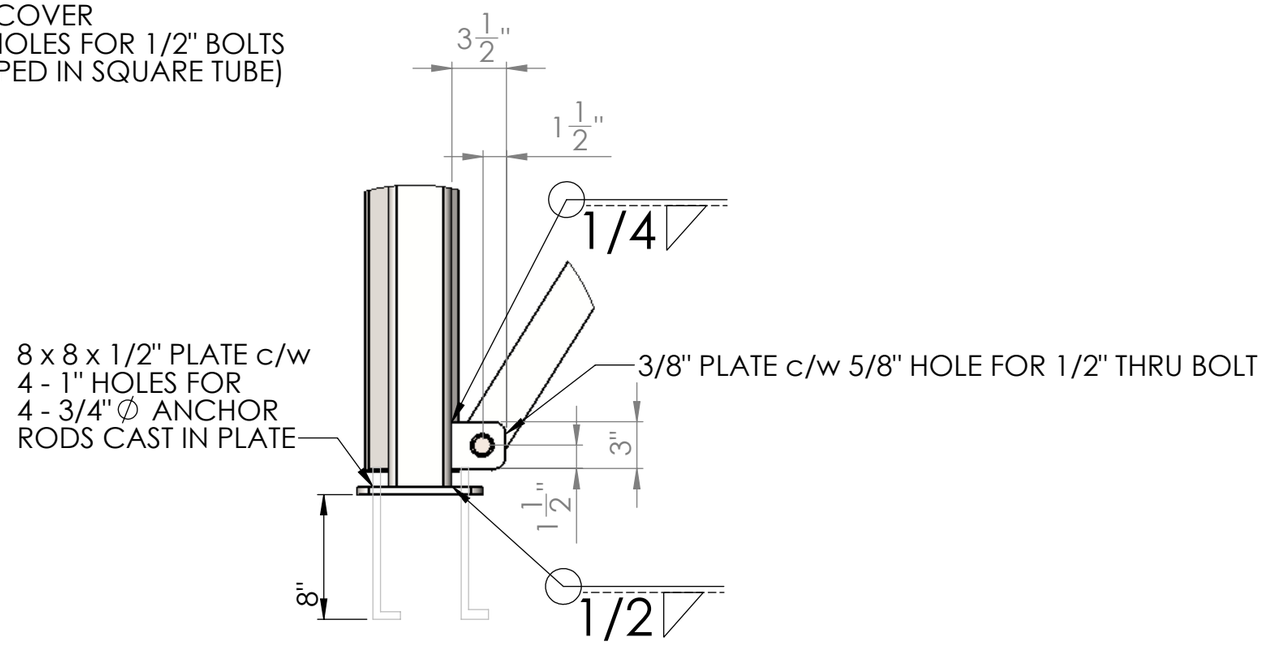
TITLE: M1-20ft 48 inch Belt Conveyor

CUSTOMER:	REVISION
TRANSFORM COMPOST SYSTEMS	2

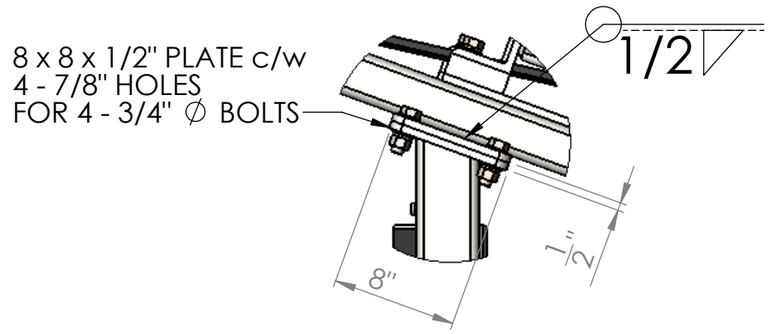
DATE	PART WEIGHT:	PART MATERIAL:
14/08/13	5534.58	----------
DRAWN BY:	SHEET NO.	SCALE:
KURT	2 OF 8	1:80



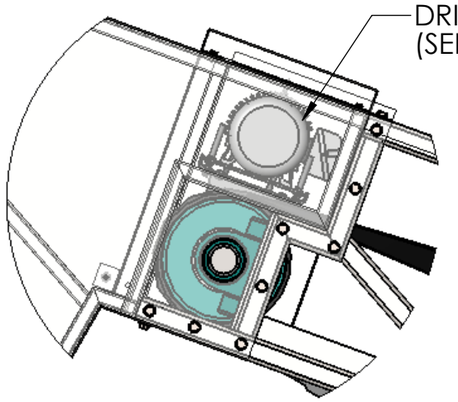
SECTION A-A
SCALE 1 : 20



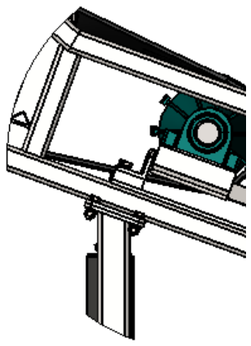
DETAIL 4
ANCHOR PLATE
SCALE 1 : 10



DETAIL 3
LEG JOINT
SCALE 1 : 10



DETAIL 1
HEAD END
SCALE 1 : 20



DETAIL 2
TAKE-UP
SCALE 1 : 20

Job No. 112-494

lang structural engineering inc.

#201-2313 West Railway Street
Abbotsford, B.C.
V2S 2E3
Abbotsford (604) 853-8522
Toll Free (604) 857-1757
Fax (604) 853-0158
E-mail mail@langeng.com

1-34581 4th Ave
Abbotsford, BC
V2S 8E5

TITLE: M1-20ft 48 inch Belt Conveyor		
CUSTOMER: TRANSFORM COMPOST SYSTEMS		REVISION: 2
DATE: 14/08/13	PART WEIGHT: ------	PART MATERIAL: MILD STEEL
DRAWN BY: KURT	SHEET NO.: 3 OF 8	SCALE: AS NOTED

Reference Number:
1500000000205096

Inputs:

Identification	M1	Conveyor Number	M1
Design Capacity (TPH)	198	Conveyor Length (FT)	22
Conveyor Lift (FT)	7	Material Density (LB/FT3)	40
Material Repose Angle (DEG)	35	Idler Angle (DEG)	20
Design Belt Speed (FPM)	350	Design Belt Width (IN)	48
		Number of Belt Scrapers	1
Skirtboard Length (FT)	13	Skirtboard Height (IN)	6
Material Group	Group 3 - Lumpy		
Conveyor Profile	1 - Manual Takeup		

Design:

Required H.P.	8.4	Motor H.P. (1750 RPM)	10
Starting Torque (LB-FT)	46.5	Conveyor Incline (DEG)	19
Tight Side Tension (LB)	1957	Slack Side Belt Tension (LB)	1014
Tail Belt Tension (LB)	924	Max Running Tension (PIW)	41
Max Bearing Centers (IN)	64.0	Drive Pulley Speed (RPM)	101
Volumetric Capacity (TPH)	598	System Capacity (TPH)	198
Design Belt Speed (FPM)	350	Design Belt Width (IN)	48
Idler Angle (DEG)	20	Idler Spacing for 2% SAG (FT)	4.5

Pulleys:

	Diameter	Face	Hub	Lagging	Shaft Diameter	Est Length
Drive	12.0	51.0	HE35	.375 HBG	3.4375	88
Tail	10.0	51.0	HE30		2.9375	71

Bearings:

	Bearing Size	SCM L10	Type E L10	TAF L10	S2000 L10	ISAF L10	USAF L10
Drive	3.4375	450459	500000	500000	500000	500000	500000
Tail	2.9375	500000	500000	500000	500000	500000	500000

Torque-Arm Shaft Mount Reducer

The Belt-Drive is based on the following:

Motor Frame:	215	Minimum Motor Sheave:	3.8 in
Min. Reducer Sheave:	4.0 in	Belt Center Distance:	22.0 to 25.3 in
Reducer Mechanical Rating:	15.89 HP	Net Weight for Above:	328.27 lbs
Reducer Thermal Rating:	15.89 HP	Net Weight for Qty 1:	328.27 lbs
Actual Service Factor:	1.59		

Selection:

Name:	Description:	Part Number:
Reducer	TXT315BT,BTV TAPER BUSHED REDR	243501
Bushing	2 3/16 TDT3 TAPERED BUSH ASSY	243276
Motor Mount	TA3M MOTOR MOUNT ASSY	243391
Electric Motor	10HP,1760RPM,3PH,60HZ,215T,0748M,TEFC,F	EM3774T

M1 Conveyor
Parts list

Item No.	Quantity	Description
EM3774T	1	10Hp 1750 TEFC 215T 575 Volt Motor
Drive package	1	Reducer TXT315 x 2 3/16, C/W Motor mount
Drive package	1	Backstop bearing BS 315 for Reducer
		Head pulley Bearings
Head Shaft	1	Special Head shaft 3-7/16" Dia Machined per Drawing
Head Shaft Bearings	2	Dodge P2BS2307R, 2 bolt Spherical Pillow Block bearings
V-belt drive	1	2B60, sdsx x 1 3/8, 2B70, SKx1 7/16
		2 of B65 V belt
Head pulley	1	Drum 16' dia x 51" face x 3 7/16 Bushed c/w Lagging
Tail Pulley	1	Wing 14" dia x 51" Face x 2 15/16 bushed
Tail Shaft	1	Special Tail Shaft 2-15/16 Dia Machined per Drawing
Tail Shaft Bearings	2	Dodge P2BS2215R 2bolt Spherical Pillow block bearings
Tail shaft take up frame	2	ATU215-12"
Tail Shaft Sensor	1	Wirligig mount, M300 sensor adaptor
Trough roller	5	C20-48 - 20 deg Troughing idler
Return Roller	2	CR-48 - 5" x 51" Return roller c/w drop brackets
Belt Cleaner	1	Mini Sabre Belt Cleaner for 48" belt c/w Frame mount.
Skirt Rubber	50ft	1/2 x 6 Skirt Rubber
Safety Pull System	1	2-Schneider Electirc XY2 CE Pull Hardware, Tension adjustment
		50 ft Red PVC Cable
Gear box oil		Shell Omala 220
Belting		2Ply-220-48 42ft belting c/w SS Lacing

Quality control sheet
M1 Conveyor

Sections	Quantity	Check
Frame Section		
All welding completed on frame		x
All assembly Bolts tightened		x
Emergency switches	2	x
emergency switch cable	2	x
Emergency switch cable guides	4	x
Skirting	2	x
Trough rollers	5	x
Return rollers	2	x
Lift lugs	4	x
Roof Section (3 sections)		
Welding completed		x
Chute		x
Bolts and washers supplied		x
Lift lugs	4	x
Legs and Cross bracing		
Legs	4	x
Cross bracing	8	x
Bolts, nuts and washers		x
Head Assembly		
Motor	1	x
Gear box	1	x
Sheaves	2	x
Belts	2	x
Mounting hardware	1	x
Cover	1	x
Bearings	2	x
Belt Scraper	1	x
Head pulley	1	x
All bolts tightened		
Tail Assembly		
tail pulley	1	x
Bearings	2	x
Belt Take up	2	x
All bolts tightened		x
Zero Speed switch	1	x

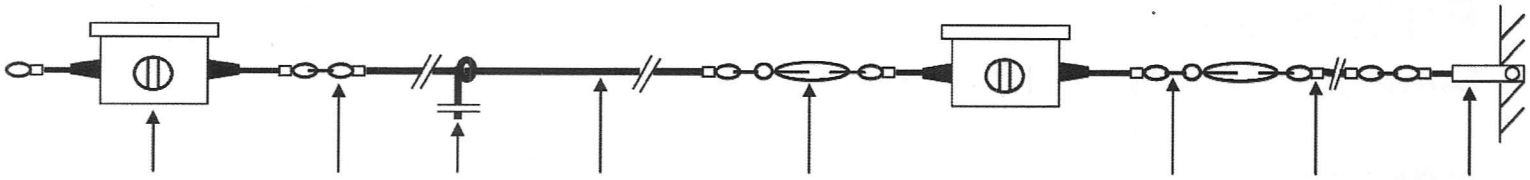
4B Components Limited

Product Information

Pullswitch

TECHNOLOGY · INNOVATION · QUALITY · VALUE

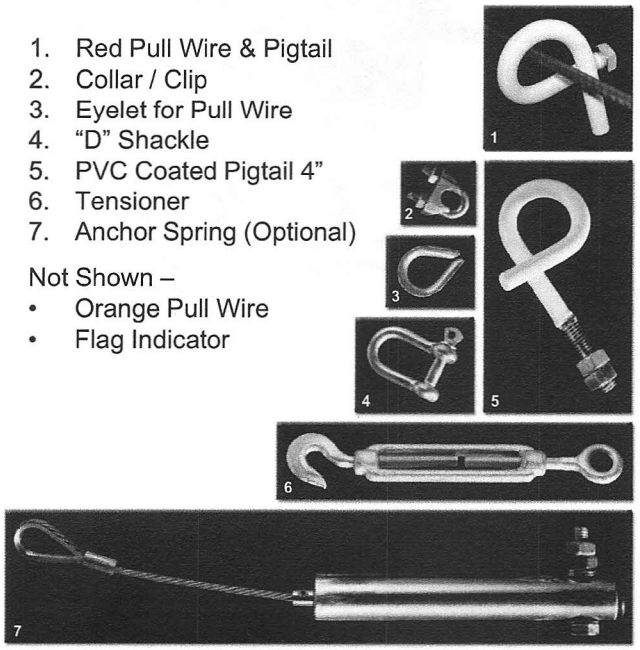
TYPICAL CONFIGURATION



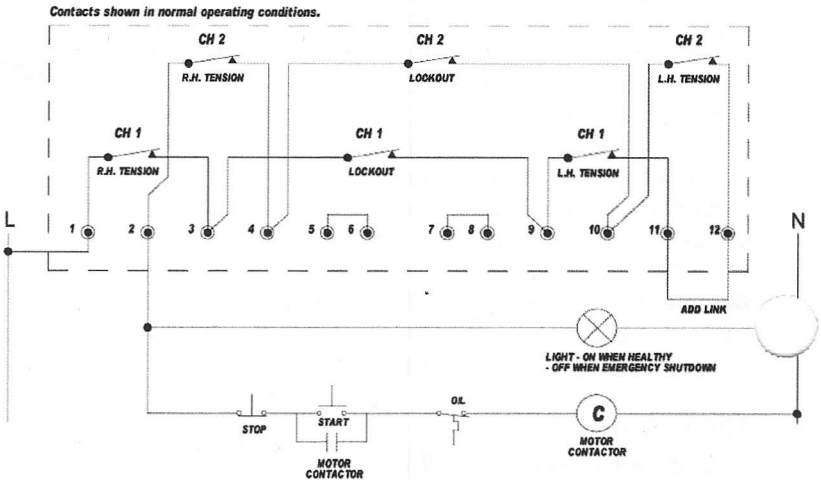
ACCESSORIES

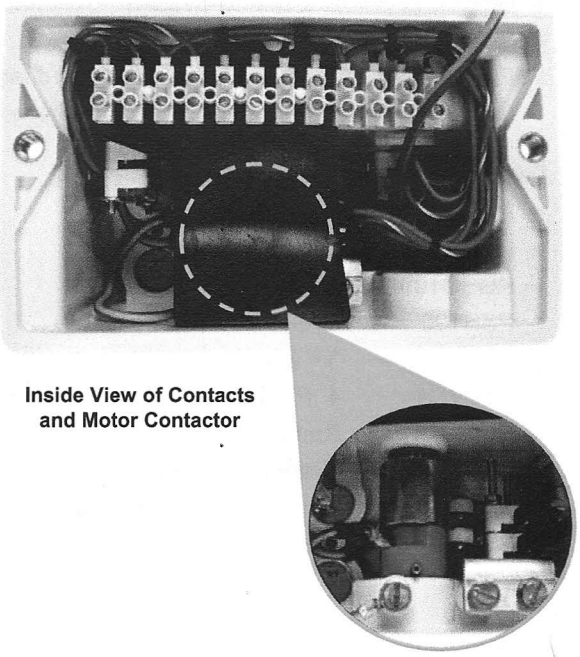
1. Red Pull Wire & Pigtail
2. Collar / Clip
3. Eyelet for Pull Wire
4. "D" Shackle
5. PVC Coated Pigtail 4"
6. Tensioner
7. Anchor Spring (Optional)

Not Shown –
- Orange Pull Wire
- Flag Indicator



CONTACT ARRANGEMENT





Inside View of Contacts and Motor Contactor

TECHNICAL SPECIFICATIONS

Pullswitch - Conveyor Pull Cord Safety Stop Switch

Pullswitch - PST1000C	
Enclosure:	Polycarbonate and Stainless Steel Plated
Weight:	4 lbs. (1.8 Kgs)
Dimensions:	4" x 8" x 5" (100 x 200 x 125 mm)
Contacts:	10 Amps (120 VAC)
Conduit Entries:	Two 1/2" NPT
Mechanism:	Double Ended Taut Wire
Operating Temperature:	-13° F to 158° F (-25° C to 70° C)
Protection:	IP65 / NEMA 4, 4X, 9
Approvals:	Class 2 Division 1 Groups E, F & G

Please refer to instruction manual for correct installation.
Information subject to change or correction. July 2009.

4B COMPONENTS LIMITED 729 Sabrina Drive, East Peoria, IL 61611 USA
Tel: 309-698-5611 Fax: 309-698-5615 Email: 4b-usa@go4b.com

www.go4b.com

SPECIFICATION

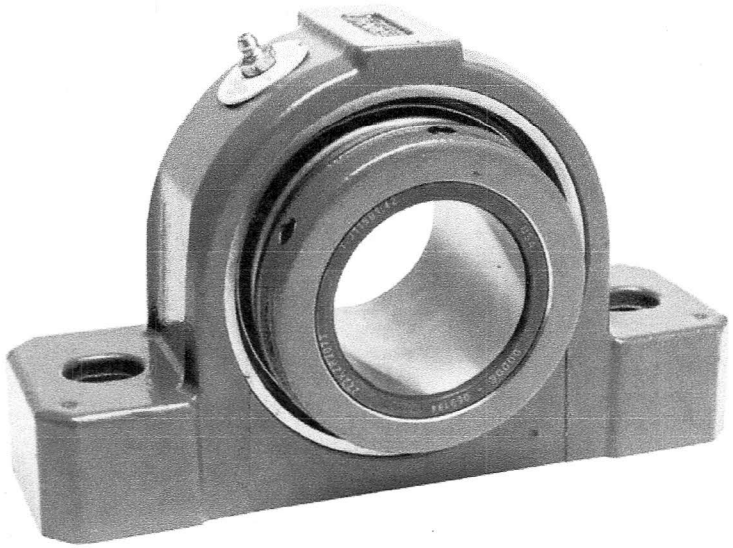
S-2000

INCH

DODGE Spherical Bearings, including S-2000 bearings, are general purpose, high-capacity, double-row spherical roller bearings. All are mounted in single piece precision machined housings. Bearings are mounted to shafts by means of set screw collars, with 65 degree set screw spacing for maximum clamping force.

ASTM A48 Class 30 cast iron is the standard material used in S-2000 housings. A-27 Grade 70-36 Class 1 Steel is the standard material used in Steel S2000-HD housings. Housing designs are available for survival in extreme harsh environments, through the use of special finishes and stainless hardware.

Housings are available in a variety of standard configurations, including pillow blocks, flanges, piloted flanges and take-up bearings. TRIDENT triple lip contact seal and Labyrinth seals are available on S-2000 bearings.



HOW TO ORDER

There are two ways to specify DODGE Bearings. Most of the product offerings have part numbers with listings shown throughout this catalog. Use of part numbers ensures accurate order processing.

When part numbers are not shown, the product may be specified by description or part name. This method is used when ordering units that include modifications or options. To order by description, use the nomenclature key shown on page B12-5 and add any special instructions to the end of the description for options not covered by the nomenclature.

DODGE Spherical Bearings are factory adjusted and pre-lubricated. For applications where extreme ambient temperatures, high speeds, or high loads are expected, a variety of specialty lubricants is available. Standard grease provided is lithium complex base Mobilgrease XHP222. High temperature greases available include Mobil HTS #2. Other special lubricants are available upon request. Special lubricant options usually involve set-up charges, minimum quantities and list price premiums. To order, specify type of lubricant required at the end of the product name or after the standard part number.

Example: 070320 except with Mobil HTS #2 grease
or
P2BS2108L except with Mobil HTS #2 grease

For applications requiring modifications not listed, we encourage you to contact our Application Engineering Department for Bearings at 864-284-5700.

INSTRUCTION MANUAL FOR DODGE®S-2000 SPHERICAL ROLLER BEARINGS

These instructions must be read thoroughly before installing or operating this product.

WARNING
TO ENSURE THAT DRIVE IS NOT UNEXPECTEDLY STARTED, TURN OFF AND LOCK OUT OR TAG POWER SOURCE BEFORE PROCEEDING. FAILURE TO OBSERVE THESE PRECAUTIONS MAY RESULT IN BODILY INJURY.

INSTALLATION:

GENERAL INFORMATION

DODGE S-2000 Spherical Roller Bearing mounted units incorporate a unique way of sealing the internal components of the bearing while still allowing a full + or - 1 degree of misalignment. The patented sealing system (Pat. #5,908,249) has proven effective, due to its constant contact pressure, in protecting the internal bearing components under maximum allowable misaligned conditions.

NON-EXPANSION BEARING

1. Clean shaft and bore of bearing. The shaft should be straight, free of burrs and nicks, and correct size (see shaft tolerance table). If used shafting is utilized, then the bearing should be mounted on unworn section of shafting.
2. Lubricate shaft and bearing bore with grease or oil to facilitate assembly. Slip bearing into position. When light press fit is required, press against the end of the inner ring of bearing. Do not strike or exert pressure on the housing or seals.
3. Bolt bearing to support, using shims where necessary to align bearing so inner ring does not rub on seal carrier. Use full shims which extend across the entire housing base.
4. Determine final shaft position and tighten setscrews in the locking collar(s) of non-expansion bearing to recommended torque while the other bearings remain free. Rotate the shaft slowly under load, if possible, to properly center the rolling elements with respect to the raceways. Then tighten setscrews into the locking collar of the remaining bearings to the recommended torque.
5. Check rotation. If there is any strain, irregular rotational torque or vibration, it could be due to incorrect alignment, bent shaft or bent supports. Installation should be rechecked and correction made where necessary.

WARNING: Because of the possible danger to persons(s) or property from accidents which may result from the improper use of products, it is important that correct procedures be followed: Products must be used in accordance with the engineering information specified in the catalog. Proper installation, maintenance and operation procedures must be observed. The instructions in the instruction manuals must be followed. Inspections should be made as necessary to assure safe operation under prevailing conditions. Proper guards and other suitable safety devices or procedures as may be desirable or as may be specified in safety codes should be provided, and are neither provided by Baldor Electric Company nor are the responsibility of Baldor Electric Company. This unit and its associated equipment must be installed, adjusted and maintained by qualified personnel who are familiar with the construction and operation of all equipment in the system and the potential hazards involved. When risk to persons or property may be involved, a holding device must be an integral part of the driven equipment beyond the speed reducer output shaft.

EXPANSION BEARING

Steps (1, 2, 3) Same as Non-Expansion Bearing.

4. Position expansion bearing in the housing. For normal expansion conditions, the bearing insert should be positioned in the center of the housing. To center bearing insert in housing, move bearing insert to extreme position and mark shaft. Then using bearing maximum total expansion table, move bearing insert in opposite direction one-half the total expansion to center bearing in the housing. If maximum expansion is required, move bearing insert to the extreme position in the housing to permit full movement in direction of expansion. After expansion bearing has been positioned in the housing, tighten the setscrews in the locking collar to the recommended torque.
5. Same as Non-Expansion Bearing.

FIELD CONVERSION (RE-OP) OF A NON-EXPANSION BEARING INTO AN EXPANSION BEARING

All non-expansion bearing sizes can be re-oped to become expansion bearings. To re-op a non-expansion to an expansion bearing follow these steps:

1. Move the snap ring, opposite from the collar side of bearing, to the outermost snap ring groove.
2. Install bearing per Expansion Bearing instructions listed above.

NOTE: Bearing nameplate has a non-expansion Part Number. When bearing is re-oped the bearing should be marked as expansion for future reference.

BEARING MAXIMUM TOTAL EXPANSION TABLE

Shaft Size	Total Expansion
in.	in.
1 3/8 – 1 1/2	3/16
1 11/16 – 3 7/16	1/14
3 15/16	5/16
4 7/16 – 4 15/16	3/8

DODGE®

LUBRICATION INSTRUCTIONS

OPERATION IN PRESENCE OF DUST, WATER OR CORROSION VAPORS

This bearing is factory lubricated with No. 2 consistency lithium complex base grease which is suitable for most applications. However, extra protection is necessary if bearing is subjected to excessive moisture, dust, or corrosive vapor. In these cases, bearing should contain as much grease as speed will permit (a full bearing with consequent slight leakage through the seal is the best protection against contaminant entry).

In extremely dirty environments, the bearing should be purged daily to flush out contaminants. For added protection, it is advisable to shroud the bearing from falling material.

HIGH SPEED OPERATION

At higher operation speeds, too much grease may cause overheating. In these cases, the amount of lubrication can only be determined by experience. If excess grease causes overheating, remove grease fittings and run for ten minutes. This will allow excess grease to escape. Then wipe off excess grease and replace grease fittings.

In higher speed applications, a small amount of grease at frequent intervals is preferable to a large amount at infrequent intervals. However, the proper volume and interval of lubrication can best be determined by experience.

AVERAGE OPERATIONS

The following table is a general guide for normal operating conditions. However, some situations may require a change in lubricating periods as dictated by experience. If the bearing is exposed to unusual operating conditions, consult a reputable grease manufacturer.

LUBRICATION GUIDE

READ PRECEDING PARAGRAPHS BEFORE ESTABLISHING LUBRICATION SCHEDULE

Suggested Lubrication Period in Weeks

Hours run per day	1 to 250 rpm	251 to 500 rpm	501 to 750 rpm	751 to 1500 rpm	1001 to 2000 rpm	1501 to 2000 rpm	2001 to 2500 rpm	2501 to 3000 rpm
8	12	12	10	7	5	4	3	2
16	12	7	5	4	2	2	2	1
24	10	5	3	2	1	1	1	1

OPERATING TEMPERATURE

Abnormal bearing temperatures may indicate insufficient lubrication. If the housing is too hot to touch for more than a few seconds, check the temperature by applying a thermometer at the top of the pillow block with the thermometer tip surrounded by putty.

Because the thermometer reading will be approximately 10°F lower than the actual bearing temperature, add ten degrees to the reading and compare to the temperature rating of your grease. If the bearing temperature reading is consistent and operating within the recommended limits of your grease, the bearing is operating satisfactorily. The recommended maximum operating temperature for S-2000 Spherical Roller Bearings is 200 °F.

STORAGE OR SPECIAL SHUT DOWN

If equipment will be idle for some time, before shutting down, add grease to the bearing until grease purges from the seals. This will ensure protection of the bearing, particularly when exposed to severe environmental conditions. After storage or idle period, add fresh grease to the bearing before starting.

Set Screw Torque Table

Shaft Size	Socket Set Screw Size	Tightening Torque
1-3/8 – 1-3/4 in.	5/16 in.	165 Inch Pounds
11-15/16 – 2-7/16 in.	3/8 in.	290 Inch Pounds
12-11/16 – 3-7/16 in.	1/2 in.	620 Inch Pounds
13-15/16 – 4-15/16 in.	5/8 in.	1325 Inch Pounds

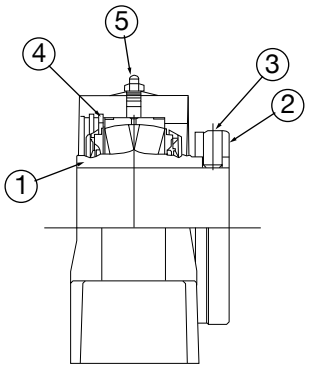
Recommended Shaft Tolerance Table

Normal Shaft Size	Low to Normal Equlvalent Load and Catalog Speed*	
Up to 1-1/2 in.	+.000 in.	–.0005 in.
Over 1-1/2 to 2-1/2 in.	+.000 in.	–.001 in.
Over 2-1/2 to 4 in.	+.000 in.	–.001 in.
Over 4 to 5 in.	+.000 in	–.0015 in.

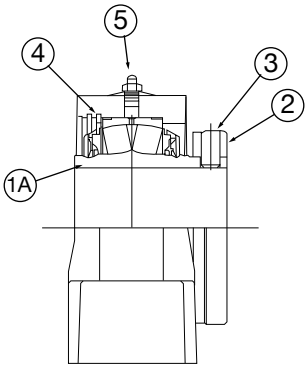
On severe applications and where dynamic balance and minimum runout are important, a snug to light press fit may be required to obtain optimum bearing performance. Consult factory.

*Normal equivalent load .08C to .18C.

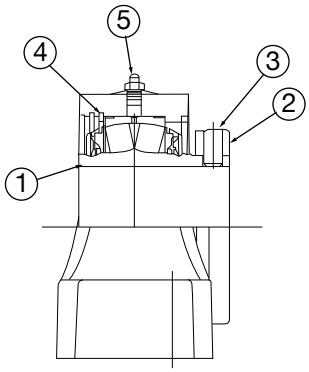
DODGE®



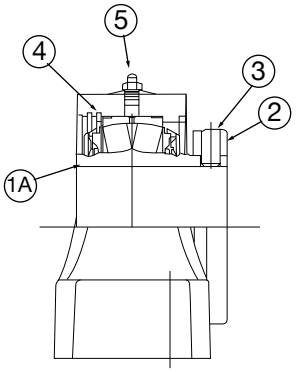
2 BOLT PILLOW
BLOCK S2000-R



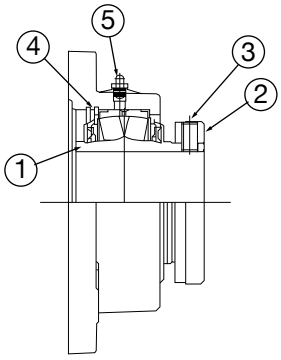
2 BOLT PILLOW
BLOCK S2000-L



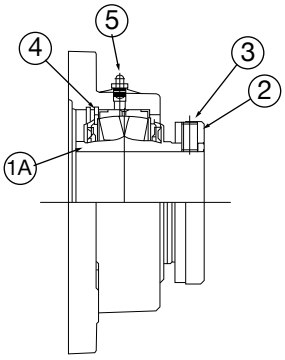
4 BOLT PILLOW
BLOCK S2000-R



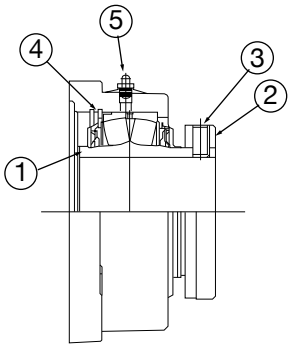
4 BOLT PILLOW
BLOCK S2000-L



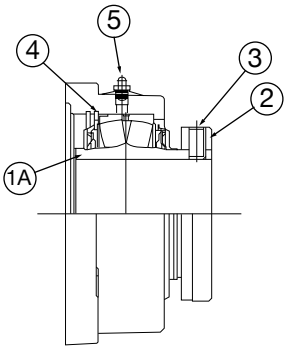
3 & 4 BOLT ROUND
FLANGE S2000-R



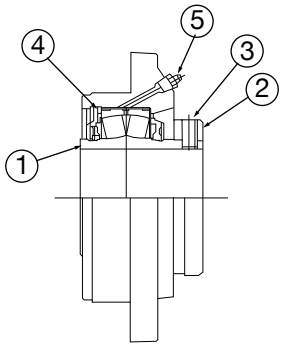
3 & 4 BOLT ROUND
FLANGE S2000-L



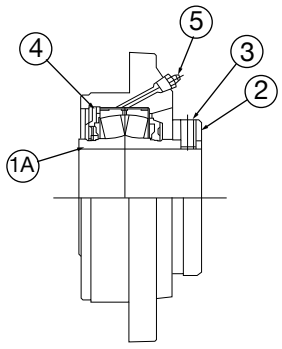
4 BOLT SQUARE
FLANGE S2000-R



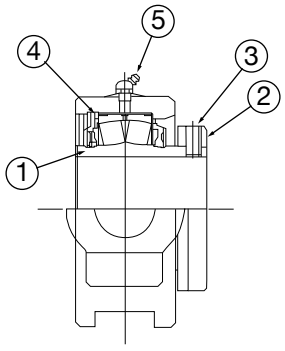
4 BOLT SQUARE
FLANGE S2000-L



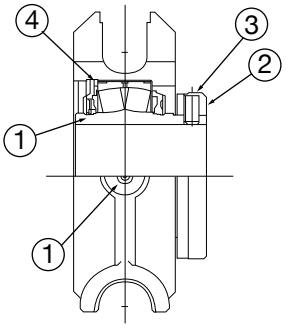
PILOTED FLANGE
S2000-R



PILOTED FLANGE
S2000-L



WIDE SLOT TAKE-UP
S2000-R



TPHU TAKE-UP
S2000-R

DODGE®

COMPONENT PART NUMBERS (1 3/8” - 4 15/16”)

ITEM	1	1A	2	3	4	5
Shaft Size	**Bearing Insert Assembly (R) Seal**	**Bearing Inert Assembly (L) Seal**	***Collar**	***Set Screw**	**Snap Ring**	****Grease Fitting**
1 3/8	070000	070016	040050	400058	069276	405015
1 7/16	070001	070017	040050	400058	069276	405015
1 1/2	070002	070018	040050	400058	069276	405015
1 11/16	070003	070019	040051	400058	069277	405015
1 3/4	070004	070020	040051	400058	069277	405015
1 15/16	070005	070021	070587	400094	069278	405015
2	070006	070022	070587	400094	069278	405015
2 3/16	070007	070023	070588	400094	069279	405015
2 7/16	070008	070024	040054	400094	069280	405015
2 11/16	070009	070025	070589	400150	069281	405015
2 15/16	070010	070026	070589	400150	069281	405015
3	070011	070027	070589	400150	069281	405015
3 7/16	070012	070028	040056	400154	069282	405015
3 15/16	070013	070029	060946	400186	069283	405015
4 7/16	070014	070030	* 060947	* 400186	069284	405015
4 15/16	070015	070031	* 040059	* 400190	069285	405015
QTY/PER	1	1	1	2	1	1

*Shaft sizes 4 7/16” - 4 15/16” have two collars a

** WSTU and TPHU TU take a 405016 grease fitting.

World Headquarters

P.O. Box 2400, Fort Smith, AR 72902-2400 U.S.A., Ph: (1) 479.646.4711, Fax (1) 479.648.5792, International Fax (1) 479.648.5895

Dodge Product Support

6040 Ponders Court, Greenville, SC 29615-4617 U.S.A., Ph: (1) 864.297.4800, Fax: (1) 864.281.2433

www.baldor.com

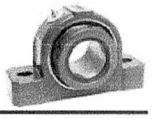
MN3033 (Replaces 499330)

3033-0110

1/09 TCP 20,000

NOMENCLATURE

DODGE®



S-2000

S E P2B - S2 - 207 - R E

	HOUSING STYLE	BEARING TYPE	SIZE	SEAL	OTHER DATA
"E" prefix denotes Type E dimensioned housing with S2000 spherical roller bearing insert *	P2B = Pillow Block 2-Bolt Base, Cast Iron	S2 = S-2000	Inches and 16th	R = TRIDENT Triple Lip Rubbing Seal	E = Expansion Type Bearing - If "E" Does Not Appear, Bearing Is Non Expansion Type
"S" prefix denotes cast steel housing	P4B = Pillow Block 4-Bolt Base, Cast Iron		2 = 2"		
	F3R = Flange Bearing 3-Bolt, Cast Iron, Round		07 = 7/16"	L = Labyrinth Metallic Seal	
	F4S = Flange Bearing 4-Bolt, Cast Iron, Square		207 = 2-7/16"		
	F4R = Flange Bearing 4-Bolt, Cast Iron, Round				
	FC = Piloted Flanged (Flanged Cartridge)				
	WSTU = Wide Slot Take-Up Bearing For Use In Center-Pull Frames				
	TPHU = TPHU Take-up Bearing For Use In TPHU Or Top Angle Take-Up Frames				

* Available in two or four bolt pillow blocks, four bolt square flanges and piloted flanges

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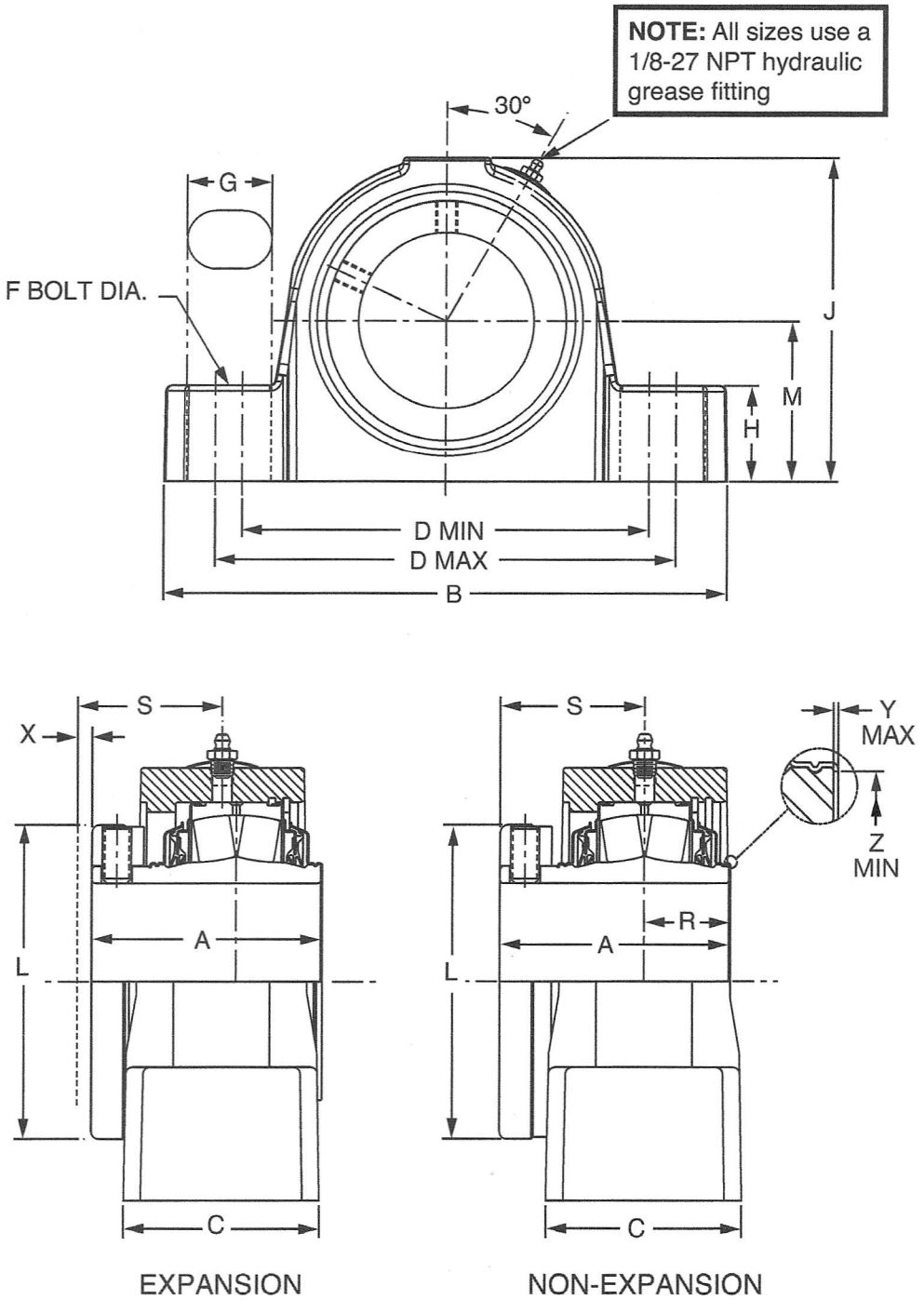
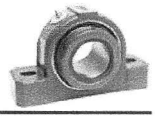
DIMENSIONS

S-2000 Pillow Block
2-BOLT BASE - INCH



DIMENSIONS

DODGE®



S-2000 Pillow Block
2-BOLT BASE - INCH

Bearing	Shaft Size Inch	TRIDENT Seal				Labyrinth Seal			
		Non-Expansion		Expansion		Non-Expansion		Expansion	
		Part No.	Part Name	Part No.	Part Name	Part No.	Part Name	Part No.	Part Name
22208	1-3/8	**070272**	P2B-S2-106R	**070295**	P2B-S2-106RE	**070318**	P2B-S2-106L	**070341**	P2B-S2-106LE
	1-7/16	**070273**	P2B-S2-107R	**070296**	P2B-S2-107RE	**070319**	P2B-S2-107L	**070342**	P2B-S2-107LE
	1-1/2	**070274**	P2B-S2-108R	**070297**	P2B-S2-108RE	**070320**	P2B-S2-108L	**070343**	P2B-S2-108LE
22209	1-11/16	**070276**	P2B-S2-111R	**070299**	P2B-S2-111RE	**070322**	P2B-S2-111L	**070345**	P2B-S2-111LE
	1-3/4	**070277**	P2B-S2-112R	**070300**	P2B-S2-112RE	**070323**	P2B-S2-112L	**070346**	P2B-S2-112LE
22210	1-15/16	**070278**	P2B-S2-115R	**070301**	P2B-S2-115RE	**070324**	P2B-S2-115L	**070347**	P2B-S2-115LE
	2	**070279**	P2B-S2-200R	**070302**	P2B-S2-200RE	**070325**	P2B-S2-200L	**070348**	P2B-S2-200LE
22211	2-3/16	**070280**	P2B-S2-203R	**070303**	P2B-S2-203RE	**070326**	P2B-S2-203L	**070349**	P2B-S2-203LE
22213	2-7/16	**070282**	P2B-S2-207R	**070305**	P2B-S2-207RE	**070328**	P2B-S2-207L	**070351**	P2B-S2-207LE
22215	2-11/16	**070284**	P2B-S2-211R	**070307**	P2B-S2-211RE	**070330**	P2B-S2-211L	**070353**	P2B-S2-211LE
	2-15/16	**070285**	P2B-S2-215R	**070308**	P2B-S2-215RE	**070331**	P2B-S2-215L	**070354**	P2B-S2-215LE
	3	**070286**	P2B-S2-300R	**070309**	P2B-S2-300RE	**070332**	P2B-S2-300L	**070355**	P2B-S2-300LE
22218	3-7/16	**070288**	P2B-S2-307R	**070311**	P2B-S2-307RE	**070334**	P2B-S2-307L	**070357**	P2B-S2-307LE
22220	3-15/16	**070290**	P2B-S2-315R	**070313**	P2B-S2-315RE	**070336**	P2B-S2-315L	**070359**	P2B-S2-315LE

Shaft Size	A	B	C	D		F Bolt Dia.	G	H	J	L	M	R	S	X Total Exp.	Y	Z
				Min	Max											
1-3/8 1-7/16 1-1/2	2.53	6.88	1.95	4.81	5.20	1/2	0.81	1.13	3.88	2.75	1.88	0.88	1.66	3/16	0.020	1.80
1-11/16 1-3/4	2.67	7.38	2.06	5.31	5.70	1/2	0.81	1.25	4.27	3.19	2.13	0.81	1.86	1/4	0.020	2.08
1-15/16 2	2.84	8.38	2.50	6.06	6.44	5/8	0.95	1.31	4.56	3.44	2.25	0.86	1.98	1/4	0.020	2.30
2-3/16	2.94	8.88	2.63	6.56	6.94	5/8	0.95	1.50	5.00	3.75	2.50	0.91	2.03	1/4	0.025	2.60
2-7/16	3.20	9.25	2.81	6.94	7.31	5/8	0.95	1.63	5.59	4.06	2.75	1.13	2.08	1/4	0.025	2.95
2-11/16 2-15/16 3	3.59	10.44	3.08	7.94	8.31	3/4	1.06	1.88	6.38	4.70	3.25	1.14	2.45	1/4	0.025	3.47
3-7/16	4.02	13.00	3.42	9.38	10.63	7/8	1.63	2.25	7.50	5.50	3.75	1.41	2.61	1/4	0.025	4.05
3-15/16	4.47	15.25	3.94	10.63	12.88	1	2.25	2.44	8.38	6.00	4.25	1.56	2.91	5/16	0.025	4.50

M1 - Head Bearings P2BS2307R (070288)
M1 - Tail ✓ P2BS2215R (070285)
M2 - Head ✓ P2BS2307R (070288)
M2 - Tail ✓ P2B2215R (070285)

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BALDOR
A MEMBER OF THE ABB GROUP

BALDOR • RELIANCE

Product Information Packet

ECP3774T-5

10HP,1760RPM,3PH,60HZ,215T,0748M,TEFC,F1

Part Detail

Revision:	G	**Status:**	PRD/A	**Change #:**		**Proprietary:**	No
Type:	AC	**Prod. Type:**	0748M	**Elec. Spec:**	07WGX493	**CD Diagram:**	
Enclosure:	TEFC	**Mfg Plant:**		**Mech. Spec:**	07K374	**Layout:**	
Frame:	215T	**Mounting:**	F1	**Poles:**	04	**Created Date:**	03-19-2009
Base:	RG	**Rotation:**	R	**Insulation:**	F	**Eff. Date:**	07-31-2013
Leads:	3#14	**Literature:**		**Elec. Diagram:**		**Replaced By:**	

Nameplate NP1260E

CAT.NO.	ECP3774T-5						
SPEC.	07K374X493						
HP	10						
VOLTS	575						
AMP	10						
RPM	1760						
FRAME	215T	**HZ**	60	**PH**	3		
SER.F.	1.15	**CODE**	H	**DES**	A	**CL**	F
NEMA-NOM-EFF	92.4	**PF**	81				
RATING	40C AMB-CONT						
CC	010A	**USABLE AT 208V**					
DE	6307	**ODE**	6307				
ENCL	TEFC	**SN**					

Parts List

Part Number	Description	Quantity
SA180527	SA 07K374X493	1.000 EA
RA168488	RA 07K374X493	1.000 EA
37FN3002C01	EXFN, PLASTIC, 6.00 OD, 1.155 ID	1.000 EA
S/P107-000-001	SUPER E PROC'S-FS & WS PLTS-POLYREX EM G	1.000 EA
HW3201A05	3/8-16 EYEBOLT	1.000 EA
09CB1001A03G	CONDUIT BOX, MACH GRAY	1.000 EA
RM1017	LEAD SEPERATOR GASKET MODEL 307 1/8" THK	1.000 EA
51XW2520A12	.25-20 X .75, TAPTITE II, HEX WSHR SLTD	2.000 EA
11XW1032G06	10-32 X .38, TAPTITE II, HEX WSHR SLTD U	1.000 EA
HW3001B01	003SS CUP WASHER, FOR #8 SCREW	1.000 EA
10XN2520S06	1/4 20X3/8 HX HD CAP S.S.	2.000 EA
WD1000B16	T&B CX70TN TERMINAL	2.000 EA
37EP1101C43G	TEFC 307 BRG, GRSR,RELIEF,.25-20 FH TAPS	1.000 EA
HW4500A01	1641B(ALEMITE)400 UNIV, GREASE FITT	1.000 EA
HA4051A00	PLASTIC CAP FOR GREASE FITTING	1.000 EA
HW4500A17	317400 ALEMITE GREASE RELIEF	1.000 EA
HA4054	SHORT T-DRAIN FITTING, .125" N.P.T.	1.000 EA
HW5100A08	W3118-035 WVY WSHR (WB)	1.000 EA
37EP1101A32G	PU ENDPLATE MACH	1.000 EA
HW4500A01	1641B(ALEMITE)400 UNIV, GREASE FITT	1.000 EA
HA4051A00	PLASTIC CAP FOR GREASE FITTING	1.000 EA
HW4500A17	317400 ALEMITE GREASE RELIEF	1.000 EA
HA4054	SHORT T-DRAIN FITTING, .125" N.P.T.	1.000 EA
XY3118A12	5/16-18 HEX NUT DIRECTIONAL SERRATION	4.000 EA

Parts List (continued)

Part Number	Description	Quantity
51XB1214A20	12-14X1.25 HXWSSLD SERTYB	1.000 EA
07FH1001A01G	SPL FAN HOUSING, 307, W/GREASER, GRAY EP	1.000 EA
10XN2520A16	1/4-20 X 1 HEX HEAD CAP SCR, ZINC PLATED	3.000 EA
WD4100A02	DP-1000 HEYCO PLUG OR 62MP1000 MICRO PL	1.000 EA
09CB1504A01G	LIPPED CONDUIT BOX LID, MACH GRAY EPOXY	1.000 EA
09GS1001A01SP	GASKET, BOX LID, 1/8 THICK BLACK NEOPREN	1.000 EA
10XN2520A12	O1/4-20X 3/4 HEX HEAD CAP	2.000 EA
HW1001A25	LOCKWASHER 1/4, ZINC PLT .493 OD, .255 I	2.000 EA
HA1005A07SP	SLINGER, OD 2.25, ID 1.344, 307 BRG	1.000 EA
HW4600B33	V-RING SLINGER 1.375 X 1.890 X 0.350	1.000 EA
HW2501F21	KEY, 5/16 SQ X 2.375	1.000 EA
HA7000A02	KEY RETAINER RING, 1 1/8 DIA, 1 3/8 DIA	1.000 EA
MJ5001A01	46-665 RED SEALER	0.001 QT
85XU0407S04	4X1/4 U DRIVE PIN STAINLESS	2.000 EA
LB1115	LABEL,LIFTING DEVICE	1.000 EA
LB1002	LABEL,MARINE DUTY (ON ROLLS)	1.000 EA
MJ1000A75	GREASE, POLYREX EM EXXON	0.050 LB
HA3104A32	THRUBOLT- 5/16-18 X12.750	4.000 EA
MG1025Z20	ACTIVATOR WILKOFAST 060.32	0.010 GA
MG1025G29	PAINT 789.205 DARK GRAY METALLIC (USE W/	0.036 GA
LB1119	WARNING LABEL	1.000 EA
LB1125C02	SUPER-E (STOCK CTN LABEL SUPER-E WITH FL	1.000 EA
LC0006	CONNECTION LABEL	1.000 EA
NP1260E	SS CP SUPER-E UL CSA CC	1.000 EA

Parts List (continued)

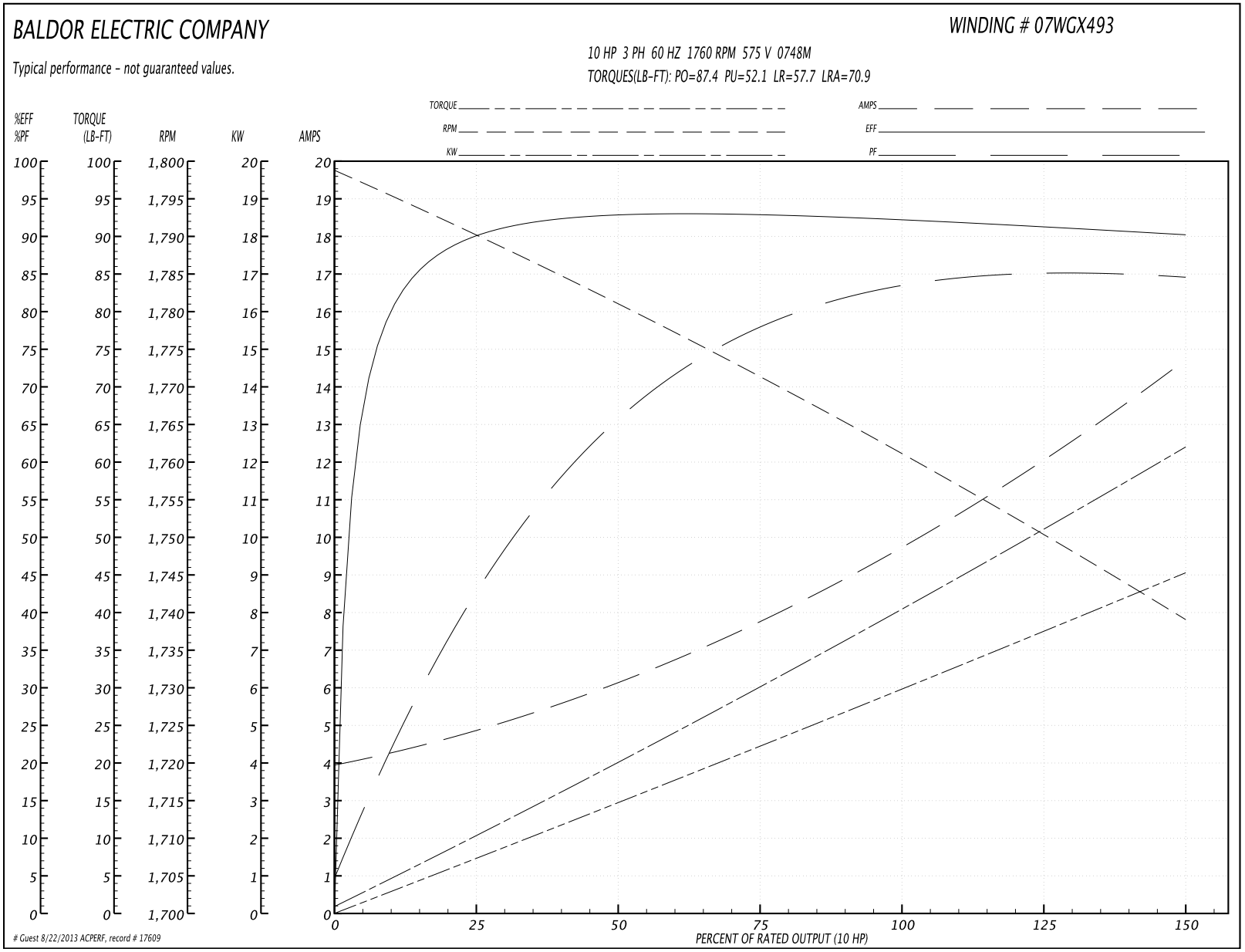
Part Number	Description	Quantity
07PA1011	PKG GRP, 07 CAST IRON PK1181	1.000 EA

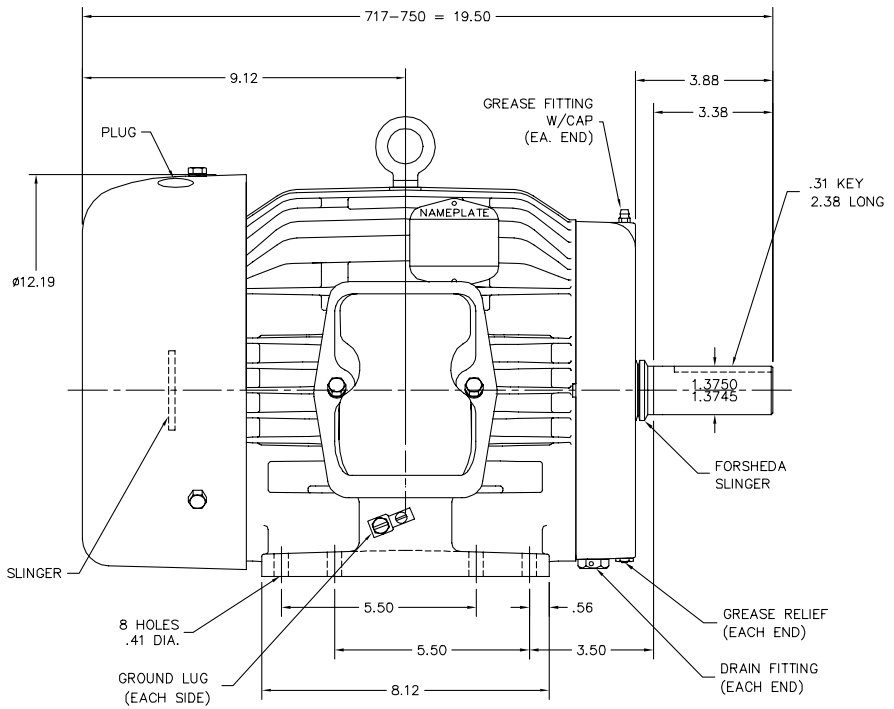
Accessories

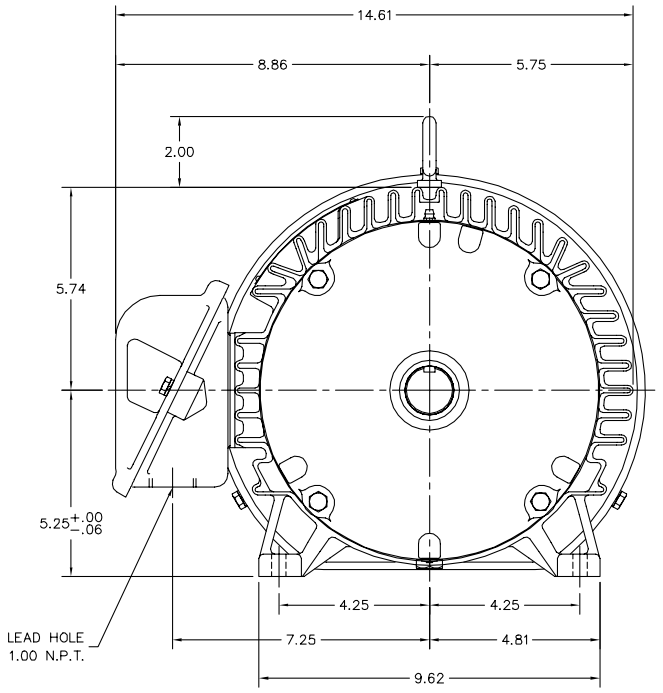
Part Number	Description	Multiplier
37-1304	C FACE KIT	A8

Performance Data at 575V, 60Hz, 10.0HP (Typical performance - Not guaranteed values)							
General Characteristics							
Full Load Torque:	29.7 LB-FT			**Start Configuration:**		DOL	
No-Load Current:	4.1 Amps			**Break-Down Torque:**		87.4 LB-FT	
Line-line Res. @ 25°C.:	1.44 Ohms A Ph / 0.0 Ohms B Ph			**Pull-Up Torque:**		52.1 LB-FT	
Temp. Rise @ Rated Load:	59 C			**Locked-Rotor Torque:**		57.7 LB-FT	
Temp. Rise @ S.F. Load:	73 C			**Starting Current:**		70.9 Amps	
Load Characteristics							
% of Rated Load	**25**	**50**	**75**	**100**	**125**	**150**	**S.F.**
Power Factor:	44.0	67.0	78.0	83.0	84.0	85.0	84.0
Efficiency:	89.7	92.9	92.9	92.1	91.4	90.2	91.7
Speed:	1790.0	1781.0	1771.0	1762.0	1750.0	1739.0	1755.0
Line Amperes:	4.67	6.02	7.8	9.82	12.2	14.6	11.2

Performance Graph at 575V, 60Hz, 10.0HP Typical performance - Not guaranteed values







07LYK374

CUSTOMER IS RESPONSIBLE FOR DETERMINING THAT BALDOR'S PRODUCT WILL PERFORM SUITABLY IN THE INTENDED APPLICATION.

REV. DESC: REPLACE GREASE PLUGS W/GREASE FITTINGS W/CAP		
REV. LTR: B	VERSION: 02	TDR: 000000709068
FILE: \AAA\00139\080	REVISED: 03:10:42 09/13/2011	BY: ENALEM0
MTL: –		

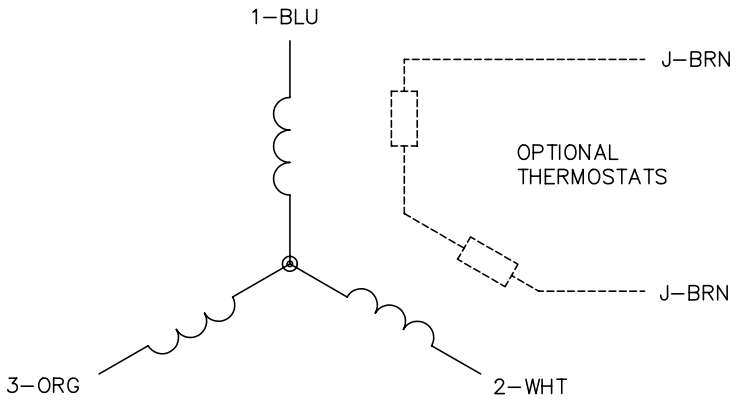
BALDOR

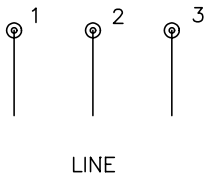
STD HORZ 213–5T TEFC M CP W/6307 BRGS, LIPPED KOBX LID

SH 1 of 1

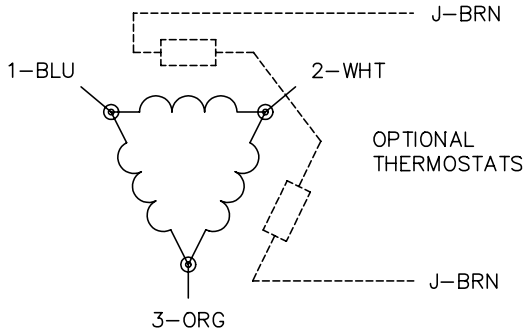
CD0006

TYPICAL WYE–CONNECTED MOTOR





TYPICAL DELTA–CONNECTED MOTOR



NOTES:

1. THREE LEAD MOTOR MAY BE EITHER WYE CONNECTED OR DELTA CONNECTED.
2. INTERCHANGE ANY TWO LINE LEADS TO REVERSE ROTATION.
3. OPTIONAL THERMOSTATS ARE PROVIDED WHEN SPECIFIED.
4. ACTUAL NUMBER OF INTERNAL PARALLEL CIRCUITS MAY VARY.
5. LEAD COLORS ARE OPTIONAL. LEADS MUST BE NUMBERED AS SHOWN.

REV. DESC: REVISE TO SHOW OPTIONAL COLORS			BALDOR ELECTRIC Co.
REV. LTR: D	BY: JLP	REVISED: 01/21/99 4:02	TDR: 0171435
9000CD		FILE: AAA00005141	MDL: –
		MTL: –	3PH, SV, 3 LEADS, WYE OR DELTA CONNECTED

CD0006

Heavy Duty Conveyor Pulleys

ICC pulleys offer an exceptional combination of reliability, quality, and value in an off-the-shelf conveyor pulleys. Using one piece tubes for head pulleys, and heavy duty fabricated tail pulleys, these pulleys are ideal for medium duty aggregate applications.

The pulleys use engineered end discs and standard XT style bushings for attachment on shafting. The pulleys are available in a wide range of standard sizes .

All ICC pulleys come with a standard one-year warranty. With the best pricing in the industry, and off-the-shelf availability, these pulleys are ideal for today's competitive environment.

For common, off-the shelf pulley requirements, the popular sizes that comprise the line are intended to become a reliable alternative to existing sources.

The components are stocked in locations across the country, and are often available for delivery with minimal lead time and freight.

Savona Equipment Ltd
P.O. Box 176, Savona, BC Canada V0K 2J0
Tel: (250) 373-2424 Fax: (250) 373-2323
www.savonaequip.com sales@savonaequip.com

Features

- Heavy-duty fabrication
- XT or QD hubs
- Drums made from 1/2" pipe tubing
- Machined crowns
- Vulcanized lagging
- 1-1/4" end discs on wings
- Flat or round bar wing designs available
- 3/8" and 1/2" end discs on drums

Available Diameters

- 12"
- 14"
- 16"
- 18"

Available Widths

- 26"
- 32"
- 38"
- 44"
- 51"

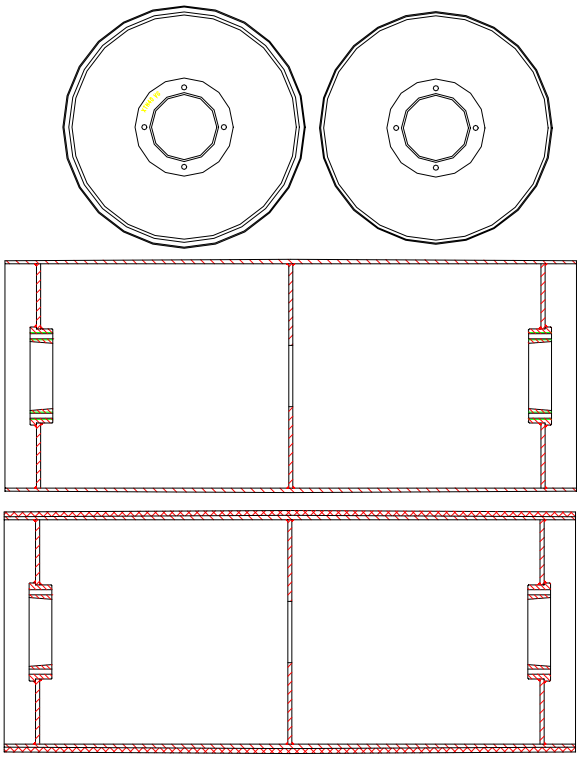
Other Considerations

- *Low Price Guarantee*
- *Minimal Lead Times*
- *Off-the-shelf parts*
- *Nationwide distribution*
- *One Year Replacement Warranty*

Heavy Duty Conveyor Pulleys

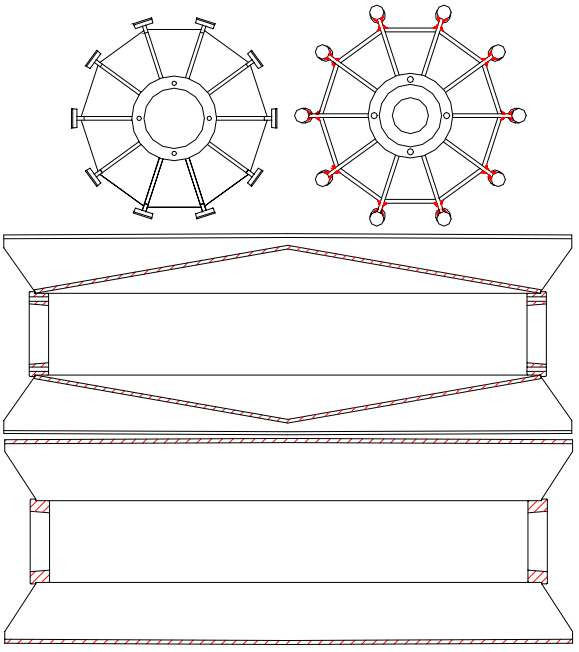
Head/Drum Pulleys

Diameter	Width	Hub	Weight
12	26	25	122
12	32	25	146
12	38	25	172
14	26	25	149
14	32	25	177
14	38	25	207
14	32	30	180
14	38	30	210
14	44	30	241
16	26	30	180
16	32	30	213
16	38	35	246
16	44	35	277
16	51	35	319
18	32	35	250
18	38	35	285
18	44	35	325
18	51	35	367



Wing/Tail Pulleys

Diameter	Width	Hub	Weight
12	26	25	122
12	32	25	153
12	38	25	179
14	26	25	160
14	32	25	199
14	38	25	243
14	32	30	196
14	38	30	234
14	44	30	271
16	26	30	185
16	32	30	228
16	38	35	266
16	44	35	317
16	51	35	361
18	38	35	310
18	44	35	356
18	51	40	411



Operating Instructions · July 2009

million
in one

milltronics

ZSS

SIEMENS

Safety Guidelines: Warning notices must be observed to ensure personal safety as well as that of others, and to protect the product and the connected equipment. These warning notices are accompanied by a clarification of the level of caution to be observed.

Qualified Personnel: This device/system may only be set up and operated in conjunction with this manual. Qualified personnel are only authorized to install and operate this equipment in accordance with established safety practices and standards.

Unit Repair and Excluded Liability:

- The user is responsible for all changes and repairs made to the device by the user or the user's agent.
- All new components are to be provided by Siemens Milltronics Process Instruments Inc.
- Restrict repair to faulty components only.
- Do not reuse faulty components.

Warning: Cardboard shipping package provides limited humidity and moisture protection. This product can only function properly and safely if it is correctly transported, stored, installed, set up, operated, and maintained.
This product is intended for use in industrial areas. Operation of this equipment in a residential area may cause interference to several frequency based communications.

Note: Always use product in accordance with specifications.

Contact SMPI Technical Publications at the following address:
Technical Publications
Siemens Milltronics Process Instruments Inc.
1954 Technology Drive, P.O. Box 4225
Peterborough, Ontario, Canada, K9J 7B1
Email: **techpubs.smpi@siemens.com**

European Authorized Representative

Siemens AG
Industry Sector
76181 Karlsruhe
Deutschland

- For a selection of Siemens Milltronics level measurement manuals, go to: **www. siemens.com/processautomation**. Under Process Instrumentation, select *Level Measurement* and then go to the manual archive listed under the product family.
- For a selection of Siemens Milltronics weighing manuals, go to: **www. siemens.com/processautomation**. Under Weighing Technology, select *Continuous Weighing Systems* and then go to the manual archive listed under the product family.

Table of Contents

Milltronics ZSS Motion Sensing Switch

Milltronics ZSS motion sensing switch is a heavy-duty zero speed alarm. It is used to detect the absence or presence of motion of rotating, reciprocating, or conveying equipment. The ZSS has a circuit card and a magnetic assembly potted in the probe body. The ZSS is powered from the line voltage and provides a set of dry relay contacts to indicate motion when the ferrous targets of the machinery being monitored pass in front of the probe.

Safety Notes

Special attention must be paid to warnings and notes highlighted from the rest of the text by grey boxes.

WARNING: relates to a caution symbol on the product, and means that failure to observe the necessary precautions can result in death, serious injury, and/or considerable material damage.

! **WARNING[1]: means that failure to observe the necessary precautions can result in death, serious injury, and/or considerable material damage.**

CAUTION: means that failure to observe the necessary precautions can result in considerable material damage.

Note: means important information about the product or that part of the operating manual.

Safety marking symbols

In manual	On Product	Description
		Caution: refer to accompanying documents (manual) for details.
		Protective Conductor Terminal

1. This symbol is used when there is no corresponding caution symbol on the product.

The Manual

Notes:

- The Milltronics ZSS product is to be used only in the manner outlined in this instruction manual.
- This product is intended for use in industrial areas. Operation of this equipment in a residential area may cause interference to several frequency based communications.

This instruction manual covers the installation, operation and maintenance of the Milltronics ZSS. It is essential that this manual be referred to for proper installation and operation of your unit. Adhering to the installation and operating procedures will ensure a quick, trouble free installation and allow for the maximum accuracy and reliability of your motion sensing probe.

If you have any questions, comments, or suggestions about the manual contents, please email us at techpubs.smpi@siemens.com.

For the complete library of Siemens manuals, go to www.siemens.com/processautomation.

Specifications

Power

- 115 V AC, 50/60 Hz, 7 VA
  or
- 230 V AC, 50/60 Hz, 7 VA
- ±10% of rated voltage

Output

- 1 form C (SPDT) dry relay contacts, rated 5 A at 250 V AC non-inductive, fail-safe operation
- time delay :
  - start up : 10 to 14 seconds (or 5 to 7 seconds with 5 sec/12 PPM jumper installed)
  - zero speed : 5 seconds ±1 (minimum speed 10 to 15 ppm)[1] or 10 seconds ±2 (minimum speed 5 to 7.5 ppm)[1]
  - LED indicates detection of changes in magnetic field (resets zero speed timer)

Operating Temperature

- – 40 to +60 °C (– 40 to +140 °F)

Environmental

- location: indoor/outdoor
- altitude: 2000 m (6562 ft.) max.
- ambient temperature: -40 to +60°C (-40 to +140°F)
- relative humidity: suitable for outdoor (Type 4 / NEMA 4, Type 4X / NEMA 4X, Type 6 / NEMA 6, IP67)
- installation category: II
- pollution degree: 4

Dynamic Range

- minimum 6 or 12 pulses per minute[1]
- maximum 3000 pulses per minute

Shipping Weight

- 2 kg (4.4 lbs.)

Approvals

- CSA
- CE

1. Selected via a common jumper. Refer to Operation.

Installation

WARNING: The probe face is magnetic. Keep it away from magnetosensitive materials such as computer discs and audio or video tapes.

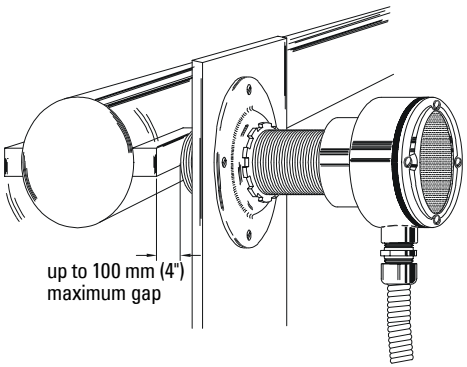
WARNING: All field wiring must have insulation suitable for at least 250 V and the maximum ambient temperature of +60°C (+140 °F).

Notes:

- The Protective Earth Terminal indicated by (⏚) must be connected to reliable ground.
- All wiring must be done by qualified personnel in accordance with all governing regulations.
- The equipment must be protected by a 15 A fuse or circuit breaker in the building installation.
- A circuit breaker or switch in the building installation, marked as a disconnect switch, shall be in close proximity to the equipment and within easy reach of the operator.
- Relay contact terminals are for use with equipment which has no accessible live parts and wiring which has insulation suitable for at least 250 V.

Environment

The ZSS must be mounted in an area that is non-hazardous, within the ambient temperature range and non-corrosive to the materials of construction. Refer to Dimensions for materials of construction.



The probe should be mounted using the supplied mounting flange, onto a vibration free structure. The gap between the probe and the target should be sufficient such that there is no danger of the target damaging the probe. The maximum allowable gap ranges from 20 mm to over 100 mm from the face of the target to the face of the probe. The range is dependent on the target type and range of speed expected. See typical performance graphs on page 9 for examples.

The ZSS is sensitive to lateral disturbances to its magnetic field. If the ZSS is responding to motion from an interfering target, move the ZSS or install a ferrous plate (steel) as a shield between the ZSS and the interfering target.

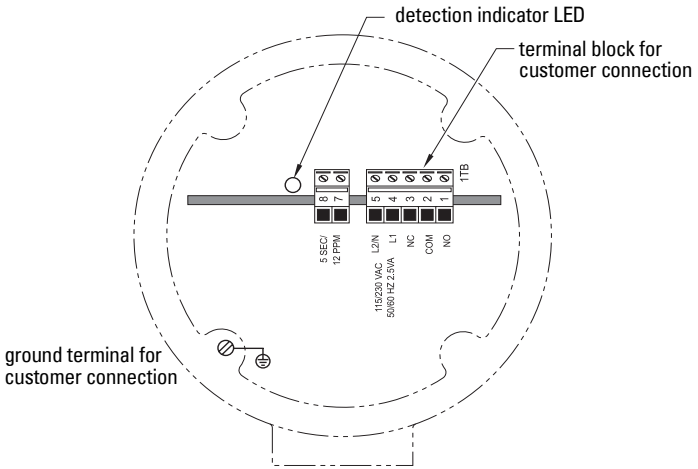
Where possible, the probe should be mounted so the conduit entry is pointing down to avoid accumulation of condensation in the casing. Connection of the probe should be made via flexible conduit for easier removal or adjustment of the probe.

Note: In climates where direct sunlight may cause the Milltronics ZSS temperature to rise above the specified limit, shade the unit by installing a sun shield.

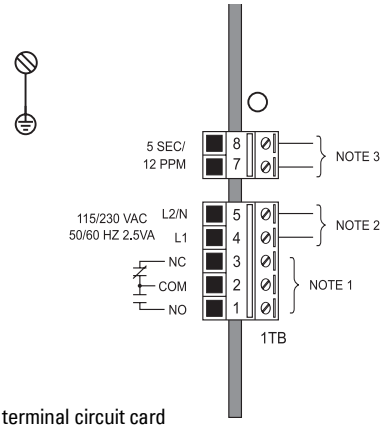
ZSS Circuit Card

⚠ **WARNING: Disconnect power before opening top cover.**

Note: Check nameplate for proper operation voltage (115 V AC or 230 V AC).



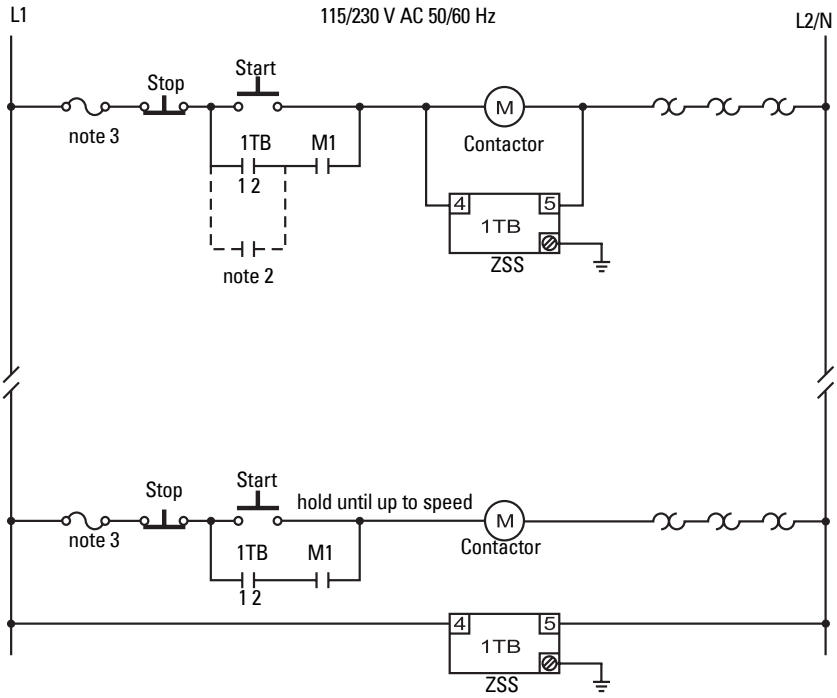
ZSS Connection



Notes:

1. Dry contacts shown in de-energized (alarm or shelf) state.
2. ZSS is manufactured for either 115 or 230 V AC operation. Check ZSS nameplate for applicable voltage. Correct voltage must be supplied. Voltages lower than specified will result in an inoperative condition. Voltages higher than specified will severely damage unit.
3. For 5 second time delay and minimum 12 ppm range, connect jumper across terminals 7 and 8. Without a jumper, the default is 10 second time delay and minimum 6 ppm range.

ZSS Typical Wiring



Should the time delay feature on start up not be required, power should be applied continuously from a separate source. Typically this would be desirable for automatic up-stream start up of conveying devices after down stream drive has reached its operation speed.

Notes:

1. Interlocks and safety pull switches are not shown.
2. If 'START' is initiated by programmable logic controller, closure time may be of insufficient duration to allow ZSS contact to latch. In such a case, program a timer contact into circuit.
3. CSA requires a 3 A or less fuse to protect contacts. For 240 V AC, protect contacts with a 1500 VA transformer as well.

Operation

When power is initially applied to the ZSS, the alarm relay is energized and held artificially by the timing circuit. This will simulate the normal operation of the ZSS for a start up delay of >10 seconds (or >5 seconds if a jumper is wired across terminals 7 and 8).

As a ferromagnetic object passes through the probe's permanent magnet field, the distortion of the flux is sensed by the magnetic detection circuit. If the distortion is of suitable magnitude, a short pulse is generated to reset the timing circuit, visible to the user by the LED shown in the lid window. This action keeps the alarm relay energized providing fail-safe operation of the contacts.

If no change in flux (target motion) is sensed for a period of 10 seconds (or 5 seconds if a jumper is wired across terminals 7 and 8), the timing circuit will not be reset. This will cause the alarm relay to de-energize and the contacts to change state.

Thus the ZSS cannot detect the motion of uniform ferromagnetic masses such as a rotating pulley or a keyless shaft.

When adjusting the ZSS mounting position, it may take up to 10 seconds for the detection circuit to adjust to the new ambient magnetic environment. During this adjustment period, the LED may fail to flash for an otherwise normally detectable moving target.

Typical Performance

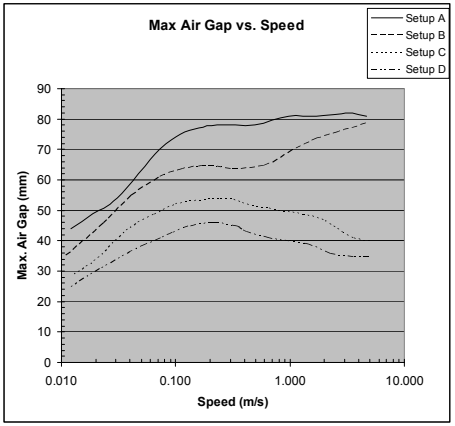
The maximum air gap for which the ZSS will reliably detect the moving ferrous target varies according to the target's size, shape, orientation and direction of motion, as well as the material to which the target is attached.

An example shown below compares typical results from steel blocks used as targets on a wheel (either ferrous or non-ferrous). As shown, a larger detection range can typically be achieved when there is a ferrous object behind the target. The ZSS provides excellent detection of a relatively small target, such as a 3/16" (~5 mm) shaft key installed in a 5/8" (~16 mm) motor shaft with < 0.125" (~3 mm) of the key protruding beyond the shaft envelope.

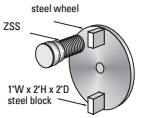
To ensure proper operation in any setup, use the LED indicator to confirm consistent detection of the target over the full range of expected operational speeds. Note that detection range may vary slightly with voltage supply and temperature, so it is recommended to use the minimum air gap that is physically safe to implement.

Performance Examples

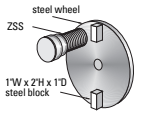
Wheel Driven Examples



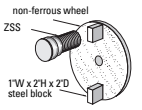
Setup A: ZSS with two 1"x2"x2" steel targets mounted on steel wheel



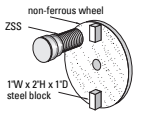
Setup B: ZSS with two 1"x2"x1" steel targets mounted on steel wheel



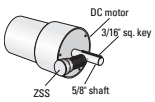
Setup C: ZSS with two 1"x2"x2" steel targets mounted on non-ferrous wheel



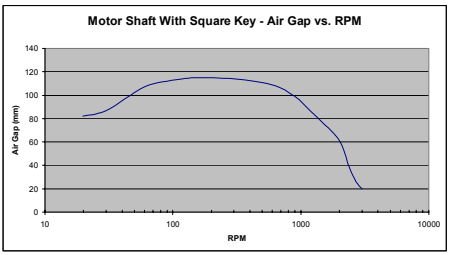
Setup D: ZSS with two 1"x2"x1" steel targets mounted on non-ferrous wheel



Setup E: DC motor with 5/8" drive shaft and 3/16" square key

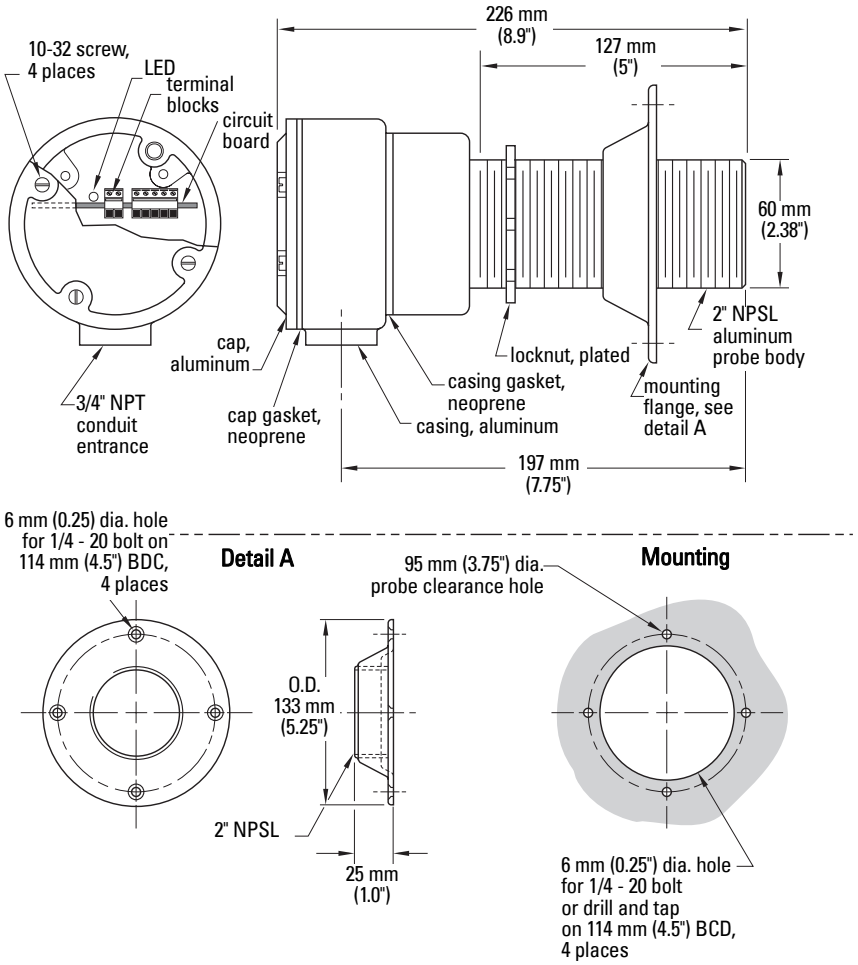


Shaft Driven Example



Note: 1 m/s ~ 200 ft/min; 25 mm ~ 1.0"

Dimensions



Maintenance

The Zero Speed Switch can be cleaned by wiping the enclosure exterior with a damp cloth. No further maintenance is required for the device.

CONVEYOR EFFICIENCY SPECIALISTS

ARCH ENVIRONMENTAL EQUIPMENT, INC.
CONVEYOR EFFICIENCY SPECIALISTS

P.O. Box 1760 5929 Benton Road Paducah, KY 42002-1760
1-800-553-4567 / 270-898-6821 Fax: 1-800-230-9462 / 270-898-8061
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Gordon Belt Cleaning Systems • Tri-Return Training Idler • Wyatt Alignment Disks • Simplicity Access Doors • Gordon "At-Last-A-Seal" Skirt Rubber Flexiskirt Sealing System • Gordon Dust Seal • Simplicity Slider System • Dust Shark Dust Suppression System • Simplicity Chute Liner • Fogger System Simplicity Impact System • Conveyor Controls & Belt Protection Equipment • ArchWeigh Belt Scales • Metasearch Metal Detector

Arch Environmental Equipment, Inc.
GORDON "MINI"
SABER BLADE BELT CLEANER

INSTALLATION INSTRUCTIONS

THE INSTALLATION OF THE GORDON "MINI" SABER BELT CLEANER IS VERY SIMPLE. IT ONLY REQUIRES A FEW TOOLS AND A SHORT AMOUNT OF TIME.

THE TOOLS & RESOURCES REQUIRED ARE:

1. STRAIGHT EDGE
2. LEVEL
3. TAPE MEASURE
4. CUTTING TORCH
5. WELDING EQUIPMENT
6. CHALK
7. ADJUSTABLE WRENCH

SHUT DOWN AND LOCKOUT CONVEYOR BEFORE PERFORMING ANY MAINTENANCE

STEP 1

Determine the diameter of the head pulley and the thickness of the conveyor belt. Example: head pulley diameter = 24" (609.6mm), belt thickness = 3/4" (19.05mm). Take one half of the head pulley measurement (in this case 12" (304.8mm) and add the belt thickness. This will give an effective radius of 12 3/4" (325.85mm). To this number add 2 3/8" (60.375mm) (See FIG 1- dimension A). This will give the "Z" dimension. (SEE FIG. 1 – Dimension Z)

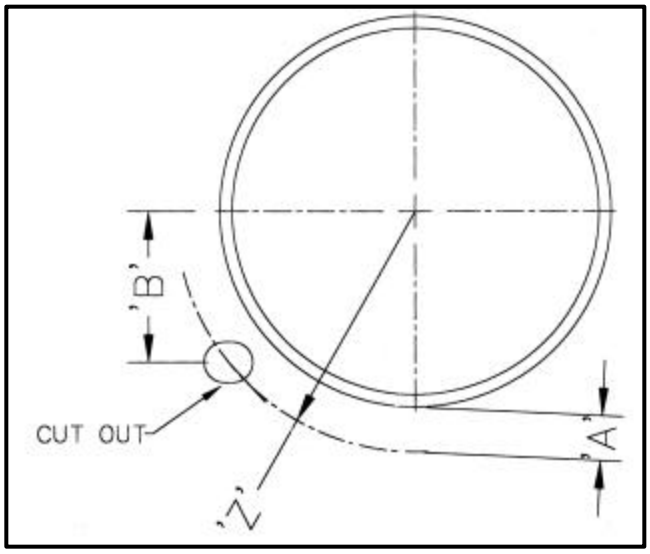

Fig. 1

STEP 2

Using the "Z" dimension, as described in step 1, draw an arc or radius to define the area for cutting the mounting holes on the chute wall.

STEP 3

From the centerline of the head pulley, measure down 6 1/2" (165.1mm). (SEE FIG.1-dimension B). This is the highest point that the cleaner should be mounted. It can be mounted anywhere along the radius that was marked off in step 2. The limiting factor is the restriction of a dribble chute or lack of a dribble chute at the point where the belt leaves the head pulley on the return side.

STEP 4

After you have located the correct position to mount the cleaner, mark two holes approximately 1 7/8" (47.62mm) x 2 7/8" (73.02mm) size. These should now be torched or cut out. You can use the urethane installation rings included with the cleaner to verify the correct location (see Step 6 below). **NOTE: DO NOT USE EXISTING HOLES FROM ANOTHER BRAND OF CLEANER.**

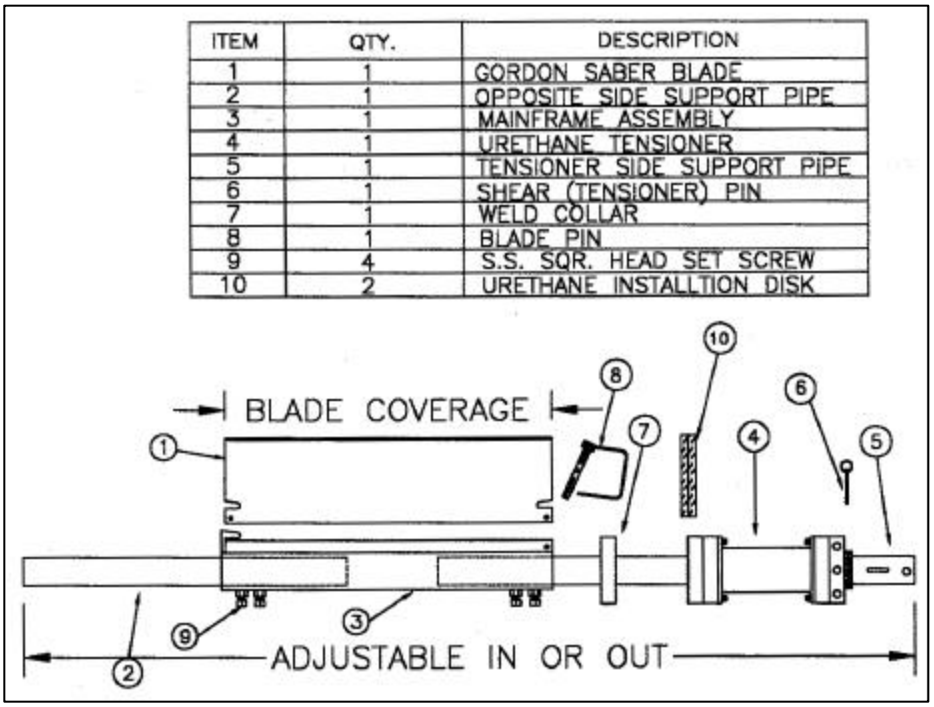

Fig. 2

STEP 5

Disassemble the cleaner (FIG. 2). This is done by removing the pin (item 6 – FIG.2) at the end of the tensioner hub. Remove the tensioner (item 4 - FIG. 2) from the tensioner pipe. You will notice that when the tensioner is removed, there is an extra hub (item 7- FIG. 2) behind it. This is the weld collar for the opposite side. You should also find there are two urethane rings included in the packaging materials included with the cleaner. The installation rings are used to verify the “Z" dimension. Loosen the set screws (item 9 - FIG. 2) on the mainframe. CAUTION! Loosen them only enough to allow both pipes (items 2 and 5 - FIG. 2) to be removed from the cleaner mainframe (item 3 - FIG. 2).

STEP 6

Put the cleaner (items 1 & 3 - FIG. 2) inside the chute, and slide the support and tensioner pipes (items 2 and 5 - FIG. 2) through the slots previously cut. Then slide the weld collar (item 7 - FIG. 2) and the tensioner (item 4 - FIG. 2) onto the support and tensioner pipes. Next, level the cleaner in relation to the head pulley. Verify the "Z" dimension by slipping the installation rings onto the support and tensioner pipe. Then the installation rings should be placed against the belt. Tack weld the weld collar and tensioner into place. Set the cleaner blade against the belt and insert the pin (item 6 - FIG. 2) into the tensioner hub. Tighten the sets crews on the mainframe. Now, complete welding on the hubs (3 - 1" (25.4mm) welds on each hub is enough). Pull the pin again to check if the cleaner rotates freely in the hubs; if it doesn't, realign the hubs until it rotates freely.

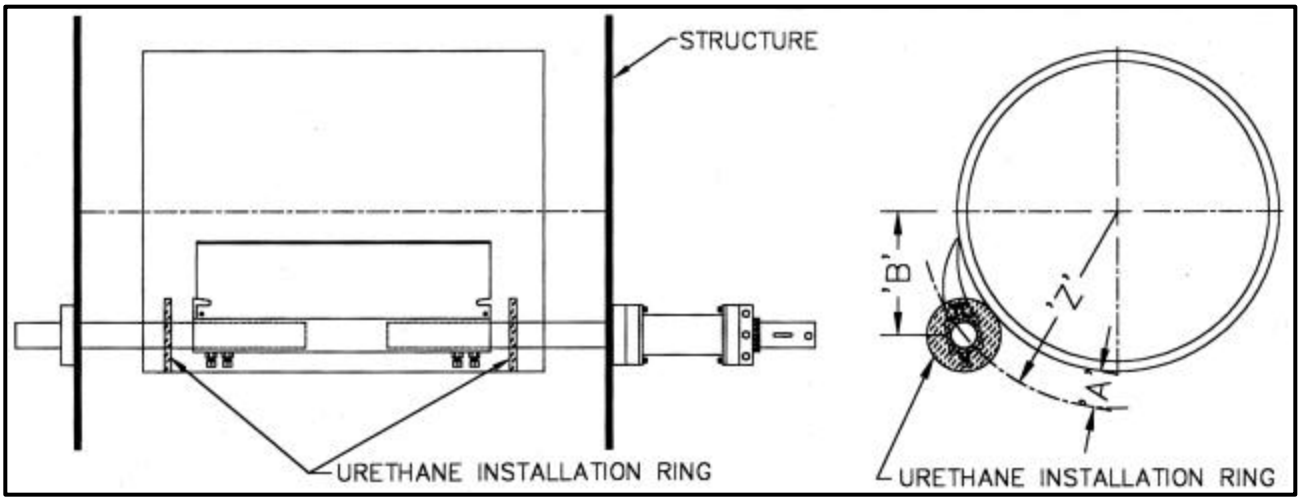

Fig. 3

STEP 7

Finally, pull the pin (item 6 - FIG. 2) and rotate the tensioner away from the head pulley, until the next hole shows (SEE FIG. 4) in the tensioner hub. Reinstall the pin.
THATS IT!!

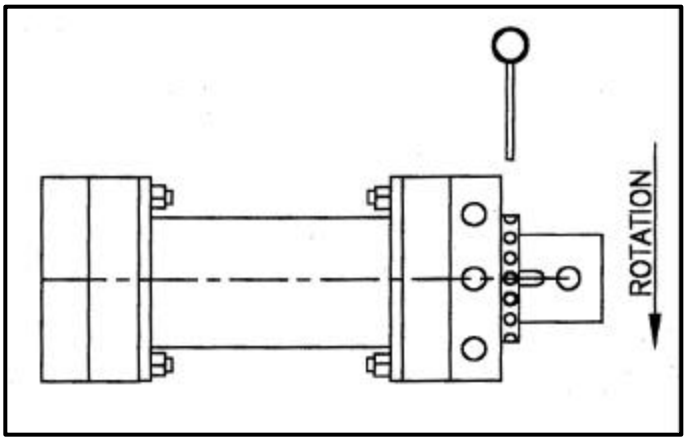

Fig. 4

Installation and Parts Replacement Manual for DODGE® Torque-Arm™ TXT Double Reduction Taper Bushed and Straight Bore Speed Reducers

TXT/HXT 1A
TXT/HXT 2A
TXT/HXT 3B
TXT/HXT 4B
TXT/HXT 5C
TXT/HXT 6A
TXT/HXT 7A
TXT 8A
TXT 9A
TXT 10A

Includes Char-Lynn 6B Hydroil Reducers

HXT 3B – 6B
HXT 4B – 6B
HXT 5C – 6B
HXT 6A – 6B
HXT 7A – 6B

These instructions must be read thoroughly before installation or operation.

INSTALLATION:

1. Use lifting bracket where applicable to lift reducer.
2. Determine the running positions of the reducer. (See Fig. 1)

   Note that the reducer is supplied with six plugs; four around the sides for horizontal installations and one on each face for vertical installations. These plugs must be arranged relative to the running positions as follows:

   Horizontal Installations - Install the magnetic drain plug in the hole closest to the bottom of the reducer. Install the filter/ventilation plug in topmost hole. Of the two remaining plugs on the sides of the reducer, the lowest plug is the minimum oil level plug.

   Vertical Installations - Install the filter/ventilation plug in the hole provided in the upper face of the reducer housing. If space is restricted on the upper face, install the vent in the highest hole on the side of the reducer per Figure 1 using the optional vertical vent kit. Install a plug in the hole in the bottom face of the reducer. Do not use this hole for the magnetic drain plug. Install the magnetic drain plug in the lowest hole on the sides of the reducer. Of the remaining holes on the sides of the reducer, use the plug in the upper housing half for the minimum oil level plug,

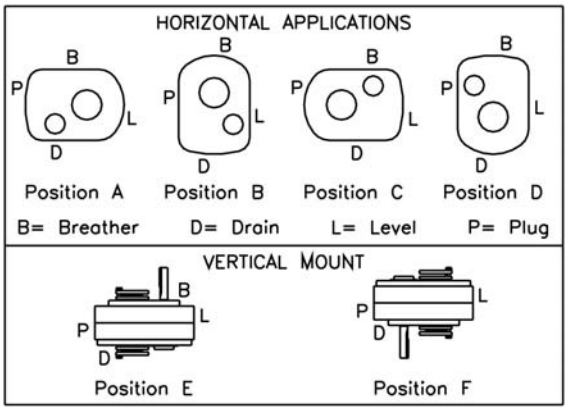

Figure 1 - Mounting Positions

WARNING Because of the possible danger to persons(s) or property from accidents which may result from the improper use of products, it is important that correct procedures be followed. Products must be used in accordance with the engineering information specified in the catalog. Proper installation, maintenance and operation procedures must be observed. The instructions in the instruction manuals must be followed. Inspections should be made as necessary to assure safe operation under prevailing conditions. Proper guards and other suitable safety devices or procedures as may be desirable or as may be specified in safety codes should be provided, and are neither provided by Baldor Electric Company nor are the responsibility of Baldor Electric Company. This unit and its associated equipment must be installed, adjusted and maintained by qualified personnel who are familiar with the construction and operation of all equipment in the system and the potential hazards involved. When risk to persons or property may be involved, a holding device must be an integral part of the driven equipment beyond the speed reducer output shaft.

Below 15 RPM output speed, oil level must be adjusted to reach the highest oil level plug. If reducer position is to vary from those shown in Figure 1, either more or less oil may be required. Consult Dodge.

The running position of the reducer in a horizontal application is not limited to the four positions shown in Fig. 1. However, if running position is over 20° in position “B” & “D” or 5° in position “A” & “C”, either way from sketches, the oil level plug cannot be used safely to check the oil level, unless during the checking, the torque arm is disconnected and the reducer is swung to within 20° for position “B” & “D” or 5° for position “A” & “C” of the positions shown in Fig. 1. Because of the many possible positions of the reducer, it may be necessary or desirable to make special adaptations using the lubrication filling holes furnished along with other standard pipe fittings, stand pipes and oil level gauges as required.

3. Mount reducer on driven shaft as follows:

WARNING: To ensure that drive is not unexpectedly started, turn off and lock out or tag power source before proceeding. Remove all external loads from drive before removing or servicing drive or accessories. Failure to observe these precautions could result in bodily injury.

For Taper Bushed Reducer: Mount the reducer on the driven shaft per instruction sheet for the tapered bushing kit.

4. Install sheave on input shaft as close to reducer as practical. (See Fig. 2)
5. If not using a Dodge Torque-Arm motor mount, install motor and V-belt drive so belt will approximately be at right angles to the centerline between driven and input shaft. (See Fig. 3) This will permit tightening the V-belt with the torque arm.
6. Install torque arm and adapter plates using the long reducer bolts. The adapter plates may be installed in any position around the input end of the reducer.
7. Install torque arm fulcrum on a flat and rigid support so that the torque arm will be approximately at right angles to the centerline through the driven shaft and the torque arm anchor screw. (See Fig. 4) Make sure that there is sufficient take-up in the turnbuckle for belt tension adjustment when using V-belt drive.

CAUTION: Unit is shipped without oil. Add proper amount of recommended lubricant before operating. Failure to observe this precaution could result in damage to or destruction of the equipment.

8. Fill gear reducer with the recommended volume of lubricant.

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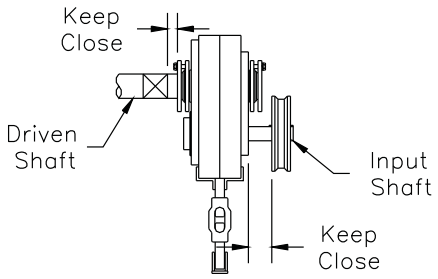


Figure 2 - Reducer and Sheave Installation

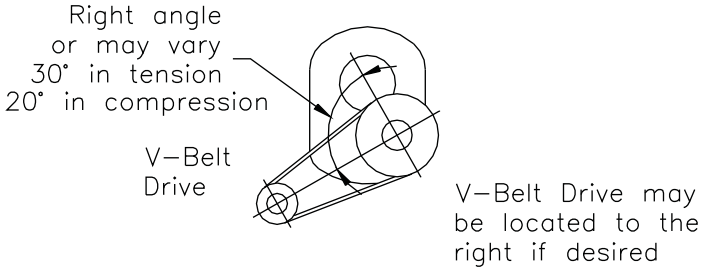


Figure 3 - Angle of V-Drive

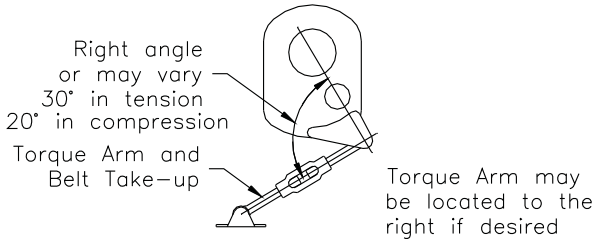


Figure 4 - Angle of Torque Arm

TXT TAPERED BUSHING INSTALLATION

WARNING: To ensure that drive is not unexpectedly started, turn off and lock out or tag power source before proceeding. Remove all external loads from drive before removing or servicing drive or accessories. Failure to observe these precautions could result in bodily injury.

Taper Bore Bushings:

1. One bushing assembly is required to mount the reducer on the driven shaft. An assembly consists of two tapered bushings, bushing screws and washers, and necessary shaft keys or key.

   The driven shaft must extend through the full length of the reducer. The minimum shaft length, as measured from the end of the shaft to the outer edge of the bushing flange (see Figure 5), is given in Table 1. This dimension does not include dimension “A”. Dimension “A” should be added to the minimum shaft length to allow for the removal of the bushings at disassembly.
2. Place one bushing, flange end first, onto the driven shaft and position per dimension “A”, as shown in Table 1. This will allow the bolts to be threaded into the bushing and for future bushing and reducer removal. If the reducer must be positioned closer to the equipment than dimension “A”, place the screws, with washers installed, into the unthreaded holes of the bushing flange prior to placing the bushing on the shaft and position as required.
3. Insert the output key in the shaft and bushing. For ease of installation, rotate the driven shaft so that the shaft keyseat is at the top position.
4. Mount the reducer on the driven shaft and align the shaft key with the reducer hub keyway. Maintain the recommended minimum distance “A” from the shaft bearing.
5. Insert the screws, with washers installed, in the unthreaded holes in the bushing flange and align with the threaded holes in the bushing backup plate. If necessary, rotate the bushing backup plate to align with the bushing screws. Tighten the screws lightly. If the reducer must be positioned closer than dimension “A”, place the screws with washers installed, in the unthreaded holes in the bushing before positioning reducer making sure to maintain at least 1/8” between the screw heads and the bearing.
6. Place the second tapered bushing in position on the shaft and align the bushing keyway with the shaft key. Align the unthreaded holes in the bushing with the threaded holes in the bushing backup plate. If necessary, rotate the bushing backup plate to align with the bushing holes. Insert bushing screws, with washers installed in the unthreaded holes in the bushing. Tighten screws lightly.
7. Alternately and evenly tighten the screws in the bushing nearest the equipment to the recommended torque given in Table 1. Repeat procedure on outer bushing.

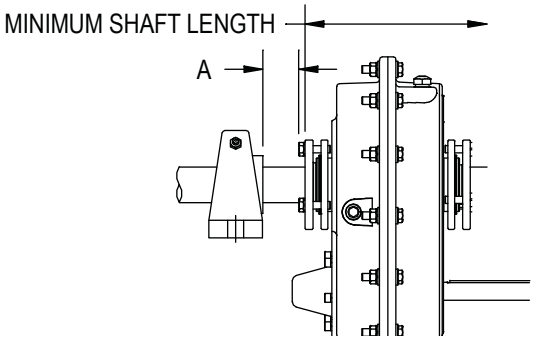


Figure 5 - Minimum Recommended Dimensions

Table 1 - Minimum Mounting Dimensions and Bolt Torques

Minimum Required Shaft Length		
Reducer Size	**Taper Bushing**	**Straight Bushing**
TXT1A	6-1/2	5-5/8
TXT2A	6-3/4	5-13/16
TXT3B	8-9/16	7-11/16
TXT4B	9-5/16	8-1/4
TXT5C	9-3/4	8-11/16
TXT6A	10-3/4	9-5/8
TXT7A	11-15/16	10-3/4
TXT8A	13-1/8	11-3/8
TXT9A	13-0	11-3/8
TXT10A	14-3/16	12-3/8

Bushing Screw Information and Minimum Clearance for Removal			
Reducer Size	**Fastener Size**	**Torque in In.-Lbs.**	**Dim. “A”**
TXT1A	5/16-18	200	1-1/4
TXT2A	5/16-18	200	1-1/4
TXT3B	3/8-16	200	1-1/2
TXT4B	3/8-16	360	1-3/4
TXT5C	3/8-16	360	1-13/16
TXT6A	1/2-13	360	1-13/16
TXT7A	1/2-13	800	2-1/16
TXT8A	1/2-13	800	2-1/16
TXT9A	1/2-13	900	2-7/16
TXT10A	5/8-11	900	2-7/16

Straight Bore Bushings:

1. One bushing assembly is required to mount the reducer on the driven shaft. An assembly consists of one keyed straight bushing, one plain straight bushing, required set screws, and necessary shaft key or keys. The driven shaft must extent through the reducer to operate properly. The minimum shaft length, as measured from the end of the shaft to the outer edge of the retaining collar, is given in Table 1.
2. Install the plain bushing into the reducer output hub on the side toward the equipment or bearing. Remove two short set screws from the retaining collar and install two of the longer set screws supplied with the bushing kit. Line up the bushing holes with the set screws. Thread the set screws in until they locate into the bushing holes. Make sure the set screws are threaded in only enough to locate the bushing in the reducer hub and does not extend thru the bushing.
3. Install the keyed bushing into the opposite end of the reducer hub as the plain bushing. Remove one short set screw from the retaining collar and install the remaining set screw from the bushing kit into the collar. Line up the bushing hole with the set screw. Thread the set screw in until it locates into the bushing hole. Make sure the set screw is threaded in only enough to locate the bushing in the reducer hub and does not extend through the bushing.
4. Mount the reducer on the driven shaft as close to the equipment or bearing as practical.
5. Line up the keyway in the bushing with the keyway in the driven shaft. Insert the key supplied with the bushing kit into the keyway. Gently tap the key into position until the key is flush with the edge of the reducer. Securely tighten all set screws.

Standard Tapered Bushings Removal:

1. Remove bushing screws.
2. Place the screws in the threaded holes provided in the bushing flanges. Tighten the screws alternately and evenly until the bushings are free on the shaft. For ease of tightening screws make sure screw threads and threaded holes in the bushing flanges are clean. If the reducer was positioned closer than the recommended minimum distance "A" as shown in Table 1, loosen the inboard bushing screws until they are clear of the bushing flange by 1/8". Locate two (2) wedges at 180 degrees between the bushing flange and the bushing backup plate. Drive the wedges alternately and evenly until the bushing is free on the shaft.
3. Remove the outside bushing, the reducer, key(s), and inboard bushing.

LUBRICATION

IMPORTANT: Because Torque-Arm reducers are shipped without oil, it is extremely important to add the proper amount of lubricant prior to operating reducer. For most applications a high-grade petroleum-base rust and oxidation inhibited (R&O) gear oil is suitable. See Table 2 and Table 3 for proper oil volume and viscosity requirements.

Under severe conditions EP oil can be used provided the reducer is not equipped with an internal backstop. Internal backstops are designed to rely on friction to operate correctly. EP lubricants contain friction modifiers that will alter backstop performance and therefore must not to be used on reducers equipped with internal backstops.

Follow instructions on reducer warning tags.

Lubrication is very important for satisfactory operation. The proper oil level must be maintained at all times. Frequent inspection, at least monthly, with the unit not running and allowing sufficient time for the oil to cool and the entrapped air to settle out of the oil should be made by removing the level plug and verifying the level is being maintained. If oil level is low, add the proper lubricant until the oil volume is increased to the correct level.
After an initial operation of about two weeks, the oil should be changed. If desired, this oil may be filtered and reused. After the initial break in period, under average industrial operating conditions, the lubricant should be changed every 2500 hours of operation. At every oil change, drain reducer and flush with kerosene, clean magnetic drain plug and refill to proper level with new lubricant.

Under extreme operating conditions, such as rapid rise and fall of temperature, dust, dirt, chemical particles, chemical fumes, or oil sump temperatures above 200°F, the oil should be changed every 1 to 3 months, depending on severity of conditions.

CAUTION: Too much oil will cause overheating and too little will result in gear failure. Check oil level regularly. Failure to observe this precaution could result in equipment damage and/or bodily injury.

Heating is a natural characteristic of enclosed gearing. A maximum gear case temperature approaching 200°F is not uncommon for some units operating in normal ambient temperatures of 80°F. When operating at the rated capacity with proper lubrication, no damage will result from this temperature. This maximum temperature was taken into consideration during the design of the reducer.

Table 2 - Oil Volumes

Reducer		Approximate Volume of Oil to Fill Reducer to Oil Level Plug ① ⑤ ⑥											
		② Position A		② Position B		② Position C		② Position D		② Position E		② Position F	
Size	Ratio	③ Qt	④ L	③ Qt	④ L	③ Qt	④ L	③ Qt	④ L	③ Qt	④ L	Qt	L
TXT1A	9,15,25	1/2	1/2	1/2	1/2	5/8	5/8	3/4	3/4	1	1	1-1/4	1-1/8
TXT2A	9,15,25	7/8	7/8	1	1	5/8	5/8	1	1	1-5/8	1-1/2	1-3/4	1-5/8
TXT3B	9,15,25	1-1/2	1-3/8	1-1/2	1-3/8	3/4	3/4	2-1/4	2-1/8	2-5/8	2-1/2	3	2-7/8
TXT4B	9,15,25	1-7/8	1-3/4	2-1/4	2-1/8	1-1/4	1-1/8	1-3/4	1-5/8	3-3/8	3-1/8	4-1/4	4
TXT5C	9,15,25	3-1/4	3-1/8	4	3-3/4	3-1/4	3-1/8	4	3-3/4	7	6-5/8	8-5/8	8-1/8
TXT6A	9,15,25	4-1/4	4	5	4-3/4	4-1/4	4	5	4-3/4	8-5/8	8-1/8	9-1/8	8-5/8
TXT7A	9,15,25	6-1/2	6-1/8	8	7-1/2	7-1/4	6-7/8	9-1/4	8-3/4	15-3/8	14-1/2	16-3/8	15-1/2
TXT8A	15,25	8-1/2	8	11	10-3/8	10-1/2	9-7/8	8-1/2	8	19-1/8	18-1/8	19-1/8	18-1/8
TXT9A	15,26	13	12-1/4	13	12-1/4	12-1/2	11-7/8	14-1/4	13-1/2	25-3/8	24	25-3/8	24
TXT10A	15,24	23	21-3/4	14	13-1/4	15-3/4	14-7/8	18-3/4	17-3/4	41	38-3/4	41	38-3/4

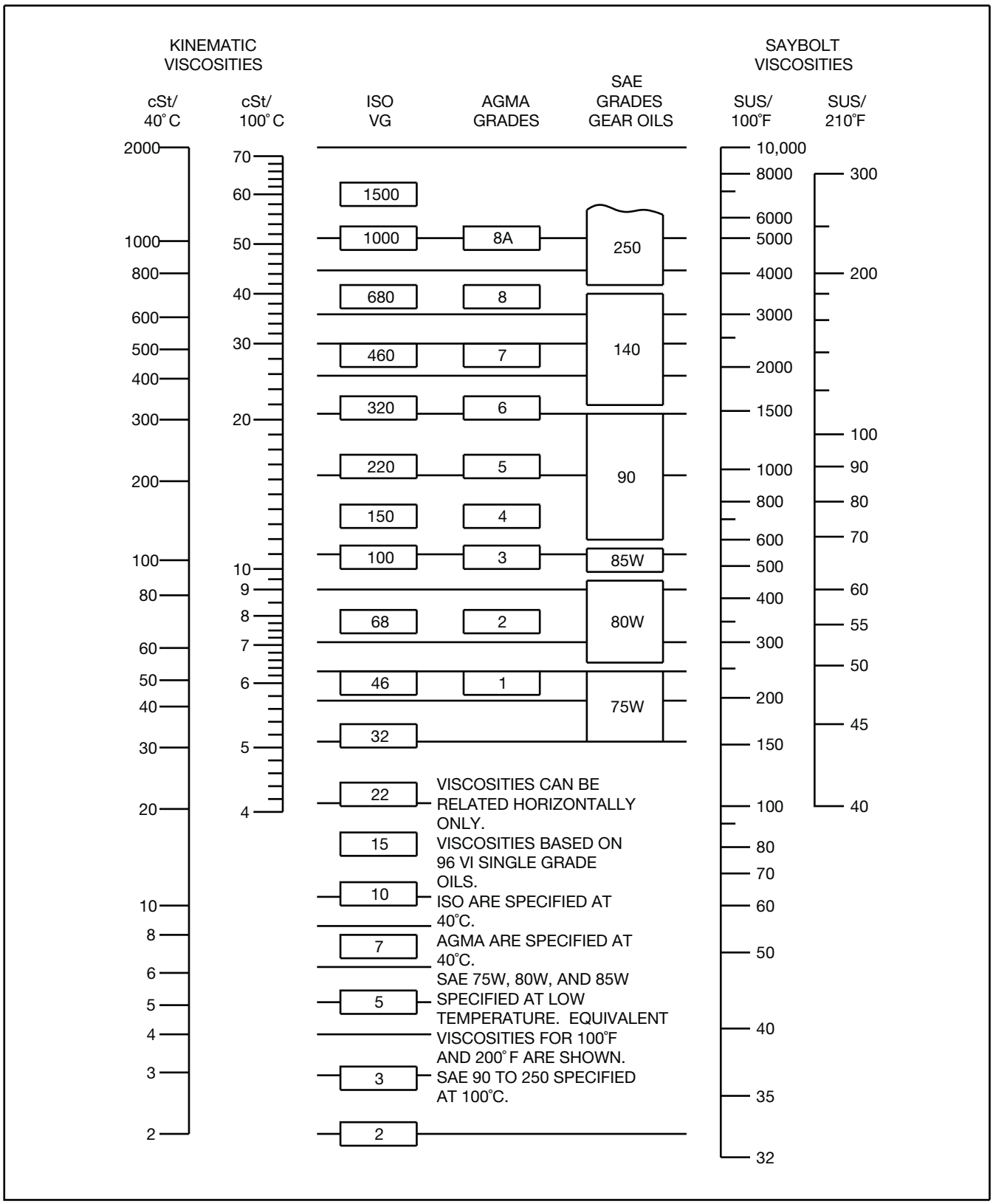
① Oil quantity is approximate. Service with lubricant until oil runs out of oil level hole.
② Refer to Figure 1 for mounting positions.
③ US measure: 1 quart = 32 fluid ounces = .94646 liters.
④ Conversion from quarts rounded values.
⑤ Below 15 RPM output speed, oil level must be adjusted to reach the highest oil level plug. If reducer position is to vary from those shown in Figure 1, either more or less oil may be required. Consult Dodge.
⑥ Consult Dodge for proper oil level for reducers equipped with backstops and which are mounted in either the C position or D position.

Table 3 - Oil Recommendations										
ISO Grades For Ambient Temperatures of 50°F to 125°F (Refer to Notes below)										
Output RPM	Torque-Arm Reducer Size									
	TXT1A	TXT2A	TXT3B	TXT4B	TXT5C	TXT6A	TXT7A	TXT8A	TXT9A	TXT10A
301 – 400	320	320	220	220	220	220	220	220	220	220
201 – 300	320	320	220	220	220	220	220	220	220	220
151 – 200	320	320	220	220	220	220	220	220	220	220
126 – 150	320	320	320	220	220	220	220	220	220	220
101 – 125	320	320	320	320	220	220	220	220	220	220
81 – 100	320	320	320	320	320	220	220	220	220	220
41 – 80	320	320	320	320	320	220	220	220	220	220
11 – 40	320	320	320	320	320	320	320	320	320	320
1 – 10	320	320	320	320	320	320	320	320	320	320

ISO Grades For Ambient Temperatures of 15°F to 60°F (Refer to Notes below)										
Output RPM	Torque-Arm Reducer Size									
	TXT1A	TXT2A	TXT3B	TXT4B	TXT5C	TXT6A	TXT7A	TXT8A	TXT9A	TXT10A
301 – 400	220	220	150	150	150	150	150	150	150	150
201 – 300	220	220	150	150	150	150	150	150	150	150
151 – 200	220	220	150	150	150	150	150	150	150	150
126 – 150	220	220	220	150	150	150	150	150	150	150
101 – 125	220	220	220	220	150	150	150	150	150	150
81 – 100	220	220	220	220	220	150	150	150	150	150
41 – 80	220	220	220	220	220	150	150	150	150	150
11 – 40	220	220	220	220	220	220	220	220	220	220
1 – 10	220	220	220	220	220	220	220	220	220	220

Notes:
1. Assumes auxiliary cooling where recommended in the catalog.
2. Pour point of lubricant selected should be at least 10°F lower than expected minimum ambient starting temperature.
3. Extreme pressure (EP) lubricants are not necessary for average operating conditions. TORQUE-ARM internal backstops are not suitable for use with EP lubricants.
4. Special lubricants may be required for food and drug industry applications where contact with the product being manufactured may occur. Consult a lubrication manufacturer's representative for his recommendations .
5. For reducers operating in ambient temperatures between -22°F (-30°C) and 20°F (–6.6°C) use a synthetic hydrocarbon lubricant, 100 ISO grade or AGMA 3 grade (for example, Mobil SHC627) . Above 125°F (51°C), consult DODGE Gear Application Engineering (864) 284-5700 for lubrication recommendation .
6. Mobil SHC630 Series oil is recommended for high ambient temperatures.

OIL VISCOSITY EQUIVALENCY CHART



GUIDELINES FOR TXT REDUCER LONG-TERM STORAGE

During periods of long storage, or when waiting for delivery or installation of other equipment, special care should be taken to protect a gear reducer to have it ready to be in the best condition when placed into service.

By taking special precautions, problems such as seal leakage and reducer failure due to lack of lubrication, improper lubrication quantity, or contamination can be avoided. The following precautions will protect gear reducers during periods of extended storage:

Preparation:

1. Drain oil from the unit. Add a vapor phase corrosion inhibiting oil (VCI-105 oil by Daubert Chemical Co.) in accordance with Table 4.
2. Seal the unit airtight. Replace the vent plug with a standard pipe plug and wire the vent to the unit.
3. Cover all unpainted exterior parts with a waxy rust preventative compound that will keep oxygen away from the bare metal. (Non-Rust X-110 by Daubert Chemical Co. or equivalent)
4. The instruction manuals and lubrication tags are paper and must be kept dry. Either remove these documents and store them inside, or cover the unit with a durable waterproof cover which can keep moisture away.
5. Protect reducer from dust, moisture, and other contaminants by storing the unit in a dry area.
6. In damp environments, the reducer should be packed inside a moisture-proof container or an envelope of polyethylene containing a desiccant material. If the reducer is to be stored outdoors, cover the entire exterior with a rust preventative.

When placing the reducer into service:

1. Fill the unit to the proper oil level using a recommended lubricant. The VCI oil will not affect the new lubricant.
2. Clean the shaft extensions with petroleum solvents.
3. Assemble the vent plug into the proper hole.

Follow the installation instructions provided in this manual.

Table 4 - Quantities of VCI #105 Oil

Reducer Size	Quantity (Ounces / Mililiter)
TXT1A	1 / 30
TXT2A	1 / 30
TXT3B	1 / 30
TXT4B	1 / 30
TXT5C	1 / 30
TXT6A	2 / 59
TXT7A	2 / 59
TXT8A	3 / 89
TXT9A	4 / 118
TXT10A	6 / 177

VCI #105 and #10 are interchangeable.
VCI #105 is more readily available.

Motor Mounts

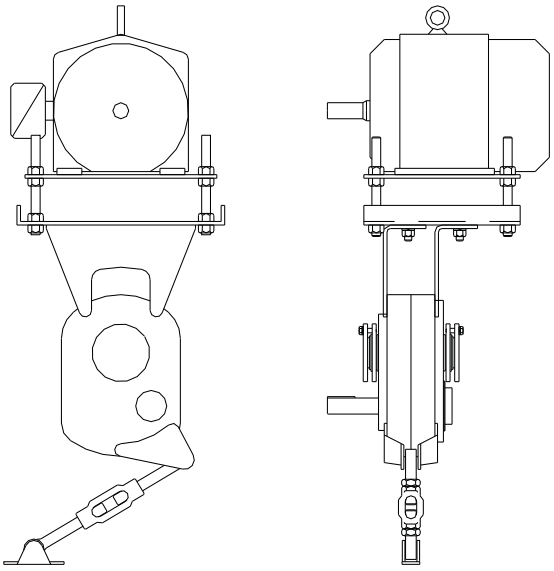


Figure 6 - Motor Mounts

Warning: Belt guard removed for illustration purposes. Do not operate if belt guard is not in place.

Motor Mount Installation:

The TA motor mount is designed to be installed on the output end of the reducer as shown in Figure 6. If bottom mounting is desired, use the optional TAB style.

TA1M thru TA7M Motor Mount:

Remove the required housing bolts on the output end of the reducer. Place the motor mount brackets in position and install the longer housing bolts supplied with the motor mount assembly. Do not fully tighten the housing bolts at this time.

Install the bottom plate to the motor mount brackets and tighten with the hardware provided. Next, tighten the housing bolts to the torque values listed in Table 6.

Install the four adjusting studs to the bottom plate using the jam nuts provided and securely tighten. These nuts will not require any further adjustment. Add one additional jam nut to each stud and thread approximately to the middle of the stud. Install the top motor plate on top of the jam nuts. Assemble the remaining jam nuts on studs to secure top motor plate. Do not fully tighten these nuts yet.

Mount motor, drive and driven sheaves, and v-belts.

Note: Mount driven sheave as close to the reducer housing as practical.

Adjust v-belts to the proper tension by adjusting the jam nuts and securely tighten.

Check all bolts to insure that they are securely tightened.

TA8 thru TA10 Motor Mount:

Remove the required housing bolts on the output end of the reducer. Place the motor mount brackets in position and install the longer housing bolts supplied with the motor mount assembly. Do not fully tighten the housing bolts at this time.

Install the four adjusting studs to the top plate as shown using the jam nuts provided and securely tighten. Add one additional

jam nut to each stud and thread approximately to the middle of the stud. Install this assembly to the motor mount brackets and install the remaining jam nuts onto the studs to secure the top plate to the brackets. Tighten the housing bolts to the torque values listed in Table 6.

Loosely install the front motor rail to the top plate. Measure the distance between the front and rear mounting holes on the motor and position the rear motor rail at this distance and loosely bolt to the top plate.

Center the motor on the motor rails and securely bolt the motor to the motor rails.

Install the motor sheave and reducer sheave on their shafts. Mount the reducer sheave as close to the housings as practical. Install the v-belts and adjust the motor rails to permit proper alignment of the v-belts to the sheaves. Securely tighten the motor rails to the mounting plate.

Adjust the v-belts to the proper tension and securely tighten the adjusting nuts.

Check all bolts to see that they are securely tightened.

WARNING: To ensure that drive is not unexpectedly started, turn off and lock out or tag power source before proceeding. Remove all external loads from drive before removing or servicing drive or accessories. Failure to observe these precautions could result in bodily injury.

REPLACEMENT OF PARTS

NOTE: Using tools normally found in a maintenance department, a Dodge Torque-Arm speed reducer can be disassembled and reassembled by careful attention to the instructions following.

Cleanliness is very important to prevent the introduction of dirt into the bearings and other parts of the reducer. A tank of clean solvent, an arbor press, and equipment for heating bearings and gears (for shrinking these parts on shafts) should be available.

The oil seals are designed with a contact lip. Considerable care should be used during disassembly and reassembly to avoid damage to the surface on which the seals rub.

The keyseat in the input shaft, as well as any sharp edges on the output hub should be covered with tape or paper before disassembly or reassembly. Also, be careful to remove any burrs or nicks on surfaces of the input shaft or output hub before disassembly or reassembly.

Ordering Parts:

When ordering parts for a Dodge Torque Arm reducer, specify reducer part number, part name, and quantity required.

It is strongly recommended that, when a pinion or gear is replaced, the mating pinion or gear is replaced also.

If the large gear on the output hub must be replaced, it is recommended that an output hub assembly consisting of a gear assembled on a hub be ordered to ensure undamaged surfaces on the output hub where the output seals rub. However, if it is desired to use the old output hub, press the gear and bearing off and examine the rubbing surface under the oil seal carefully for possible scratching or other damage resulting from the pressing operation. To prevent oil leakage at the shaft oil seals, the smooth surface of the output hub must not be damaged.

If any parts must be pressed from a shaft or from the output hub, this should be done before ordering parts to make sure that none of the bearings or other parts are damaged in removal. Do not press against rollers or cage of any bearing.
Because old shaft oil seals may be damaged in disassembly, it is advisable to order replacements for these parts.

Removing Reducer from Shaft:

WARNING: To ensure that drive is not unexpectedly started, turn off and lock out or tag power source before proceeding. Remove all external loads from drive before removing or servicing drive or accessories. Failure to observe these precautions could result in bodily injury.

Taper Bushed Reducer:

1. Disconnect and remove belt guard, v-drive, and motor mount as required. Disconnect torque arm rod from reducer adapter.
2. Remove bushing screws.
3. Place the screws in the threaded holes provided in the bushing flanges. Tighten the screws alternately and evenly until the bushings are free on the shaft. For ease of tightening screws, make sure screw threads and threaded holes in bushing flanges are clean. A tap can be used to clean out the threads. Use caution to use the proper size tap to prevent damage to the threads.
4. Remove the outside bushing, the reducer, and then the inboard bushing.

Straight Bore Reducer:

1. Disconnect and remove belt guard, v-drive, and motor mount as required. Disconnect torque arm rod from reducer adapter.
2. Loosen and remove the set screws in both output hub collars.
3. Remove the collar from the output hub closest to the end of the shaft. This will expose three puller holes in the output hub to permit the use of a three prong puller. In removing the reducer from the shaft, use care not to damage the reducer output hub.

Disassembly:

1. Drain all oil from the reducer.
2. Remove all locking collars, retaining rings, and bushing backup plated as required. Position the reducer on its side and remove all housing bolts. Using the three pry slots around the periphery of the flange, gently separate the housing halves and open evenly to prevent damage to the parts inside. Remove the two dowel pins.
3. Lift input shaft, all gear assemblies, and bearing assemblies from housing.
4. Remove seals from housing.
5. Remove bearings from shafts and hubs. Be careful not to scratch or damage any assembly or seal area during bearing removal. The hub assembly can be disassembled for gear replacement but if scratching or grooving occurs on the hub, seal leakage will occur and the hub will need to be replaced.

TXT Reassembly:

1. Output Hub Assembly: Heat gear to 325°F to 350°F to shrink onto hub. Heat bearings to 270°F to 290°F to shrink onto hub. Any damage to the hub surfaces where the oil seals rub will cause leakage, making it necessary to replace the hub.
2. Countershaft Assembly: Heat gear to 325°F to 350°F and bearings to 270°F to 290°F to shrink onto shaft.
3. Input Shaft Assembly: Heat bearings 270°F to 290°F to shrink onto shaft. Press bearings on shaft.
4. Drive the two dowel pins into place in the right-hand housing half (backstop side).
5. Place R.H. housing half on blocks to allow for protruding end of output hub.
6. Install all bearing cups on TXT3B thru TXT10A in right-hand housing half, making sure they are properly seated. TXT1A and TXT2A reducers use ball bearings on all shafts and do not incorporate bearing cups.
7. Mesh output hub gear and small countershaft gear together and set in place in housing. Set input shaft assembly in

place in the housing. Make sure bearing rollers (cones) are properly seated in their cups.

8. Make sure both housing halves are clean. Apply a continuous 1/8" diameter bead of Dow Corning RTV732 sealant on the flange surface of the R.H. housing (make sure RTV is placed around all bolt holes). Set the left-hand housing half into position onto the dowel pins and gently tap with a soft hammer (rawhide, not lead hammer) until housing bolts can be used to draw housing halves together. Make sure reducer shafts do not bind while tightening housing bolts. Torque housing bolts per torque values listed in Table 6.
9. On TXT1A and TXT2A reducers, skip to step number 12.
10. Place the output bearing cup into the housing and tap into place. Install the output seal carrier and draw down with two bolts 180° apart to 50 inch pounds of torque. Loosen both bolts then retighten finger tight only. Measure the clearance between the housing and carrier flange at each bolt and average the two values. Add 0.010" to the average reading and make up shim pack. Install shim pack between the carrier flange and the reducer housing. Torque the bolts to the value shown in Table 6. Using a magnetic base and dial indicator, check the axial end play. Add or remove shims until the axial endplay reading of the output hub is per Table 5.
11. Repeat step 9 above for installing and adjusting the countershaft and input bearings. Adjust the axial endplay per Table 5.
12. Install input and output seals. Lightly coat the seal lips with Mobilith AW2 All-Purpose grease or equivalent. The possibility of damage and consequent oil leakage can be decreased by covering all sharp edges with tape prior to seal installation. Seals should be pressed or tapped with a soft hammer evenly into place in the reducer housing, applying pressure only on the outer edge of the seals. Extreme care should be used when installing seals to avoid damage due to contact with sharp edges on the input shaft or output hub. A slight oil leak at the seals may be evident during initial running, but should disappear unless seals have been damaged.
13. Install bushing backup plates and snap rings on Taper Bushed reducers or hub collars on straight bore reducers and install backstop cover. Make sure all bolts are tightened to the correct torque values listed in Table 6.

Table 5 - Bearing Adjustment Tolerances

Reducer Size	Bearing Endplay Values		
	Input	Countershaft	Ouput
TXT1A	N / A	N / A	N / A
TXT2A	N / A	N / A	N / A
TXT3B	.002-.004 Loose	.0005-.003 Loose	.0005-.003 Loose
TXT4B	.002-.004 Loose	.0005-.003 Loose	.0005-.003 Loose
TXT5C	.002-.004 Loose	.0005-.003 Loose	.0005-.003 Loose
TXT6A	.002-.004 Loose	.0005-.003 Loose	.0005-.003 Loose
TXT7A	.002-.004 Loose	.0005-.003 Loose	.0005-.003 Loose
TXT8A	.002-.004 Loose	.0005-.003 Loose	.0005-.003 Loose
TXT9A	.002-.004 Loose	.0005-.003 Loose	.0005-.003 Loose
TXT10A	.002-.004 Loose	.0005-.003 Loose	.0005-.003 Loose

Table 6 - Recommended Bolt Torque Values

Recommended Torque Values (lbs.-ft.)				
Reducer Size	Housing Bolts	Output Seal Carrier	C/S Bearing Cover	Input Seal Carrier
TXT1A	30 - 27	N/A	N/A	N/A
TXT2A	30 - 27	N/A	N/A	N/A
TXT3B	50 - 45	17 – 15	17 – 15	17 – 15
TXT4B	50 - 45	30 – 27	30 – 27	30 – 27
TXT5C	75 - 68	30 – 27	30 – 27	30 – 27
TXT6A	75 - 68	30 – 27	30 – 27	30 – 27
TXT7A	150 - 135	30 – 27	50 - 45	50 - 45
TXT8A	150 - 135	30 – 27	30 – 27	30 – 27
TXT9A	150 - 135	30 – 27	30 – 27	30 – 27
TXT10A	150 - 135	30 – 27	30 – 27	30 – 27

Backstop Cover Bolt Recommended Torque Values

Reducer Size	Fastener Size	Torque in Ft.-Lbs.
TXT1A	10 - 24 x 3/8	5 – 4
TXT2A	10 - 24 x 3/8	5 – 4
TXT3B	10 - 24 x 3/8	5 – 4
TXT4B	¼ - 20 x ½	8 – 7
TXT5C	¼ - 20 x ½	8 – 7
TXT6A	¼ - 20 x ½	8 – 7
TXT7A	¼ - 20 x ½	8 – 7
TXT8A	¼ - 20 x ½	8 – 7
TXT9A	¼ - 20 x ½	8 – 7
TXT10A	¼ - 20 x ½	8 – 7

Replacement Part and Kit Numbers

Table 7 – Part Numbers for Replacement Bearings, Double Reduction Reducers		
Reducer Size	Output Hub Bearing – LH and RH Sides	
	Part Number	Manufacturer's Part Number
TXT1A	424020	6011NR
TXT2A	424022	6013NR
TXT3B	402272 / 403127	LM814849 / LM814810
TXT4B	402268 / 403163	498 / 492A
TXT5C	402193 / 403016	42381 / 42584
TXT6A	402050 / 403140	JM822049 / JM822010
TXT7A	402058 / 403111	48290 / 48220
TXT8A	402147 / 403105	36690 / 36620
TXT9A	402160 / 403110	46790 / 46720
TXT10A	402168 / 403116	67790 / 67720

Reducer Size	Countershaft Bearing – LH Input Side	
	Part Number	Manufacturer's Part Number
TXT1A	424006	6304NR
TXT2A	424000	305NR
TXT3B	402273 / 403094	15102 / 15245
TXT4B	402000 / 403000	M86649 / M86610
TXT5C	402203 / 403027	2789 / 2720
TXT6A	402054 / 403159	HM807040 / HM807010
TXT7A	402256 / 403053	JHM807045 / JHM807012
TXT8A	402057 / 403143	JH211749 / JH211710
TXT9A	402109 / 403078	655 / 652A
TXT10A	402232 / 402231	JH415647 / JH415610

Reducer Size	Countershaft Bearing – RH Backstop Side	
	Part Number	Manufacturer's Part Number
TXT1A	424006	6304NR
TXT2A	424000	305NR
TXT3B	402273 / 403094	15102 / 15245
TXT4B	402000 / 403000	M86649 / M86610
TXT5C	402203 / 403027	2789 / 2720
TXT6A	402052 / 403142	HM803149 / HM803110
TXT7A	402256 / 403053	JHM807045 / JHM807012
TXT8A	402148 / 403106	39585 / 39520
TXT9A	402109 / 403078	655 / 652A
TXT10A	402232/402231	JH415647 / JH415610

Reducer Size	Input Shaft Bearing – LH Input Side	
	Part Number	Manufacturer's Part Number
TXT1A	424112	6205NR
TXT2A	424019	206NR
TXT3B	402204 / 403139	LM48548A / LM48510
TXT4B	402280 / 403027	2788 / 2720
TXT5C	402144 / 403104	28579 / 28521
TXT6A	402196 / 403091	395A / 3920
TXT7A	402150 / 403106	39590 / 39520
TXT8A	402098 / 403072	566 / 563
TXT9A	402114 / 403080	745A / 742
TXT10A	402114 / 403080	745A / 742

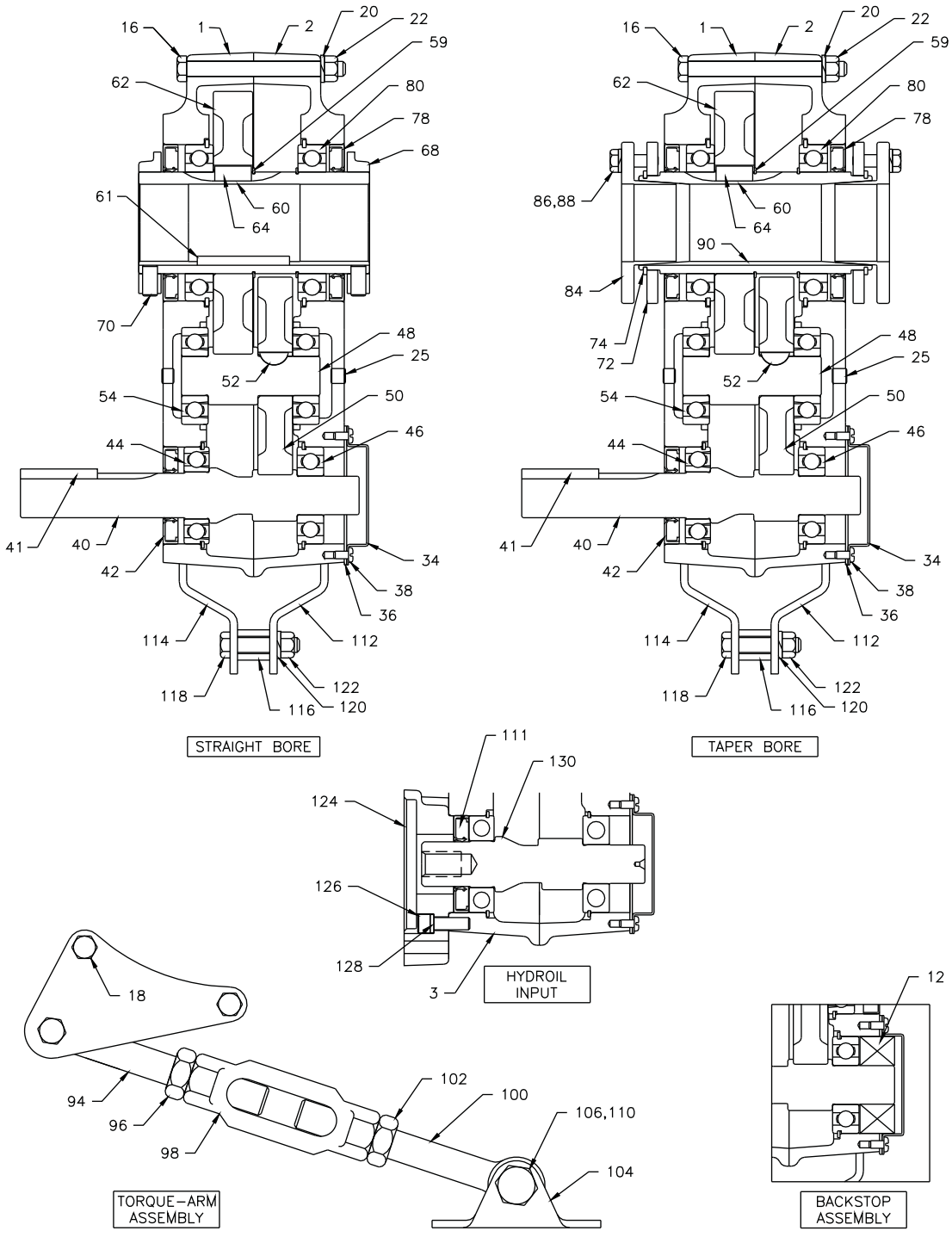
Reducer Size	Input Shaft Bearing – RH Backstop Side	
	Part Number	Manufacturer's Part Number
TXT1A	424111	6204NR
TXT2A	424090	6305NR
TXT3B	402273 / 403094	15102 / 15245
TXT4B	402142 / 403102	26118 / 26283
TXT5C	402266 / 403073	350A / 352
TXT6A	402197 / 403091	396 / 3920
TXT7A	402088 / 403047	455 / 452
TXT8A	402097 / 403072	565 / 563
TXT9A	402107 / 403076	639 / 633
TXT10A	402112 / 403080	745S / 742

Note: Bearing part numbers refer to Cup/Cone combinations, respectively, and apply to all ratios unless otherwise specified. For actual reducer ratios, refer to Table 9.

Table 8 - Replacement Parts Kit Numbers						
Reducer Size	Ratio	Seal Kit	Output Hub Assembly		Countershaft Assembly	Bearing Kit(s)
			Taper Hub	Straight Hub		
TXT1A	9:1	392119	390878	390151	392100	389905 All
	15:1				392090	
	25:1				392091	
TXT2A	9:01	392120	392111	392110	392101	389906 All
	15:1				392092	
	25:1				392093	
TXT3B	9:1	389720	389703	389702	389729	392345 All
	15:1				389700	
	25:1				389701	
TXT4B	9:1	389721	389710	389709	389730	392347 All
	15:1				389707	
	25:1				389708	
TXT5C	9:1	389722	389717	389716	389731	392350 All
	15:1				389714	
	25:1				389715	
TXT6A	9:1	246340	390935	390988	392140	335368 All
	15:1				391171	
	25:1				391186	
TXT7A	9:1	247345	390941	390990	392141	392353 All
	15:1				391196	
	25:1				391197	
TXT8A	15:1	248340	390944	390993	391184	392355 All
	25:1				391185	
TXT9A	15:1	249340	390949	390159	390124	392357 All
	26:1				390139	
TXT10A	15:1	272460	390954	390160	390983	392359 All
	24:1				390998	

Notes:
Seal Kit consists of Input Seal, Output Seals, Backstop Cover Gasket and RTV Sealant.
Output Hub Assembly consists of Output Hub, Output Gear and Gear Key.
Countershaft Assembly consists of Countershaft Pinion, Countershaft Gear and Gear Key.
Bearing Kit consists of LH and RH Output Bearing Cup/Cone, LH and RH Countershaft Bearing Cup/Cone (double reduction only) and LH and RH Input Bearing Cup/Cone.

Parts for TXT/HXT 1A & 2A Straight and Tapered Bushed Double Reduction Reducers



Parts for TXT/HXT 1A & 2A Straight and Tapered Bushed Double Reduction Reducers

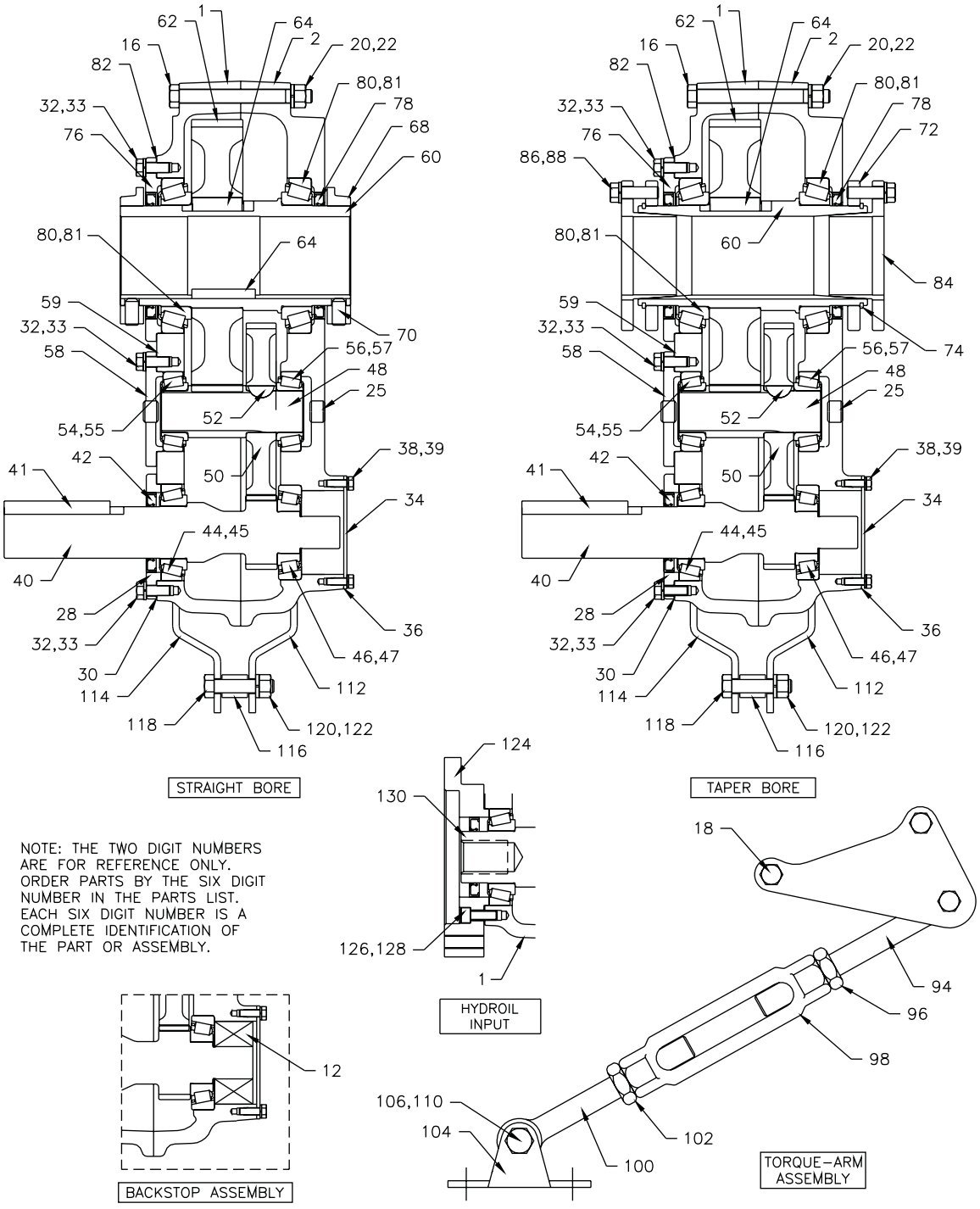
Ref.	Description	Qty.	TXT/HXT 1A	TXT/HXT 2A
12	Backstop Assembly	1	242101	252101
1	Housing-LH	1	241358	242353
2	Housing-RH	1	241359	242354
	Housing-RH, Flange Mount Drilled	1	241387	242393
3	Housing-Hydroil LH	1	241064	242067
①	RTV Sealant, Tube	1	465044	465044
①	Air Vent	1	900287	900287
16	Housing Bolt	⑦	411418	411418
18	Housing Bolt-Adapter	2	411420	411420
20	Lock-Washer	⑧	419011	419011
22	Hex Nut	⑧	407087	407087
①	Dowel Pin	2	420145	420145
①	Magnetic Oil Plug	1	430060	430060
25	Oil Plug	4	430031	430031
34	Backstop Shaft Cover	1	242221	243221
38	Backstop Cover Screw	4	415022	415022
	Seal Kit ②	1	392119	392120
36	Backstop Cover Gasket ④	1	242220	243220
42	Input Oil Seal ④	1	241457	242211
78	Output Hub Oil Seal ④	2	241210	242210
40	Input Pinion			
	9:1 Ratio ⑥	1	241481	242481
	15:1 Ratio ⑥	1	241302	242186
	25:1 Ratio ⑥	1	241200	242187
130	Hydroil Input Pinion			
	15:1 Ratio ⑥	1	241455	242188
	25:1 Ratio ⑥	1	241449	242189
41	Input Pinion Key	1	443008	443014
	Bearing Replacement Kit ②	1	389905	389906
44	Input Pinion Bearing-LH, Input Side ④	1	424112	424019
46	Input Pinion Bearing-RH, Backstop Side ④	1	424111	424090
54	Countershaft Pinion Bearing ④	2	424006	424000
80	Output Hub Bearings ④	2	424020	424022
	Countershaft Pinion Assembly ②			
	9:1 Ratio ⑥	1	392100	392101
	15:1 Ratio ⑥	1	392090	392092
	25:1 Ratio ⑥	1	392091	392093
48	Countershaft Pinion ④	1	241216	242185
50	First Reduction Gear ④			
	9:1 Ratio ⑥	1	241482	242482
	15:1 Ratio ⑥	1	241170	242008
	25:1 Ratio ⑥	1	241171	242005
52	Countershaft to First Gear Key ④	1	241309	242218
	Taper Bore Output Hub Assembly ②	1	390878	392111
	Straight Bore Output Hub Assembly ③	1	390151	392110
60	Output Hub			
	Straight Bore ⑤	1	241208	242208
	Taper Bore ④	1	241265	242134
62	Output Gear ④ ⑤	1	241007	242181
64	Output Gear Key ④ ⑤	1	241217	443399
59	Output Hub Snap Ring ④	2	421013	421017
61	Straight Bore Output Hub Key ⑤	2	241296	242296
68	Straight Bore Output Hub Collar	2	241209	242209
70	Straight Bore Output Hub Collar Screw	4	400062	400094
72	Taper Bore Bushing Backup Plate	2	241266	242137
74	Bushing Backup Plate Retaining Ring	2	421111	421112
84	Taper Bore Bushing Assembly ②			
	Bushing ④			
	1" Bore	1	241278	N/A
	1-1/16" Bore	1	241280	N/A
	1-1/8" Bore	1	241282	242146
	1-3/16" Bore	1	241286	242148
	1-1/4" Bore	1	241288	242150
	1-5/16" Bore	1	241290	242152
	1-3/8" Bore	1	241294	242154
	1-7/16" Bore	1	241292	242156
	1-11/16" Bore	1	N/A	242164
	1-1/2" Bore	1	N/A	242158
	1-5/8" Bore	1	N/A	242162
	1-3/4" Bore	1	N/A	242166
	1-15/16" Bore	1	N/A	242168

Parts for TXT/HXT 1A & 2A Straight and Tapered Bushed Double Reduction Reducers

Ref.	Description	Qty.	TXT/HXT 1A	TXT/HXT 2A
86	Bushing Screw ④	6	411405	411390
88	Lock Washer ④	6	419010	419010
90	Key, Taper Bore Bushing to Shaft ④			
	1" Bore	1	443274	N/A
	1-1/8" Bore	1	443271	443281
	1-3/16" Bore	1	241308	443281
	1-1/4" Bore	1	241307	443281
	1-5/16" Bore	1	241306	443264
	1-3/8" Bore	1	241310	443280
	1-7/16" Bore	1	241305	443282
	1-1/2" Bore	1	N/A	443282
	1-5/8" Bore	1	N/A	424172
	1-11/16"	1	N/A	242171
	1-3/4" Bore	1	N/A	242170
	1-15/16" Bore	1	N/A	443283
①	Key, Bushing to Output Hub ④			
	1" Bore	1	443272	N/A
	1-1/8" Bore	1	443273	N/A
	1-1/8" to 1-1/2" Bore	1	N/A	443284
	Torque-Arm Assembly ②	1	241097	243097
94	Torque-Arm Rod End ④	1	241245	243245
96	RH Nut ④	1	407093	407095
98	Torque-Arm Turnbuckle ④	1	241246	243246
100	Torque-Arm Extension ④	1	241247	243247
102	LH Nut ④	1	407242	407244
104	Torque-Arm Fulcrum ④	1	241249	243249
106	Fulcrum Screw ④	1	411456	411484
110	Hex Nut ④	1	407091	407093
	Adapter Assembly ②	1	259151	259152
112	RH Torque-Arm Adapter Bracket ④	1	241242	242136
114	LH Torque-Arm Adapter Bracket ④	1	241241	242135
116	Adapter Bushing ④	1	242243	243243
118	Adapter Bolt ④	1	411412	411437
120	Lock Washer ④	1	419011	419012
122	Hex Nut ④	1	407087	407089
124	Hydraulic Motor Adapter	1	241454	242454
126	Adapter Screw	6	417081	417081
128	Lockwasher	6	419046	419046
111	Input Pinion Seal, Hydroil	1	241457	242457
①	Motor to Adapter Screw	2	411408	411408
①	Motor to Adapter Lock Washer	2	419011	419011

Notes:
① Not shown on Drawing.
② Includes Parts Listed Immediately Below
③ Includes Parts Listed Immediately Below
④ Makes up Assembly Under Which it is Listed.
⑤ Makes up Assembly Under Which it is Listed.
⑥ See Table 9 for Actual Ratio.
⑦ 4 Required on TXT1A and 5 Required on TXT2A
⑧ 6 Required on TXT1A and 7 Required on TXT2A

Parts for TXT3B thru TXT5C Straight and Tapered Bushed Double Reduction Reducers



NOTE: THE TWO DIGIT NUMBERS ARE FOR REFERENCE ONLY. ORDER PARTS BY THE SIX DIGIT NUMBER IN THE PARTS LIST. EACH SIX DIGIT NUMBER IS A COMPLETE IDENTIFICATION OF THE PART OR ASSEMBLY.

Parts for TXT3B thru TXT5C Straight and Tapered Bushed Double Reduction Reducer

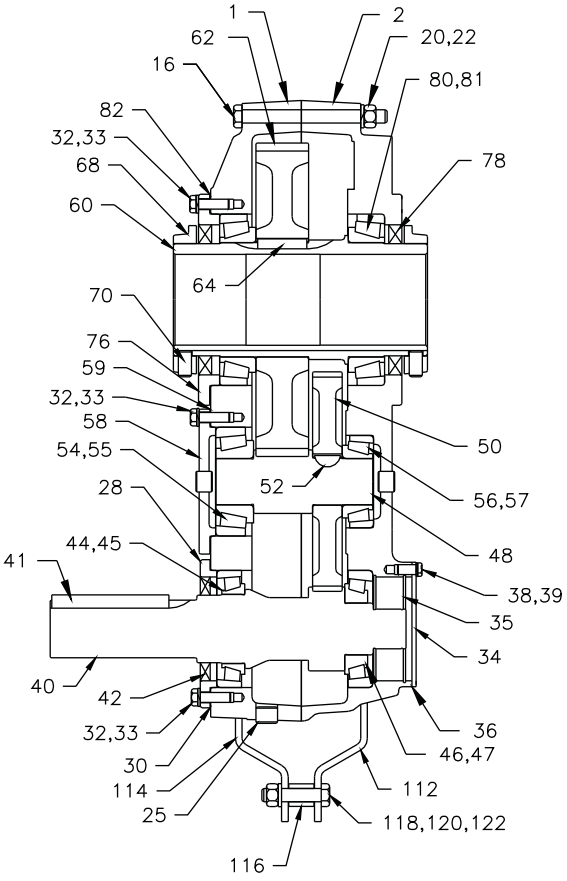
Ref.	Description	Qty.	TXT3B HXT3B	TXT4B HXT4B	TXT5C HXT5C
12	Backstop Assembly	1	243106	244106	245154
1	Housing - TXT and Hydroil LH	1	243228	244365	245369
2	Housing-RH	1	243229	244366	245370
	Housing-RH, Flange Mount Drilled	1	243384	244387	245373
①	RTV Sealant, Tube	1	465044	465044	465044
①	Air Vent	1	900287	900287	904287
16	Housing Bolt	6	411440	411442	411464
18	Housing Bolt-Adapter	2	411442	411444	411466
20	Lock-Washer	8	419012	419012	419013
22	Hex Nut	8	407089	407089	407091
①	Dowel Pin	2	420146	420146	420147
①	Magnetic Oil Plug	1	430060	430060	430062
25	Oil Plug	4	430031	430031	430033
28	Input Shaft Seal Carrier	1	243543	244577	245597
30	Input Shaft Bearing Shim Pack	⑧	389704	389711	389732
32	Input Seal Carrier Screw	⑦	411390	411407	411407
33	Lock Washer	⑦	419010	419011	419011
34	Backstop Cover	1	243560	244493	245226
38	Backstop Shaft Cover	4	416524	411035	411394
39	Backstop Cover Screw	4	N/A	N/A	419009
	Seal Kit ②	1	389720	389721	389722
36	Backstop Cover Gasket ④	1	243561	244593	245220
42	Input Pinion Shaft Seal ④	1	243558	244524	355011
78	Output Hub Oil Seal ④	2	243578	244673	245545
40	Input Pinion				
	9:1 Ratio ⑥	1	243549	244579	245599
	15:1 Ratio ⑥	1	243550	244580	245600
	25:1 Ratio ⑥	1	243551	244581	245601
130	15:1 Ratio Hydroil Pinion ⑥	1	243553	244583	245603
	25:1 Ratio Hydroil Pinion ⑥	1	243554	244584	245604
	15:1 Ratio Hydroil 6-B Pinion ⑥	1	N/A	244586	N/A
	25:1 Ratio Hydroil 6-B Pinion ⑥	1	243498	244587	245641
41	Input Pinion Shaft Key	1	443032	443082	443096
	Input Bearing Kit ②	1	389587	389590	389594
44	Input Shaft Bearing Cone, Input Side ④	1	402204	402280	402144
45	Input Shaft Bearing Cup, Input Side ④	1	403139	403027	403104
46	Input Shaft Bearing Cone, Backstop Side ④	1	402273	402142	402266
47	Input Shaft Bearing Cup, Backstop Side ④	1	403094	403102	403073
	Countershaft Pinion Assembly ②	1			
	9:1 Ratio ⑥	1	389729	389730	389731
	15:1 Ratio ⑥	1	389700	389707	389714
	25:1 Ratio ⑥	1	389701	389708	389715
48	Countershaft Pinion ④	1	243555	244590	245596
50	First Reduction Gear ④	1			
	9:1 Ratio ⑥	1	243237	244482	245482
	15:1 Ratio ⑥	1	243238	244214	245214
	25:1 Ratio ⑥	1	243239	244212	245212
52	First Stage Gear Key ④	1	D8242	D8243	D8243
	Countershaft Bearing Kit ②	1	389588	389591	389595
54	Countershaft Bearing Cone, Input Side ④	1	402273	402000	402203
55	Countershaft Bearing Cup, Input Side ④	1	403094	403000	403027
56	Countershaft Bearing Cone, Backstop Side ④	1	402273	402000	402203
57	Countershaft Bearing Cup, Backstop Side ④	1	403094	403000	403027
58	Countershaft Bearing Cover, Input Side ④	1	243545	244578	245594
59	Countershaft Bearing Shim Pack	⑧	389705	389712	389718
	Taper Bore Output Hub Assembly ②	1	389703	389710	389717
	Straight Bore Output Hub Assembly ③	1	389702	389709	389716
60	Output Hub				
	Straight Bore ⑤	1	243557	244589	245591
	Taper Bore ④	1	243556	244588	245590
62	Output Gear ④ ⑤	1	243570	244188	245186
64	Output Gear Key ④ ⑤	1	243216	354087	355064
68	Output Hub Collar, Straight Bore	2	243572	244658	245598
70	Output Hub Collar Screw	4	400098	400150	400154
72	Bushing Backup Plate, Taper Bore	2	243308	244099	245114
74	Bushing Backup Plate Retaining Ring	2	421109	421108	421107
76	Output Hub Seal Carrier, Input Side	1	243547	244591	245592
	Output Hub Bearing Kit	1	389589	389592	389596
80	Output Hub Bearing, Cone ④	2	402272	402268	402193
81	Output Hub Bearing, Cup ④	2	403127	403163	403016
82	Output Hub Bearing Shim Kit	⑧	389706	389713	389719

Parts for TXT3B thru TXT5C Straight and Tapered Bushed Double Reduction Reducer, continued

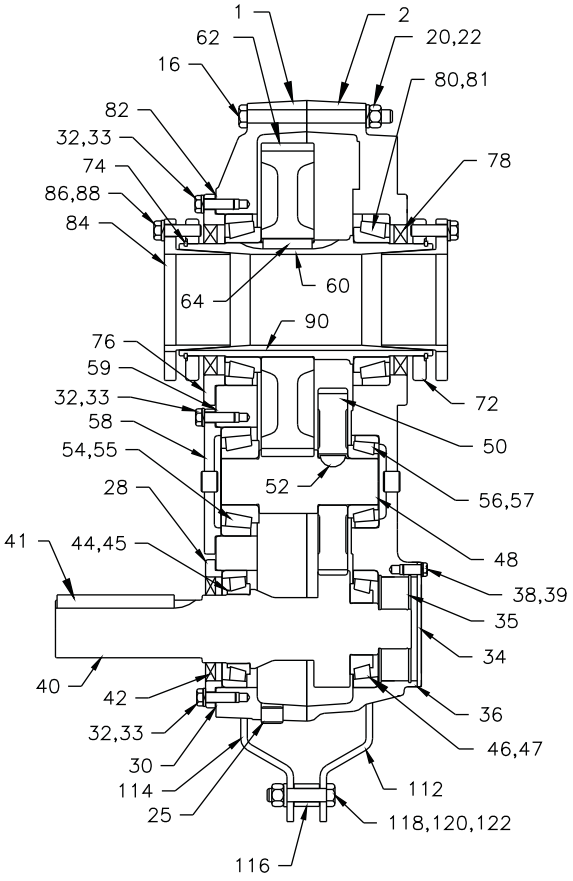
Ref.	Description	Qty.	TXT3B HXT3B	TXT4B HXT4B	TXT5C HXT5C
84	Taper Bore Bushing Assembly ②				
	Bushing ④				
	1-5/16" Bore	1	243282	N/A	N/A
	1-3/8" Bore	1	243284	N/A	N/A
	1-7/16" Bore	1	243260	244079	N/A
	1-1/2" Bore	1	243262	244081	N/A
	1-5/8" Bore	1	243264	244083	N/A
	1-11/16" Bore	1	243268	244085	N/A
	1-3/4" Bore	1	243266	244087	N/A
	1-7/8" Bore	1	243270	244089	245084
	1-15/16" Bore	1	243272	244093	245086
	2" Bore	1	243274	244095	245088
	2-1/8" Bore	1	N/A	244109	N/A
	2-3/16" Bore	1	243276	244111	245090
	2-1/4" Bore	1	N/A	244113	245092
	2-7/16" Bore	1	N/A	244115	245094
	2-1/2" Bore	1	N/A	N/A	245099
	2-11/16" Bore	1	N/A	N/A	245110
	2-15/16" Bore	1	N/A	N/A	245112
86	Taper Bushing Screw ④	6	411407	411408	411435
88	Taper Bushing Lockwasher ④	6	419011	419011	419012
90	Key, Bushing to Shaft ④				
	1-5/16" Bore	1	443264	N/A	N/A
	1-3/8" Bore	1	443264	N/A	N/A
	1-7/16" Bore	1	443265	443254	N/A
	1-1/2" Bore	1	443265	443254	N/A
	1-5/8" Bore	1	443265	443254	N/A
	1-11/16" Bore	1	443266	443254	N/A
	1-3/4" Bore	1	443266	443254	N/A
	1-7/8" Bore	1	443267	443255	443251
	1-15/16" Bore	1	443269	443255	443251
	2" Bore	1	443268	443255	443251
	2-1/8" Bore	1	N/A	443258	N/A
	2-3/16" Bore	1	443270	443259	443251
	2-1/4" Bore	1	N/A	443260	443251
	2-7/16" Bore	1	N/A	443261	443243
	2-1/2" Bore	1	N/A	N/A	443244
	2-11/16" Bore	1	N/A	N/A	443245
	2-15/16" Bore	1	N/A	N/A	443250
①	Key, Bushing to Output Hub ④				
	1-3/4" thru 1-15/16" Bore Bushing	1	443262	N/A	N/A
	1-7/16" thru 2-1/4" Bore Bushing	1	N/A	N/A	443202
	2-3/16" thru 2-15/16" Bore Bushing	1	N/A	443257	N/A
	Torque-Arm Rod Kit ②	1	243097	245097	245097
94	Torque-Arm Rod End ④	1	243245	243245	243245
96	RH Nut ④	1	407095	407095	407095
98	Torque-Arm Turnbuckle ④	1	243246	243246	243246
100	Torque-Arm Extension ④	1	243247	243247	243247
102	LH Nut ④	1	407244	407246	407246
104	Fulcrum ④	1	243249	243249	243249
106	Fulcrum Screw ④	1	411484	411484	411484
110	Hex Nut ④	1	407093	407093	407093
	Adapter Assembly ②	1	259153	259154	259155
112	RH Adapter Plate ④	1	243242	244244	245242
114	LH Adapter Plate ④	1	243241	244243	245241
116	Adapter Bushing ④	1	243243	245243	245243
118	Adapter Bolt ④	1	411437	411460	411460
120	Lockwasher ④	1	419012	419013	419013
122	Hex Nut ④	1	407089	407091	407091
	Hydroil Motor Adapter				
124	15:1 Ratio Motor Adapter	1	243539	244572	245606
	25:1 Ratio Motor Adapter	1	243541	244572	245607
	Hydroil 6-B Motor Adapter, 15:1 and 25:1 Ratio	1	243467	244573	245643
126	Adapter Screw	⑦	417081	417108	415023
128	Lockwasher	⑦	419046	419047	419047
①	Motor to Adapter Screw				
①	Motor to Adapter Lock Washer				

Notes:
① Not shown on drawing.
② Includes parts listed immediately below
③ Includes parts listed immediately below
④ Makes up assembly under which it is listed.
⑤ Makes up assembly under which it is listed.
⑥ See Table 9 for actual ratio.
⑦ 4 required on TXT3B and TXT4B, 5 required on TXT5C
⑧ Two sets recommended.

Parts for TXT6A thru TXT10A Straight and Tapered Bushed double Reduction Reducers

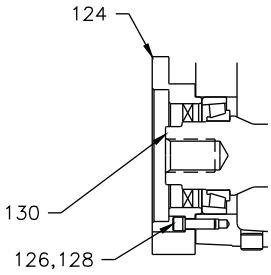


STRAIGHT BORE

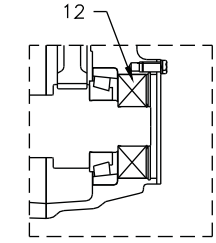


TAPER BORE

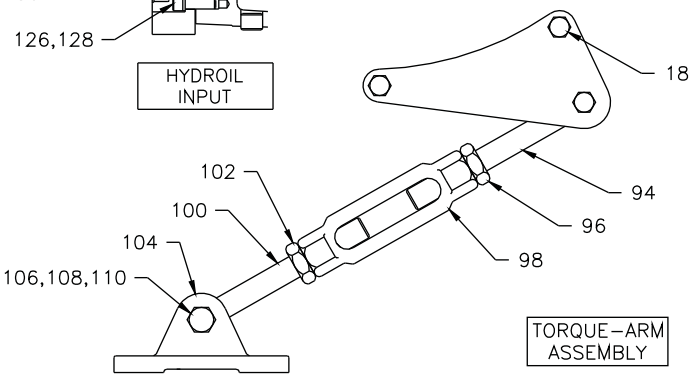
NOTE: THE TWO DIGIT NUMBERS ARE FOR REFERENCE ONLY. ORDER PARTS BY THE SIX DIGIT NUMBER IN THE PARTS LIST. EACH SIX DIGIT NUMBER IS A COMPLETE IDENTIFICATION OF THE PART OR ASSEMBLY.



HYDROIL INPUT



BACKSTOP ASSEMBLY



TORQUE–ARM ASSEMBLY

Parts for TXT6A thru TXT10A Straight and Tapered Bushed double Reduction Reducers

Ref.	Description	Qty.	TXT6A HXT6A	TXT7A HXT7A	TXT8A	TXT9A	TXT10A
12	Backstop Assembly	1	246092	247260	249260	249260	250260
1	Housing-TXT and Hydroil LH	1	246358	247358	248358	249358	250358
2	Housing-RH	1	246359	247359	248359	249359	250359
	Housing-RH, Flange Mount Drilled	1					
①	RTV Sealant, Tube	1	465044	465044	465044	465044	465044
①	Air Vent	1	904287	904287	904287	904287	904287
16	Housing Bolt	2	411466	411498	411499	411500	411502
18	Housing Bolt-Adapter	2	411468	411499	411502	411502	411506
20	Lock-Washer	1	419013	419016	419016	419016	419016
22	Hex Nut	4	407091	407095	407095	407095	407095
①	Dowel Pin	2	420147	420148	420148	420148	420148
25	Magnetic Oil Plug	1	430062	430064	430064	430064	430064
①	Oil Plug	4	430033	430035	430035	430035	430035
28	Input Shaft Seal Carrier	1	246184	247320	258023	249211	249211
30	Input Shaft Bearing Shim Pack	⑧	391164	390420	390038	390168	390168
32	Carrier and Cover Screw	⑨	411408	411433	411408	411408	411408
33	Lock Washer	⑨	419011	419012	419011	419011	419011
34	Backstop Cover	1	246226	246226	248226	248226	248226
35	Backstop Retaining Ring	⑦	421029	421029	421034	421034	421034
38	Backstop Cover Screw	6	411394	411394	411394	411394	411394
39	Backstop Cover Lock Washer	6	419009	419009	419009	419009	419009
	Seal Kit ②	1	246340	247345	248340	249340	272460
36	Backstop Cover Gasket ③	1	246220	246220	248220	248220	248220
42	Input Pinion Shaft Seal ③	1	242210	242210	248211	248211	248211
78	Output Hub Oil Seal ③	2	246310	247310	258019	249210	250010
40	Input Pinion						
	9:1 Ratio ⑥	1	246481	247479	N/A	N/A	N/A
	15:1 Ratio ⑥	1	246290	247370	248370	272074	250300
	25:1 Ratio ⑥ ⑩	1	246291	247371	248371	272106	250004
130	15:1 Ratio Hydroil Pinion ⑥	1	246230	247463	N/A	N/A	N/A
	25:1 Ratio Hydroil Pinion ⑥	1	246286	247462	N/A	N/A	N/A
	15:1 Ratio 6B Hydroil Pinion ⑥	1	N/A	N/A	N/A	N/A	N/A
	25:1 Ratio 6B Hydroil Pinion ⑥	1	246521	247521	N/A	N/A	N/A
41	Input Pinion Shaft Key	1	443113	443127	443133	443123	443123
	Input Bearings						
44	Input Shaft Bearing Cone, Input Side	1	402196	402150	402098	402114	402114
45	Input Shaft Bearing Cup, Input Side	1	403091	403106	403072	403080	403080
46	Input Shaft Bearing Cone, Backstop Side	1	402197	402088	402097	402107	402112
47	Input Shaft Bearing Cup, Backstop Side	1	403091	403047	403072	403076	403080
	Countershaft Pinion Assembly ②						
	9:1 Ratio ⑥	1	392140	392141	N/A	N/A	N/A
	15:1 Ratio ⑥	1	391171	391196	391184	390124	390983
	25:1 Ratio ⑥ ⑩	1	391186	391197	391185	390139	390998
48	Countershaft Pinion ③	1	246294	247002	248002	249006	272249
50	First Reduction Gear ③						
	9:1 Ratio ⑥	1	246482	247478	N/A	N/A	N/A
	15:1 Ratio ⑥	1	246492	247008	248213	249008	250301
	25:1 Ratio ⑥ ⑩	1	246293	247005	248214	249005	250005
52	First Stage Gear Key ③	1	245218	247218	248218	248218	248218
	Countershaft Bearings						
54	Countershaft Bearing Cone, Input Side	1	402054	402256	402057	402109	402232
55	Countershaft Bearing Cup, Input Side	1	403159	403053	403143	403078	402231
56	Countershaft Bearing Cone, Backstop Side	1	402052	402256	402148	402109	402232
57	Countershaft Bearing Cup, Backstop Side	1	403142	403053	403106	403078	402231
58	Countershaft Bearing Cover, Input Side	1	246185	247194	248223	249225	272251
59	Countershaft Bearing Shim Pack	⑧	391165	390429	391182	390168	390575
	Taper Bore Output Hub Assembly ②	1	390935	390941	390944	390949	390954
	Straight Bore Output Hub Assembly ④	1	390988	390990	390993	390159	390160
60	Straight Bore Hub ⑤	1	246338	247338	248332	250090	250008
	Taper Bore Hub ③	1	246269	272137	272036	249140	272241
62	Output Gear ③ ⑤	1	246295	247215	248215	021764	250007
64	Output Gear Key ③ ⑤	2	245217	245217	248217	443413	250017
68	Output Hub Collar, Straight Bore	2	246309	247309	248209	249209	250009
70	Output Hub Collar Screw	4	400154	400190	400190	400194	400194
72	Bushing Backup Plate, Taper Bore	2	246270	272138	272037	272082	272242
74	Output Hub Retaining Ring	2	421055	421099	421098	421097	421069
76	Output Hub Seal Carrier, Input Side	1	246187	247315	258021	249221	250011
	Output Hub Bearing Kit 1	1					
80	Output Hub Bearing, Cone	2	402050	402058	402147	402160	402168
81	Output Hub Bearing, Cup	2	403140	403111	403105	403110	403116
82	Output Hub Bearing Shim Kit	⑧	391187	390044	390048	390171	390172

Parts for TXT6A thru TXT10A Straight and Tapered Bushed double Reduction Reducers							
Ref.	**Description**	**Qty.**	**TXT6A**	**TXT7A**	**TXT8A**	**TXT9A**	**TXT10A**
84	Taper Bore Bushing Assembly ②						
	Bushing ③						
	2-3/16" Bore	1	246261	N/A	N/A	N/A	N/A
	2-1/4" Bore	1	246262	N/A	N/A	N/A	N/A
	2-7/16" Bore	1	246263	272125	N/A	N/A	N/A
	2-1/2" Bore	1	246264	N/A	N/A	N/A	N/A
	2-11/16" Bore	1	246265	272147	N/A	N/A	N/A
	2-13/16" Bore	1	N/A	272130	N/A	N/A	N/A
	2-7/8" Bore	1	246266	272131	N/A	N/A	N/A
	2-15/16" Bore	1	246267	272132	272048	N/A	N/A
	3" Bore	1	246283	272133	N/A	N/A	N/A
	3-3/16" Bore	1	N/A	272134	N/A	N/A	N/A
	3-7/16" Bore	1	246268	272135	272032	N/A272056	N/A
	3-15/16" Bore	1	N/A	272136	272033	272077	272214
	4-3/16" Bore	1	N/A	N/A	272034	N/A	N/A
	4-7/16" Bore	1	N/A	N/A	272035	272079	272238
	4-15/16" Bore	1	N/A	N/A	N/A	272080	272239
	5-7/16" Bore	1	N/A	N/A	N/A	N/A	272240
86	Taper Bushing Screw ③	6	411435	411456	411457	411484	411484
88	Taper Bushing Lockwasher ③	6	419012	419013	419013	419014	419014
90	Key, Bushing to Shaft ③	1	443211	N/A	N/A	N/A	N/A
	2-3/16" Bore	1	443211	N/A	N/A	N/A	N/A
	2-1/4" Bore	1	443214	443248	N/A	N/A	N/A
	2-7/16" Bore	1	443214	N/A	N/A	N/A	N/A
	2-1/2" Bore	1	443238	443248	N/A	N/A	N/A
	2-11/16" Bore	1	N/A	443199	N/A	N/A	N/A
	2-13/16" Bore	1	443236	443199	N/A	N/A	N/A
	2-7/8" Bore	1	443237	443199	N/A	N/A	N/A
	2-15/16" Bore	1	443252	443199	443247	N/A	N/A
	3" Bore	1	N/A	443216	N/A	N/A	N/A
	3-3/16" Bore	1	443213	443235	N/A	N/A	N/A
	3-7/16" Bore	1	N/A	443217	443171	443249	N/A
	3-15/16" Bore	1	N/A	443218	443173	272119	443192
	4-3/16" Bore	1	N/A	N/A	443174	N/A	N/A
	4-7/16" Bore	1	N/A	N/A	443196	272066	443193
	4-15/16" Bore	1	N/A	N/A	N/A	443161	443194
	5-7/16" Bore	1	N/A	N/A	N/A	N/A	443195
①	Key, Bushing to Output Hub ③						
	2-3/16" thru 2-1/2" Bore Bushing	1	443212	N/A	N/A	N/A	N/A
	2-7/16" thru 3" Bore Bushing	1	N/A	443198	N/A	N/A	N/A
	2-3/16" thru 2-15/16" Bore Bushing	1	N/A	N/A	N/A	N/A	N/A
	2-15/16" thru 3-7/16" Bore Bushing	1	N/A	N/A	443162	N/A	N/A
	3-7/16" thru 4-3/16" Bore Bushing	1	N/A	N/A	N/A	443121	N/A
	3-15/16" thru 4-7/16" Bore Bushing	1	N/A	N/A	N/A	N/A	443191
	Torque-Arm Rod Kit ②	1	246097	247098	390129	390129	390129
94	Torque-Arm Rod End ③	1	245245	247239	271050	271050	271050
96	RH Nut ③	1	407097	407099	407104	407104	407104
98	Torque-Arm Turnbuckle ③	1	245246	247246	271051	271051	271051
100	Torque-Arm Extension ③	1	245247	247240	271052	271052	271052
102	LH Nut ③	1	407246	407248	407250	407250	407250
104	Fulcrum ③	1	247248	247248	271054	271054	271054
106	Fulcrum Screw ③	1	411489	411489	411516	411516	411516
108	Lockwasher ③	1	419014	419014	419020	419020	419020
110	Hex Nut ③	1	407093	407093	407099	407099	407099
	Adapter Assembly ②	1	259156	259157	248110	249110	250110
112	RH Adapter Plate ③	1	246242	247242	272053	249241	250041
114	LH Adapter Plate ③	1	246241	247241	272053	249241	250041
116	Adapter Bushing ③	1	245243	247244	271046	271046	211046
118	Adapter Bolt ③	1	411460	411489	411510	411512	411512
120	Lockwasher ③	1	419013	419014	419020	419020	419020
122	Hex Nut ③	1	407091	407093	407099	407099	407099
124	Hydroil Motor Adapter	1	246465	247464	N/A	N/A	N/A
	Hydroil 6B Motor Adapter	1	246522	247522	N/A	N/A	N/A
126	Hydroil Adapter Screw	6	417108	417141	N/A	N/A	N/A
128	Lockwasher	6	906406	907406	N/A	N/A	N/A
①	Motor to Adapter Screw						
①	Motor to Adapter Lock Washer						

Notes:
① Not shown on drawing
② Includes parts listed immediately below
③ Makes up assembly under which it is listed
④ Includes parts listed immediately below marked
⑤ Makes up assembly under which it is listed
⑥ See Table 9 for actual ratio
⑦ Required only with optional backstop, 1 required on TXT6A and TXT7A, 2 required on TXT8A, TXT9A, & TXT10A.
⑧ 2 sets recommended
⑨ 18 Required on TXT6A, 20 Required on TXT7A, and 24 Required on TXT8A, TXT9A, & TXT10A
⑩ Nominal Ratio on TXT6A, TXT7A, and TXT8A is 25:1, Nominal Ratio on TXT9A is 26:1, and Nominal Ratio on TXT10A is 24:1

ACTUAL RATIOS

Table 9 – Actual Ratios			
Reducer Size	Nominal Ratios		
	9:1	15:1	25:1*
TXT1A	9.44	15.35	25.64
TXT2A	9.25	14.10	23.46
TXT3B	8.91	14.88	24.71
TXT4B	9.67	15.13	24.38
TXT5C	8.95	15.40	25.56
TXT6A	9.20	15.33	25.13
TXT7A	9.61	15.23	24.59
TXT8A	N/A	15.08	24.62
TXT9A	N/A	15.12	25.66
TXT10A	N/A	15.16	24.30

* TXT9A is 26:1 Nominal Ratio and TXT10A is 24:1 Nominal Ratio

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A MEMBER OF THE ABB GROUP

P.O. Box 2400, Fort Smith, AR 72902-2400 U.S.A., Ph: (1) 479.646.4711, Fax (1) 479.648.5792, International Fax (1) 479.648.5895

Dodge Product Support

6040 Ponders Court, Greenville, SC 29615-4617 U.S.A., Ph: (1) 864.297.4800, Fax: (1) 864.281.2433

www.baldor.com

MN1610 (Replaces 499304)

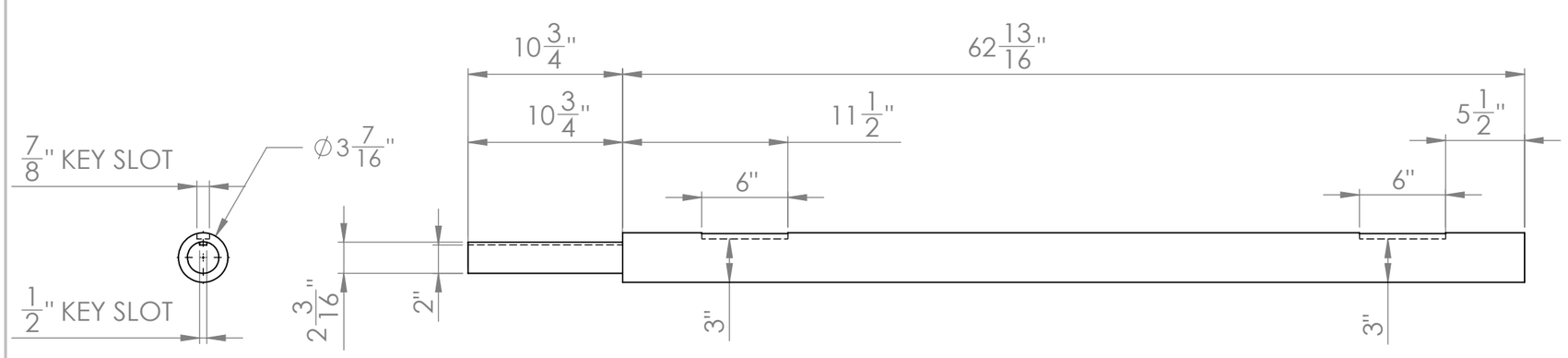
16 10 – 08 11

7/12 TCP 25,000

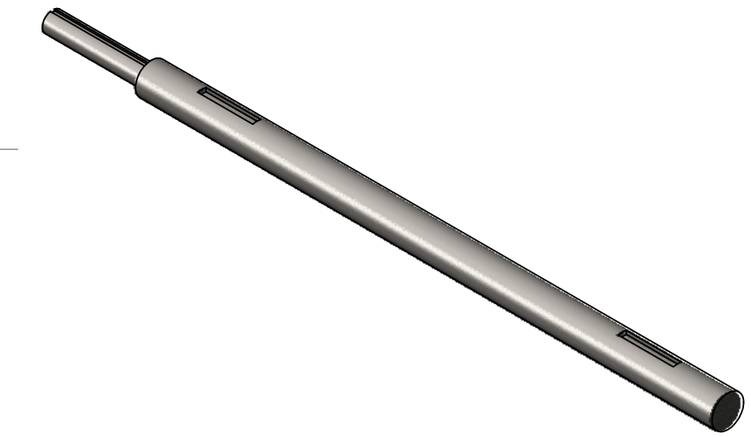
CONVEYOR BELT INFORMATION FOR M1

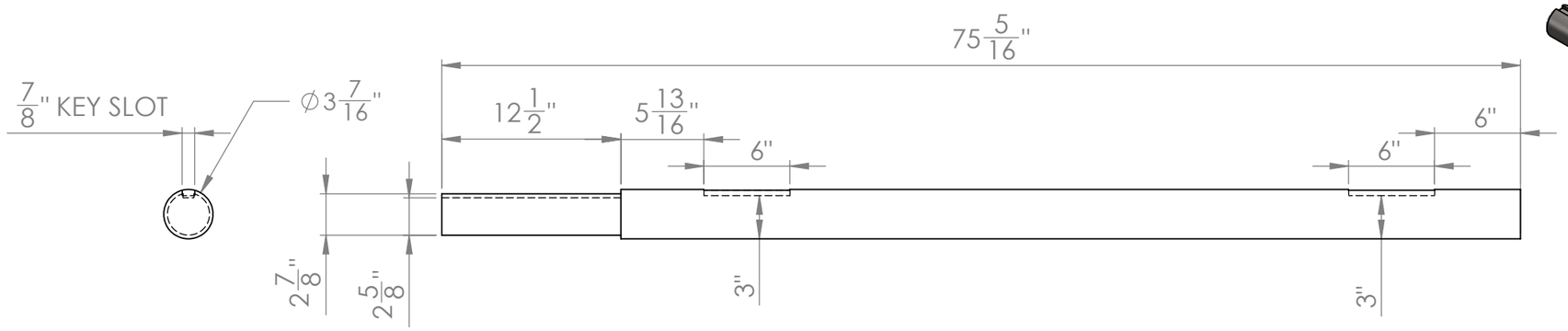
1. The effective conveyor belt tension is
   Tight side – 1957 lbs
   Slack Side – 1014 lbs

2. Conveyor belt HP is 10
3. Maximum conveyor belt unit stress, PIW
   - 41 PIW
4. L – 10 bearing life for head, tail and snub pulleys is 500000 hrs
5. Shaft Specifications

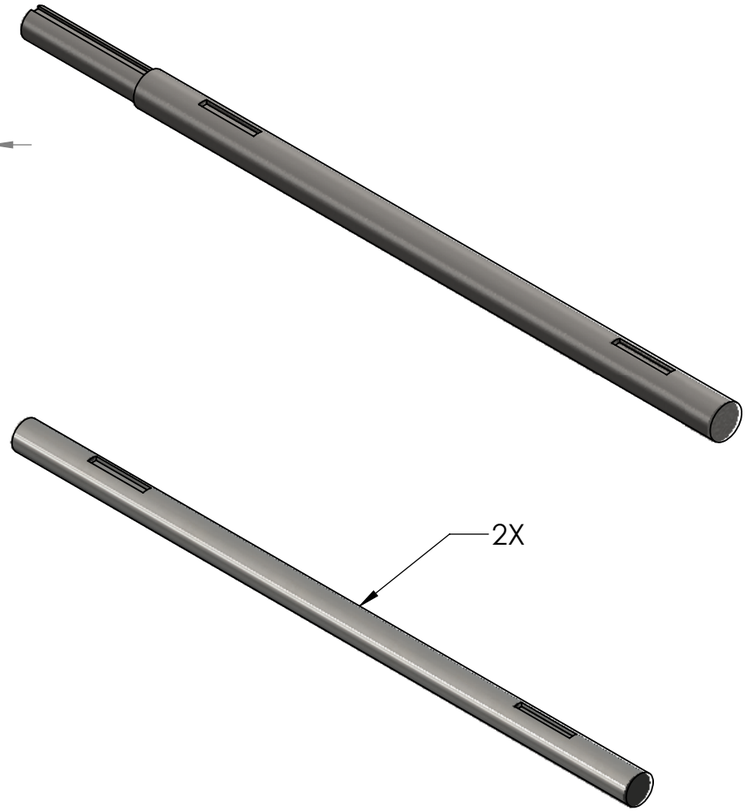


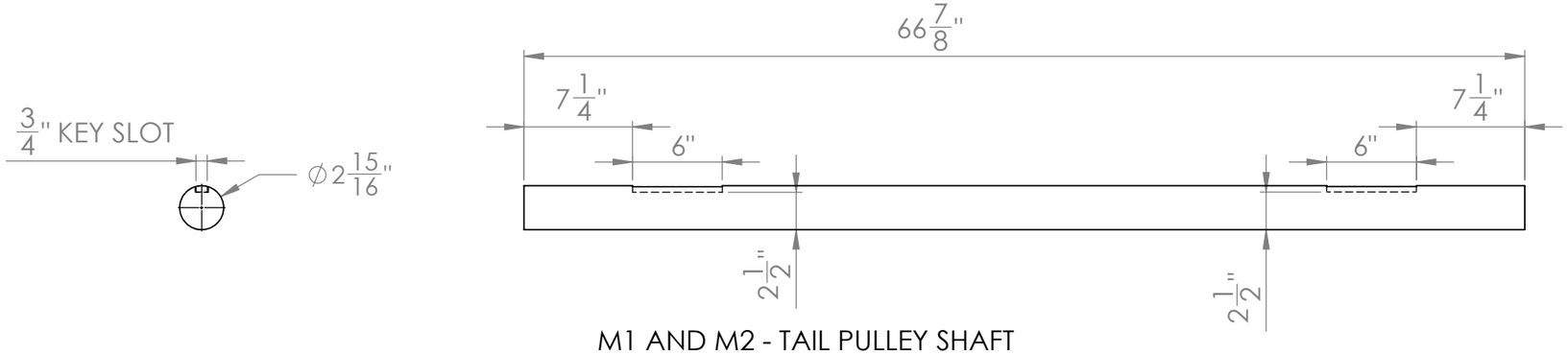
M1 - STEP DOWN HEAD PULLEY SHAFT





M2 - HEAD PULLEY SHAFT





M1 AND M2 - TAIL PULLEY SHAFT

NOTES:

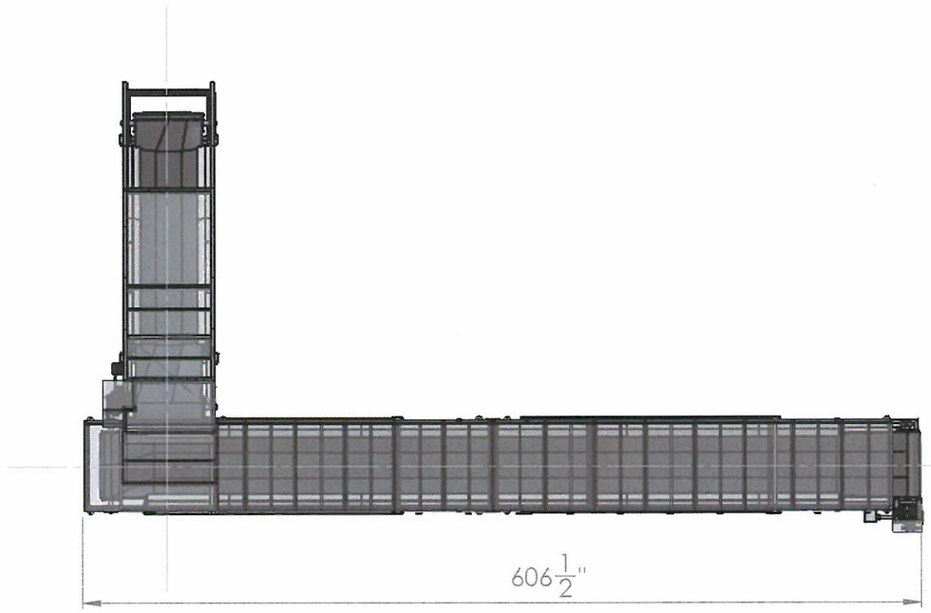
- STANDARD DEPTH OF KEY SLOTS
- 4 SHAFTS IN TOTAL

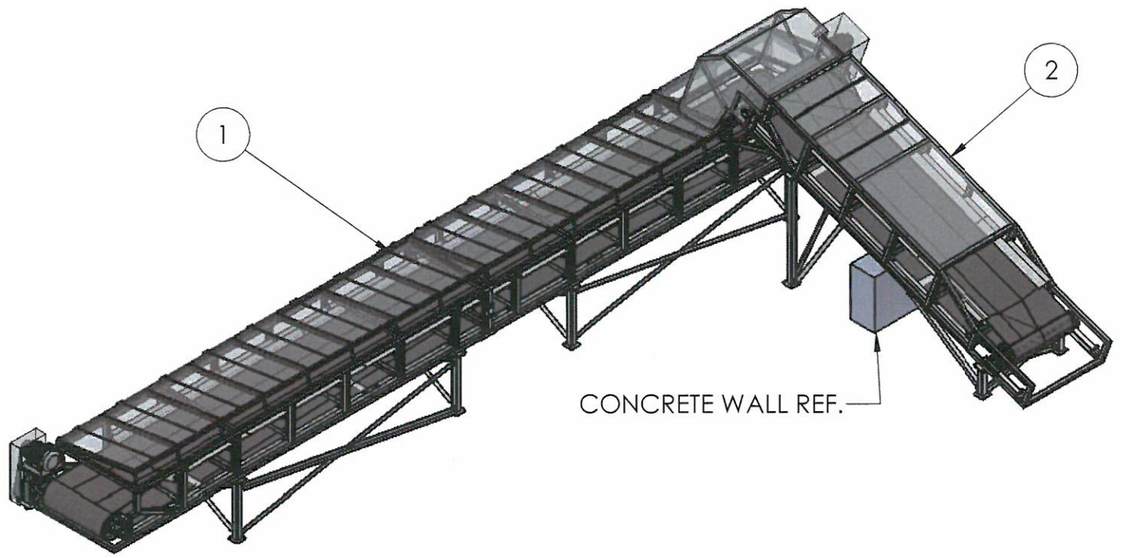
RMS

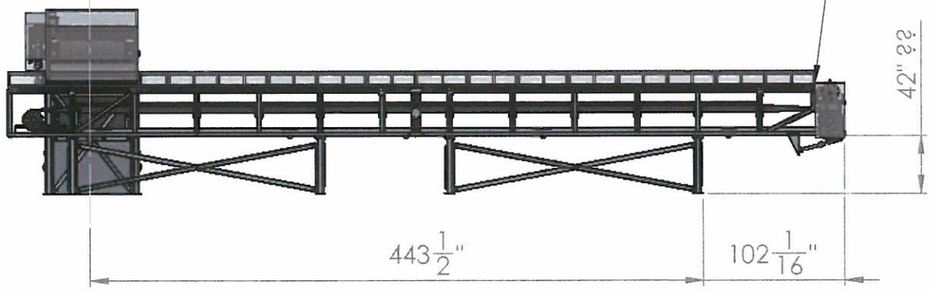
1-34581 4th Ave
Abbotsford, BC
V2S 8E5

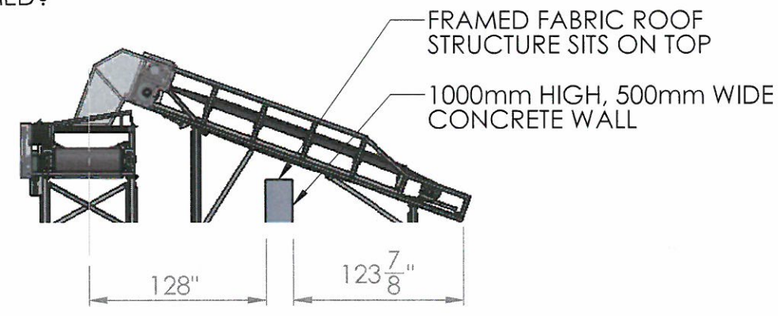
TITLE: Winnipeg Conveyor Shaft Lengths		
CUSTOMER: TRANSFORM COMPOST SYSTEMS		REVISION: 1
DATE: 12/11/13	PART WEIGHT: ----------	PART MATERIAL: ----------
DRAWING #: TRANS-SHDM-001	SHEET NO.: 1 OF 1	SCALE: 1:10

ITEM NO.	PART NUMBER	QTY.
1	M2 - 50ft 48 inch Belt Conveyor	1
2	M1 - 20ft 48 inch Belt Conveyor	1









Job No. 112-494

lang structural engineering inc.
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1-34581 4th Ave
Abbotsford, BC
V2S 8E5

TITLE: Conveyor Setup

CUSTOMER: TRANSFORM COMPOST SYSTEMS

REVISION: 1

DATE	PART WEIGHT:	PART MATERIAL:
14/08/13	----------	----------

DRAWN BY:	SHEET NO.	SCALE:
KURT	1 OF 8	1:100

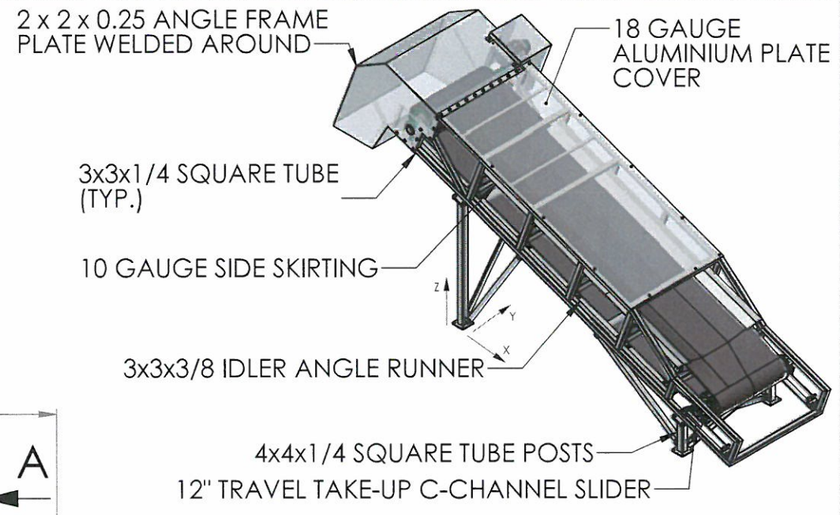
BILL OF MATERIALS			
CONVEYOR NUMBER	M2		WEIGHT
QUANTITY REQUIRED	1		EA. LBS
GENERAL DESIGN DATA	BELT WIDTH	1.2m	
	BELT SPEED	1908 linear ft. per/min	
	DESIGN CAPACITY	5 m3 per min.	
	MATERIAL	COMPOST	
	MATERIAL SIZE	1 cm TO 15 cm	
	BULK DENSITY	600kg/m3	
	MATERIAL LOAD/m	266 cubic inches per foot	
HEAD PULLEY	DIA, & FACE	16inch, 52inch	539.2 lbs
	BELT WRAP DEGREES	-210°	
	LAGGING THK. & TYPE	0.5inch	
SHAFT PILLOW BLOCKS	DIA. & MATERIAL	3.4375 TO. 2.9375 inch, AISI Steel:1040 (APPROVAL?)	
	MAKE & TYPE	BALDOR DODGE - ALIGN	LIFE: 500,000h
	NUMBER	070389	2 @ 30.4lbs
TAIL PULLEY SHAFT PILLOW BLOCKS	DIA, & FACE	12inch, 52 inch	480.8 lbs
	DIA, & MATERIAL	2.9375inch, ANSI Steel:1040	
	MAKE & TYPE	BALDOR DODGE - ALIGN	LIFE: 500,000h
	NUMBER	070368	2 @ 25.2 lbs
TAKE-UP	TYPE	SCREW TYPE	
	WEIGHT (TOTAL)	51.5lbs	
	TRAVEL	12 inch	
IDLERS - TROUGH	NUMBER OF:	5	55 lbs
	ROLL DIA. & DEG	5 inch, 20°	
	MAKE, TYPE & HAND	ICC, TYPE C	
IDLERS - RETURN	NUMBER OF:	2	40 lbs
	ROLL DIA. & DEG.	5 inch	
	MAKE, TYPE & HAND	ICC, TYPE C	
BELT SCRAPER			
DRIVE PULLEY	R.P.M.	398 RPM	2 BELTS
MOTOR	H.P.	10	
	R.P.M.	1760	
	FRAME & ASSEMBLY	215T	
	VOLTS/PH/CYCLE	575/3/60HZ	
MOTOR SHEEVE	MAKE & SIZE	DODGE, 6.35 inch	
REDUCER	TYPE	SHAFT MOUNTED, V-BELT DRIVE	
	MAKE	BALDOR DODGE	
	SIZE & ASSEMBLY	3, TXT315 x 2.9375inch	
	RATIO	3:1	
GEARBOX SHEEVE	MAKE & SIZE	DODGE, 7.75 inch	
BELTING	LENGTH W/O SPLICE	48inch x 220 piw MECHANICAL FASTENER	
	PLY & TYPE	2 PLY	
	TOP & BOTTOM COVER	0.1875inch, 0.0625inch	

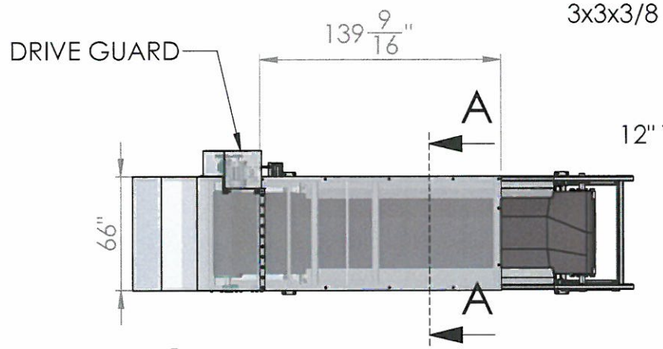
TYPICAL POST BASE FACTORED REACTIONS:

Fx = 750 lbs

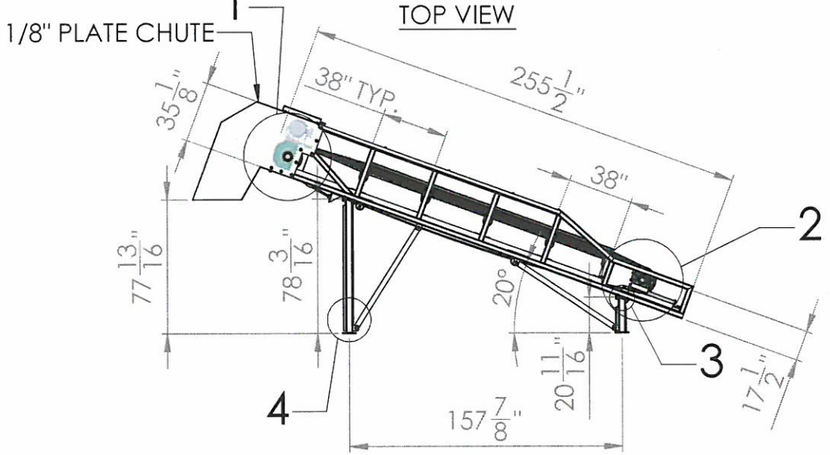
Fy = 750 lbs

Fz = 3000 lbs DOWNWARD,
500 lbs UPLIFT





TOP VIEW



FRONT VIEW

RIGHT SIDE VIEW

EFFECTIVE THROAT OF FILLET/BEVEL/PENETRATION WELDS TO MATCH STEEL MEMBER WALL THICKNESS TYPICAL UNLESS NOTED OTHERWISE

Job No. 112-494

lang structural engineering inc.

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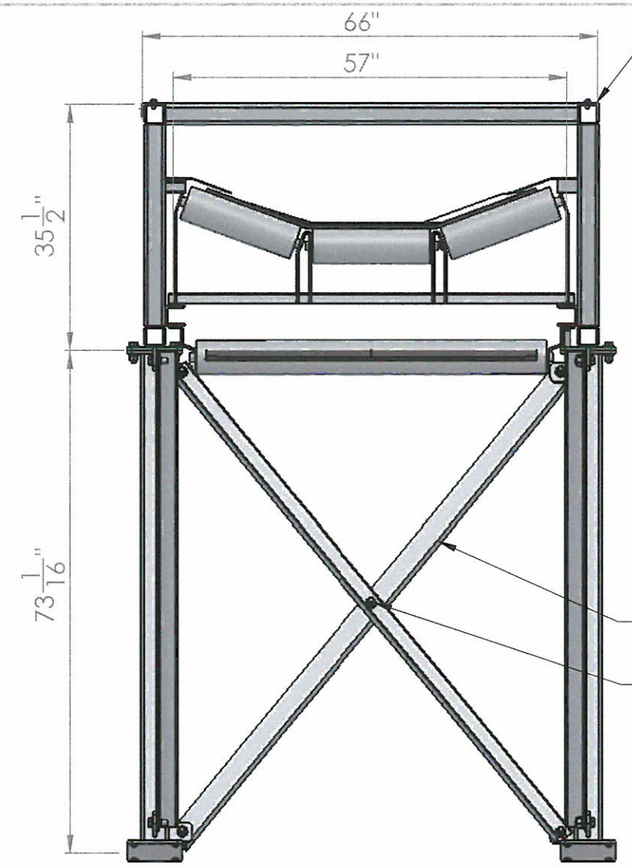
1-34581 4th Ave
Abbotsford, BC
V2S 8E5

TITLE: M1-20ft 48 inch Belt Conveyor

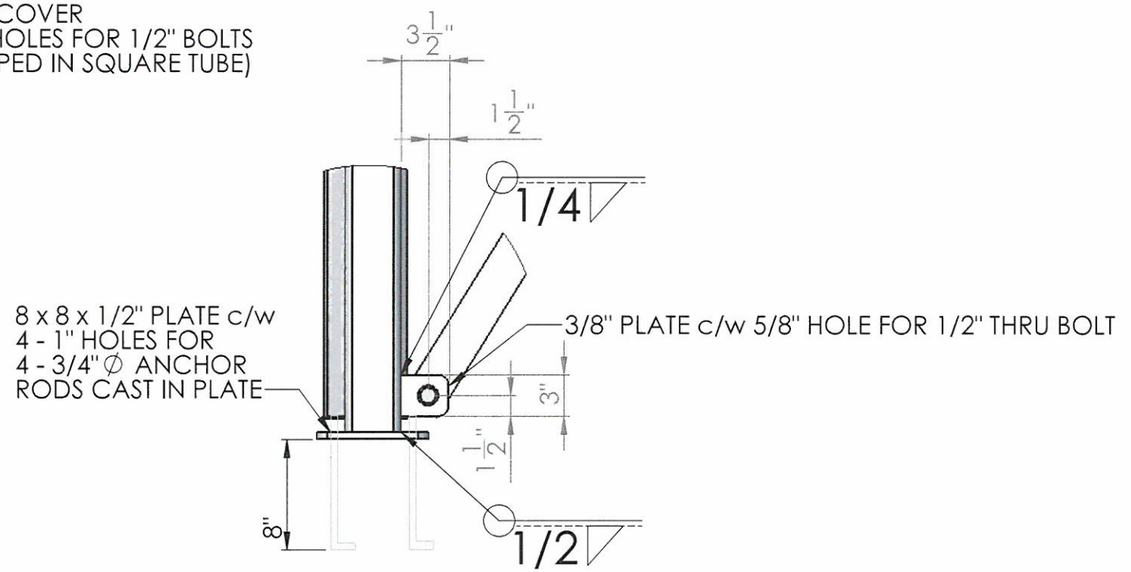
CUSTOMER: TRANSFORM COMPOST SYSTEMS | REVISION: 2

DATE	PART WEIGHT:	PART MATERIAL:
14/08/13	5534.58	----------

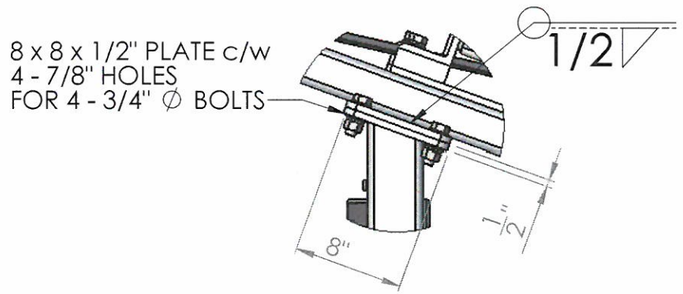
DRAWN BY:	SHEET NO.	SCALE:
KURT	2 OF 8	1:80



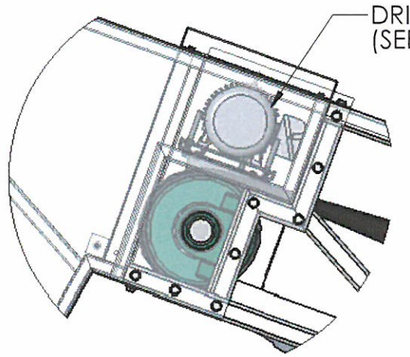
SECTION A-A
SCALE 1 : 20



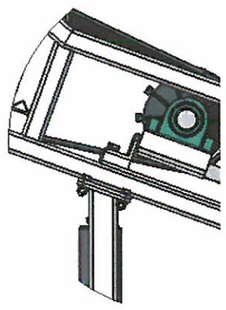
DETAIL 4
ANCHOR PLATE
SCALE 1 : 10



DETAIL 3
LEG JOINT
SCALE 1 : 10



DETAIL 1
HEAD END
SCALE 1 : 20



DETAIL 2
TAKE-UP
SCALE 1 : 20

Job No. 112-494
lang structural engineering inc.
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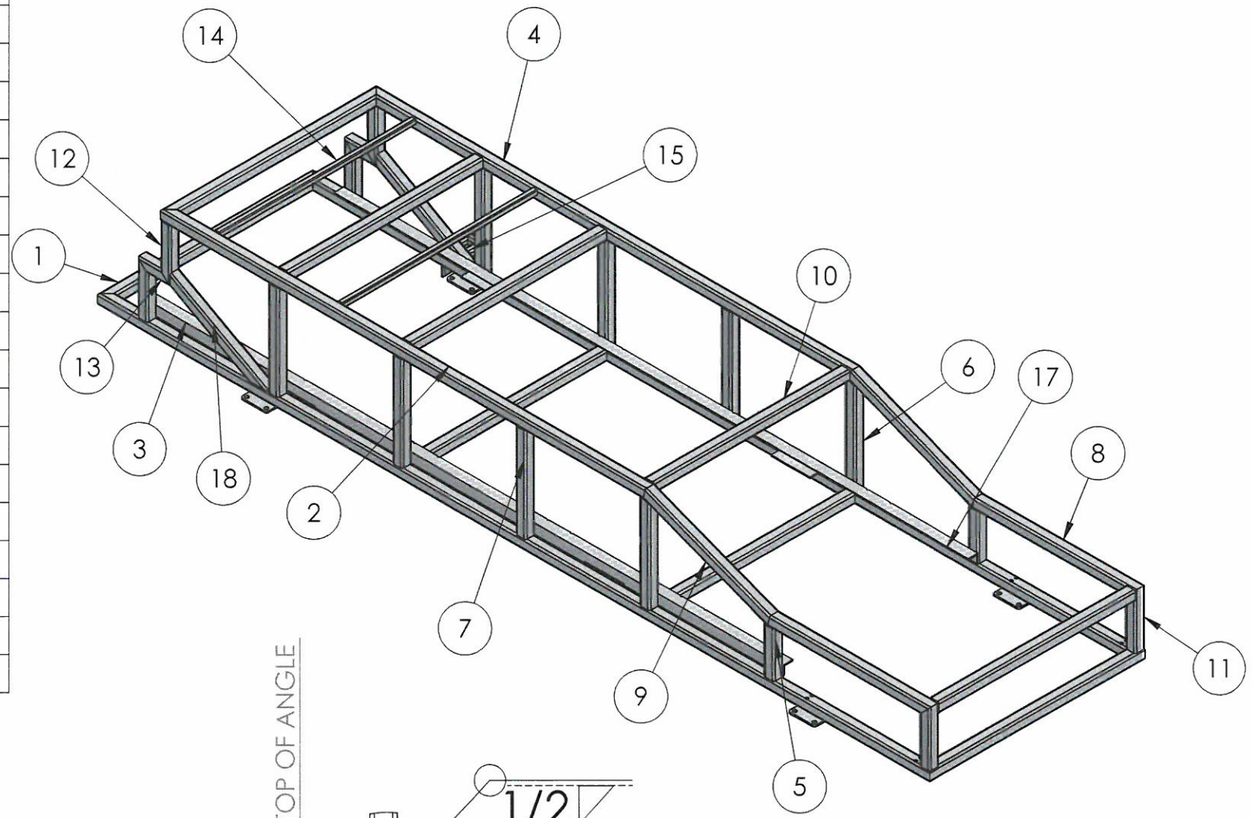
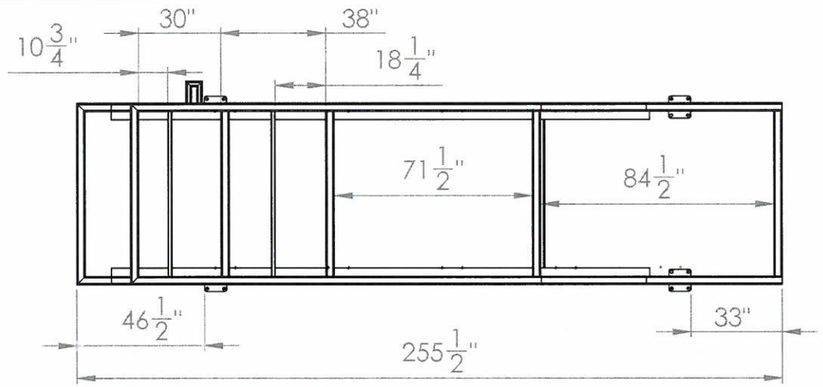
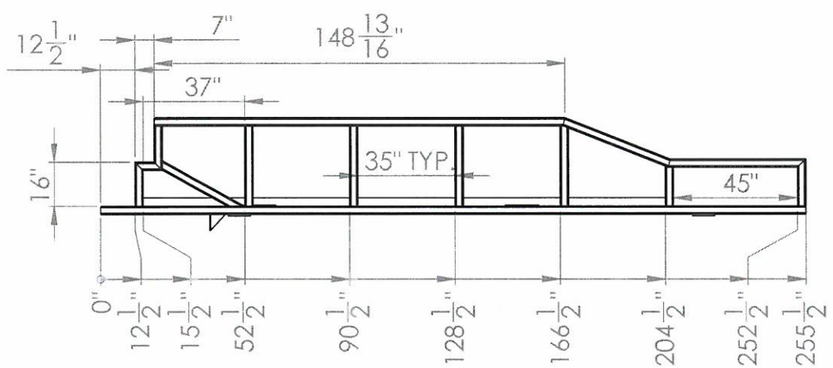
1-34581 4th Ave
Abbotsford, BC
V2S 8E5

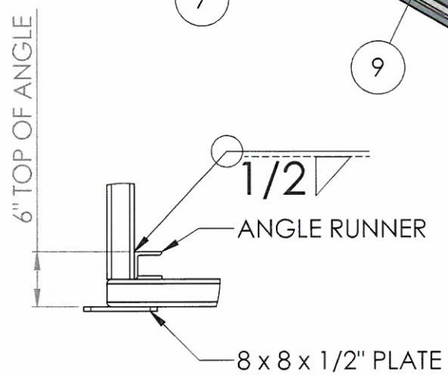
TITLE: M1-20ft 48 inch Belt Conveyor		
CUSTOMER: TRANSFORM COMPOST SYSTEMS		REVISION: 2
DATE: 14/08/13	PART WEIGHT: ------	PART MATERIAL: MILD STEEL
DRAWN BY: KURT	SHEET NO.: 3 OF 8	SCALE: AS NOTED

ITEM NO.	QTY.	DESCRIPTION	LENGTH
1	3	TUBE, SQUARE 3.00 X 3.00 X 0.25	66"
2	1	TUBE, SQUARE 3.00 X 3.00 X 0.25	148 13/16"
3	1	L 3.00 X 3.00 X 0.375	195"
4	1	TUBE, SQUARE 3.00 X 3.00 X 0.25	148 13/16"
5	2	TUBE, SQUARE 3.00 X 3.00 X 0.25	14 1/2"
6	2	TUBE, SQUARE 3.00 X 3.00 X 0.25	29"
7	6	TUBE, SQUARE 3.00 X 3.00 X 0.25	29"
8	2	TUBE, SQUARE 3.00 X 3.00 X 0.25	49 13/16"
9	2	TUBE, SQUARE 3.00 X 3.00 X 0.25	41 7/16"
10	6	TUBE, SQUARE 3.00 X 3.00 X 0.25	60"
11	2	TUBE, SQUARE 3.00 X 3.00 X 0.25	17"
12	4	TUBE, SQUARE 3.00 X 3.00 X 0.25	16"
13	2	TUBE, SQUARE 3.00 X 3.00 X 0.25	10"
14	2	TUBE, SQUARE 1.50 X 1.50 X 0.13	60"
15	2	TUBE, SQUARE 2.00 X 2.00 X 0.25	8"
16	1	TUBE, SQUARE 2.00 X 2.00 X 0.25	6"
17	1	L 3.00 X 3.00 X 0.375	195"
18	2	TUBE, SQUARE 3.00 X 3.00 X 0.25	30 9/16"

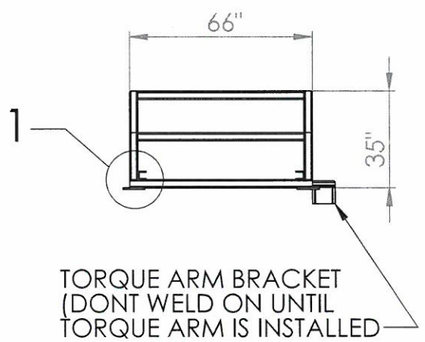








DETAIL 1
SCALE 1 : 15



Job No. 112-494

lang structural engineering inc.

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1-34581 4th Ave
Abbotsford, BC
V2S 8E5

TITLE: M1 - Conveyor Frame		
CUSTOMER: TRANSFORM COMPOST SYSTEMS		REVISION: 2
DATE: 14/08/13	PART WEIGHT: 1542.77 lbs	PART MATERIAL: MILD STEEL
DRAWN BY: KURT	SHEET NO.: 4 OF 8	SCALE: NOT TO SCALE

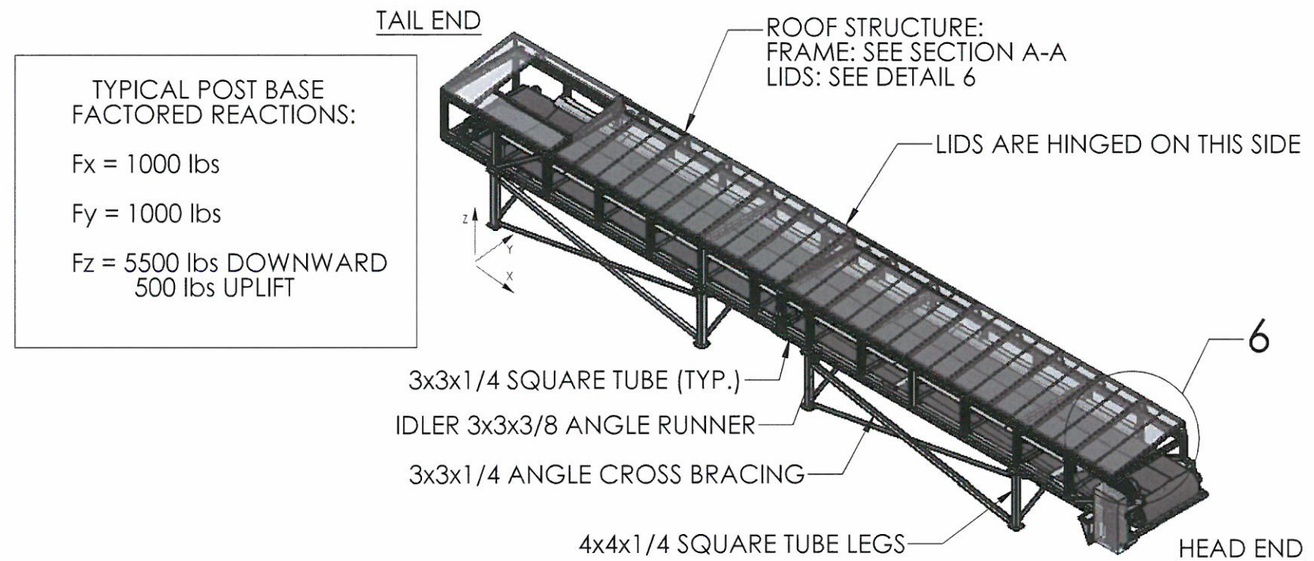
BILL OF MATERIALS			
CONVEYOR NUMBER	M2		WEIGHT
QUANTITY REQUIRED	1		EA. LBS
GENERAL DESIGN DATA	BELT WIDTH	1.2m	
	BELT SPEED	1908 linear ft. per/min	
	DESIGN CAPACITY	5 m3 per min.	
	MATERIAL	COMPOST	
	MATERIAL SIZE	1 cm TO 15 cm	
	BULK DENSITY	600kg/m3	
	MATERIAL LOAD/m	266 cubic inches per foot	
HEAD PULLEY	DIA, & FACE	16inch, 52inch	539.2 lbs
	BELT WRAP DEGREES	-210°	
	LAGGING THK. & TYPE	0.5inch	
SHAFT PILLOW BLOCKS	DIA. & MATERIAL	3.4375inch, AISI Steel:1040	
	MAKE & TYPE	BALDOR DODGE - ALIGN	LIFE: 500,000h
	NUMBER	070389	2 @ 30.4lbs
TAIL PULLEY SHAFT PILLOW BLOCKS	DIA, & FACE	12inch, 52 inch	480.8 lbs
	DIA, & MATERIAL	2.9375inch, ANSI Steel:1040	
	MAKE & TYPE	BALDOR DODGE - ALIGN	LIFE: 500,000h
	NUMBER	070368	2 @ 25.2 lbs
TAKE-UP	TYPE	SCREW TYPE	
	WEIGHT (TOTAL)	65.3lbs	
	TRAVEL	18inch	
IDLERS - TROUGH	NUMBER OF:	12	55 lbs
	ROLL DIA. & DEG	5 inch, 20°	
	MAKE, TYPE & HAND	ICC, TYPE C	
IDLERS - RETURN	NUMBER OF:	5	40 lbs
	ROLL DIA. & DEG.	5 inch	
	MAKE, TYPE & HAND	ICC, TYPE C	
BELT SCRAPER			
DRIVE PULLEY	R.P.M.	398 RPM	2 BELTS
MOTOR	H.P.	15	
	R.P.M.	1765	
	FRAME & ASSEMBLY	254T	
	VOLTS/PH/CYCLE	575/3/60HZ	
MOTOR SHEEVE	MAKE & SIZE	DODGE, 7.75inch	
REDUCER	TYPE	SHAFT MOUNTED, V-BELT DRIVE	
	MAKE	BALDOR DODGE	
	SIZE & ASSEMBLY	3, TXT515 x 2.9375inch	
	RATIO	3:1	
GEARBOX SHEEVE	MAKE & SIZE	DODGE, 11.35inch	
BELTING	LENGTH W/O SPLICE	48inch x 220 piw MECHANICAL FASTENER	
	PLY & TYPE	2 PLY	
	TOP & BOTTOM COVER	0.1875inch, 0.0625inch	

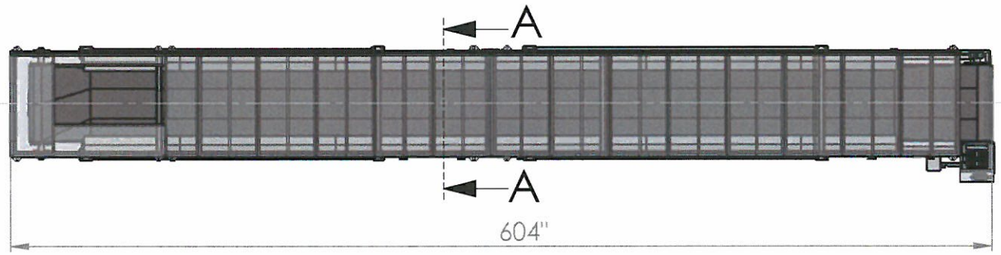
TYPICAL POST BASE FACTORED REACTIONS:

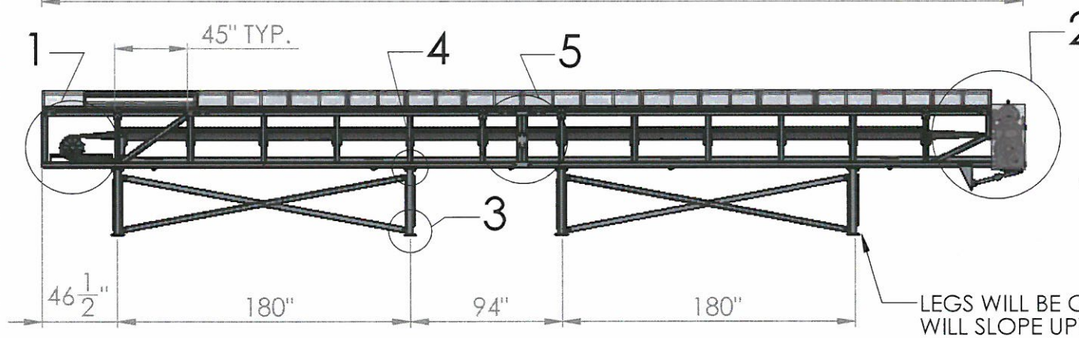
Fx = 1000 lbs

Fy = 1000 lbs

Fz = 5500 lbs DOWNWARD
500 lbs UPLIFT







LEGS WILL BE CHANGED CONVEYOR WILL SLOPE UPWARDS FROM (4') TO (8' 6") MAX (TO BE CONFIRMED)

EFFECTIVE THROAT OF FILLET/BEVEL/PENETRATION WELDS TO MATCH STEEL MEMBER WALL THICKNESS TYPICAL UNLESS NOTED OTHERWISE

Job No. 112-494

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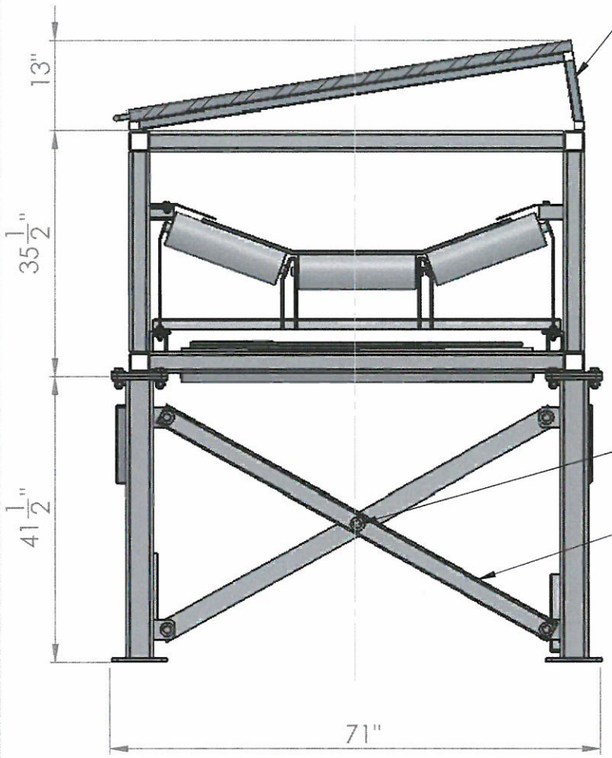
1-34581 4th Ave
Abbotsford, BC
V2S 8E5

TITLE: M2 - 50ft 48inch Belt Conveyor

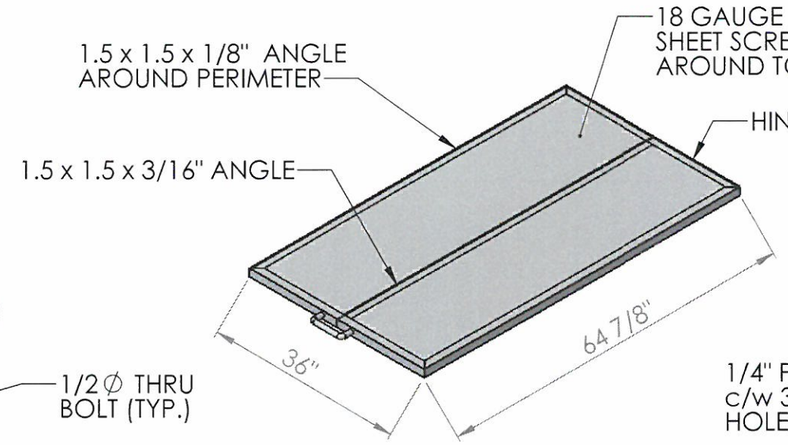
CUSTOMER: TRANSFORM COMPOST SYSTEMS

REVISION: 3

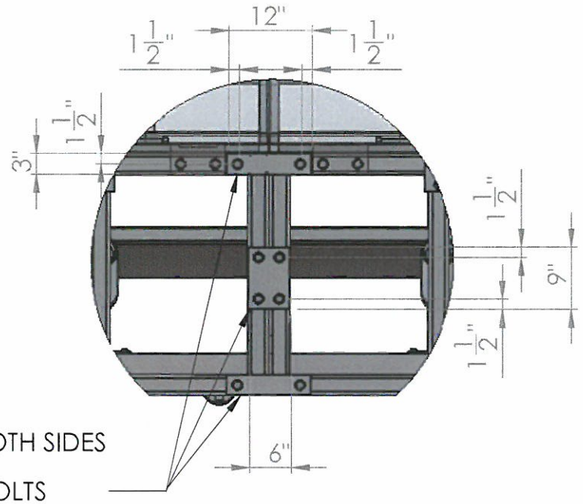
DATE	PART WEIGHT:	PART MATERIAL:
14/08/13	14670.98 lbs	----
DRAWN BY:	SHEET NO.	SCALE:
KURT	5 OF 8	1:85



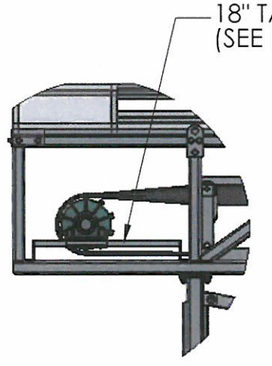
SECTION A-A
SCALE 1 : 20



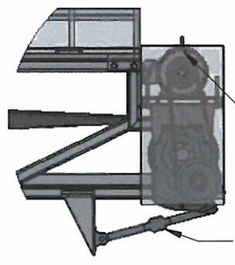
DETAIL 6
HINGED LID
SCALE 1 : 20



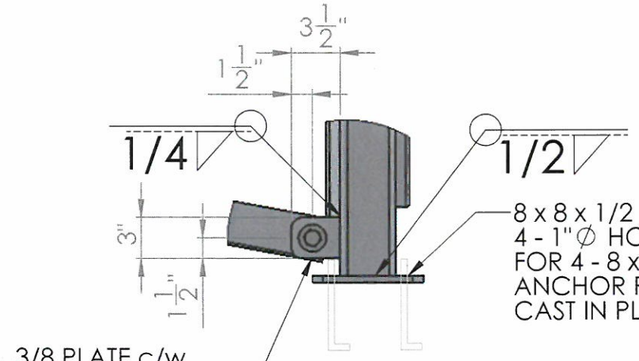
DETAIL 5
CONVEYOR JOINT
SCALE 1 : 20



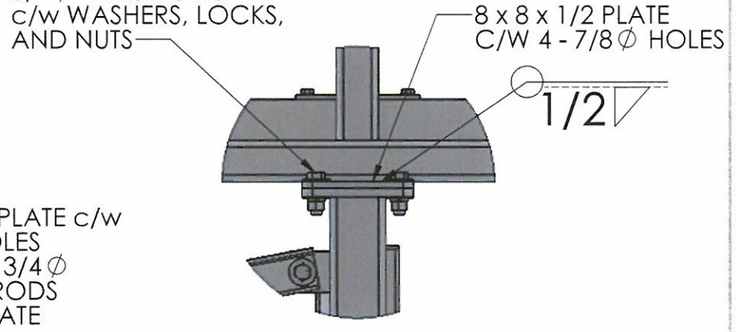
DETAIL 1
TAKE-UP
SCALE 1 : 35



DETAIL 2
HEAD END
SCALE 1 : 35



DETAIL 3
ANCHOR PLATE
SCALE 1 : 10



DETAIL 4
LEG JOINT
SCALE 1 : 10

Job No. 112-494

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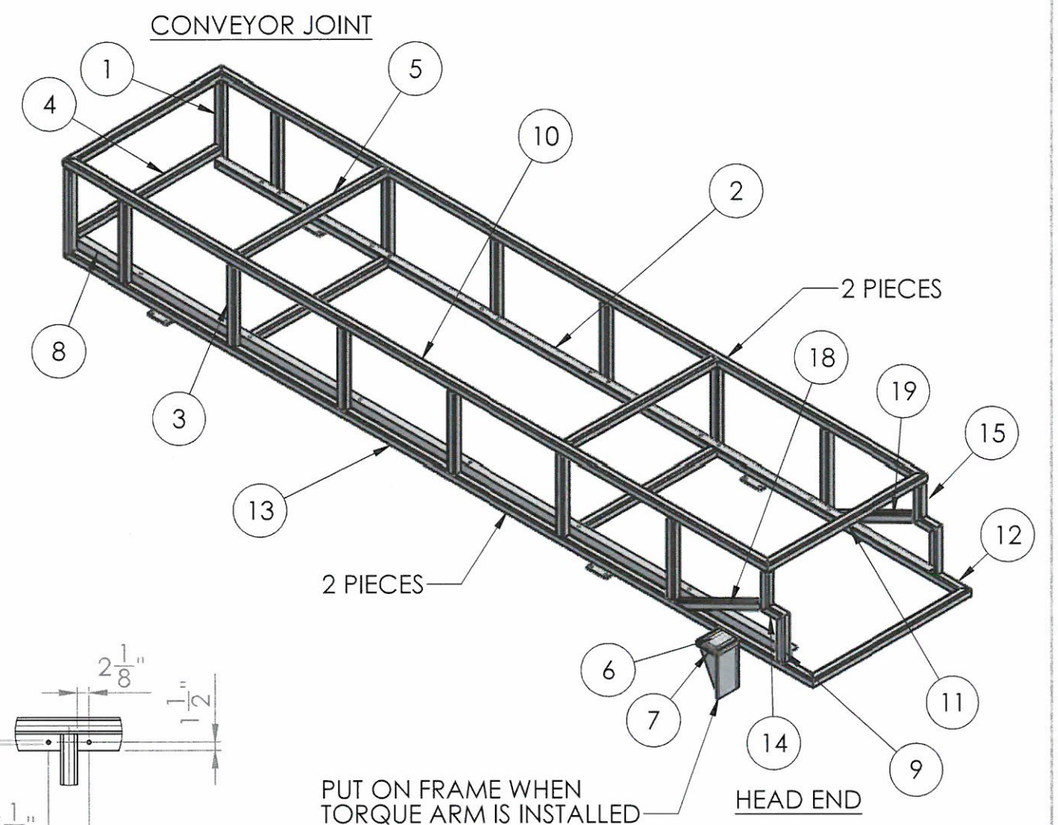
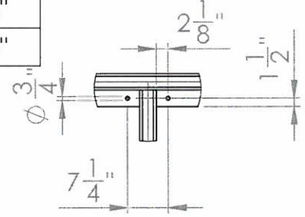
1-34581 4th Ave
Abbotsford, BC
V2S 8E5

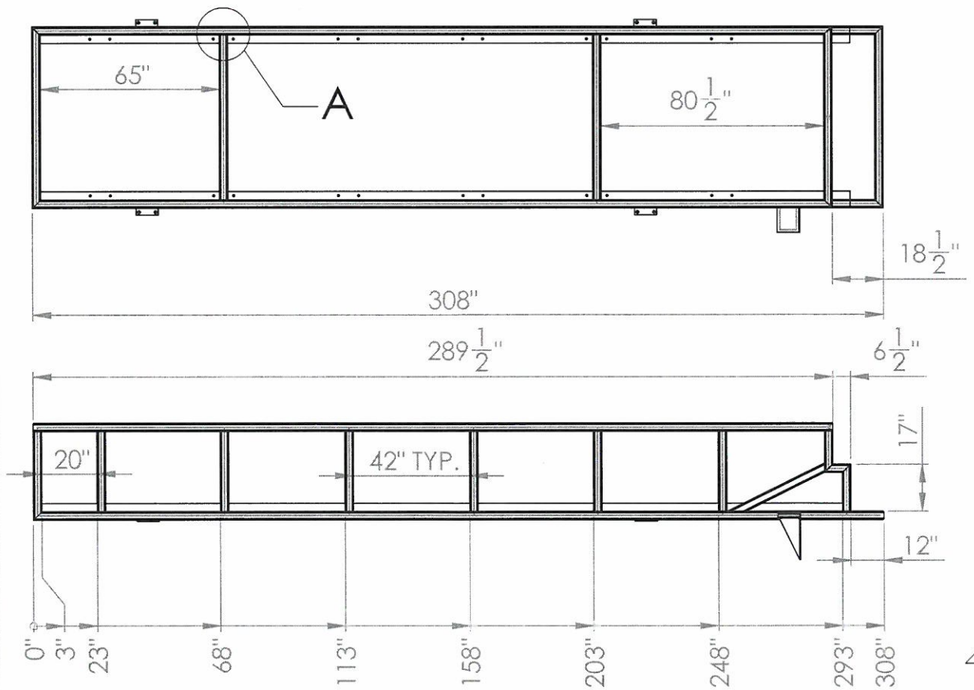
TITLE: M2 - 50ft 48inch Belt Conveyor - Misc Det's		
CUSTOMER: TRANSFORM COMPOST SYSTEMS		REVISION: 3
DATE: 14/08/13	PART WEIGHT: -------	PART MATERIAL: MILD STEEL
DRAWN BY: KURT	SHEET NO.: 6 OF 8	SCALE: AS NOTED

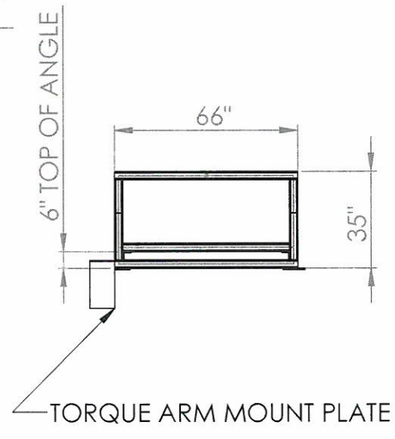
ITEM NO.	QTY.	DESCRIPTION	LENGTH
1	2	TUBE, SQUARE 3.00 X 3.00 X 0.25	32"
2	1	L 3.00 X 3.00 X 0.375	296"
3	12	TUBE, SQUARE 3.00 X 3.00 X 0.25	29"
4	1	TUBE, SQUARE 3.00 X 3.00 X 0.25	60"
5	2	TUBE, SQUARE 3.00 X 3.00 X 0.25	60"
6	2	TUBE, SQUARE 2.00 X 2.00 X 0.25	9"
7	1	TUBE, SQUARE 2.00 X 2.00 X 0.25	8"
8	1	L 3.00 X 3.00 X 0.375	296"
9	2	TUBE, SQUARE 3.00 X 3.00 X 0.25	17"
10	2	TUBE, SQUARE 3.00 X 3.00 X 0.25	289 1/2"
11	3	TUBE, SQUARE 3.00 X 3.00 X 0.25	66"
12	1	TUBE, SQUARE 3.00 X 3.00 X 0.25	308"
13	1	TUBE, SQUARE 3.00 X 3.00 X 0.25	308"
14	2	TUBE, SQUARE 3.00 X 3.00 X 0.25	9 1/2"
15	2	TUBE, SQUARE 3.00 X 3.00 X 0.25	15"
16	1	TUBE, SQUARE 3.00 X 3.00 X 0.25	60"
17	1	TUBE, SQUARE 3.00 X 3.00 X 0.25	60"
18	1	TUBE, SQUARE 3.00 X 3.00 X 0.25	39 7/16"
19	1	TUBE, SQUARE 3.00 X 3.00 X 0.25	39 7/16"





DETAIL A
SCALE 1 : 25





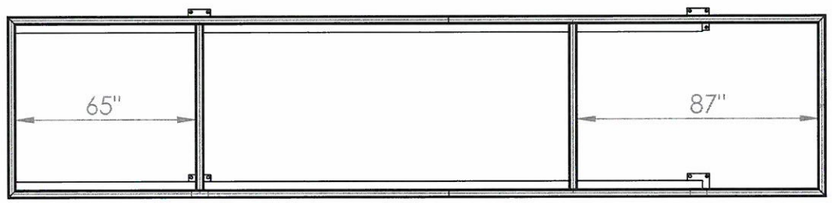
Job No. 112-494

lang structural engineering inc.
#201-2313 West Railway Street
Abbotsford, B.C.
V2S 2E3
Abbotsford (604) 853-8522
Toll Free (604) 857-1757
Fax (604) 853-0158
E-mail mail@langeng.com

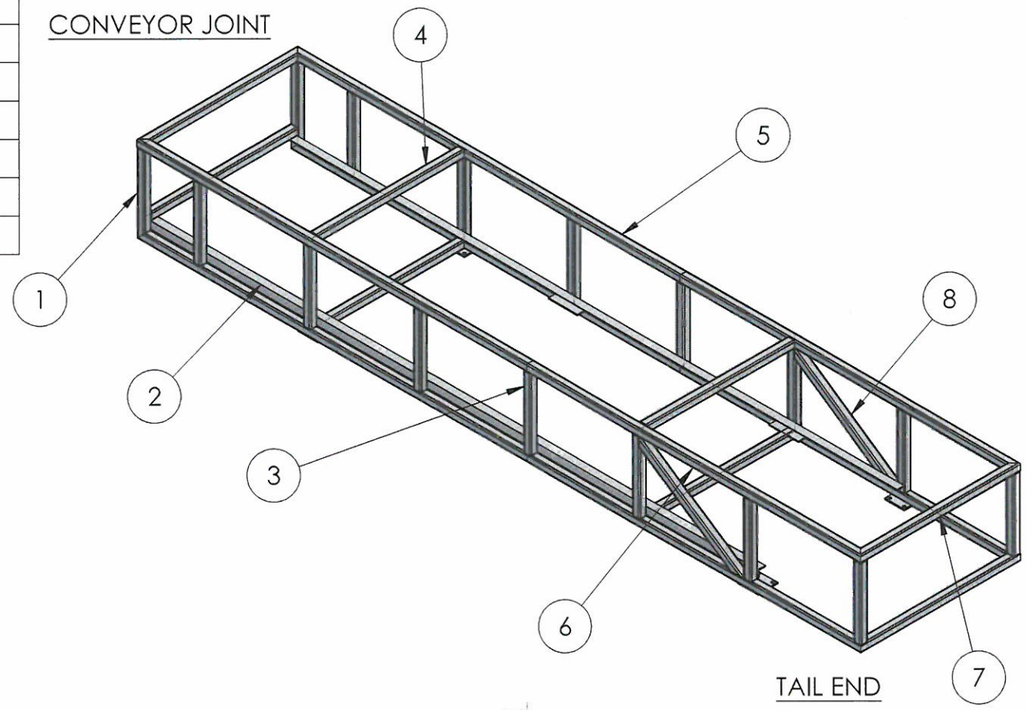
1-34581 4th Ave
Abbotsford, BC
V2S 8E5

TITLE: M2 - Head Conveyor Frame		
CUSTOMER: TRANSFORM COMPOST SYSTEMS		REVISION: 2
DATE: 14/08/13	PART WEIGHT: 1909.94 lbs	PART MATERIAL: MILD STEEL
DRAWN BY: KURT	SHEET NO.: 7 OF 8	SCALE: NOT TO SCALE

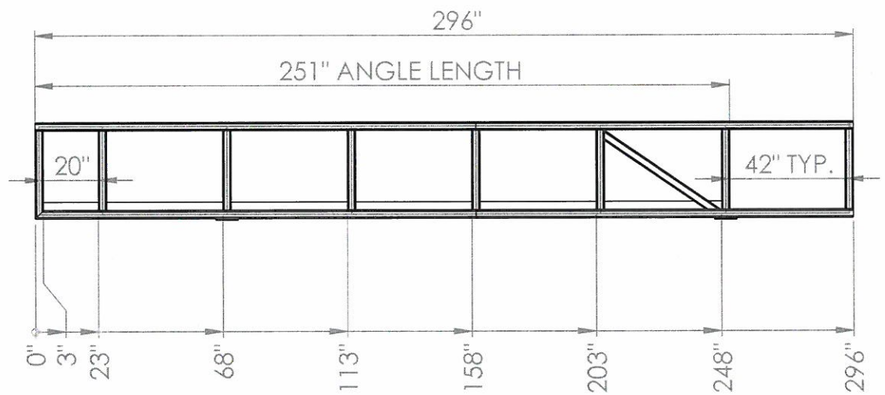
ITEM NO.	QTY.	DESCRIPTION	LENGTH
1	2	TUBE, SQUARE 3.00 X 3.00 X 0.25	32"
2	2	L 3.00 X 3.00 X 0.375	251"
3	14	TUBE, SQUARE 3.00 X 3.00 X 0.25	29"
4	5	TUBE, SQUARE 3.00 X 3.00 X 0.25	60"
5	4	TUBE, SQUARE 3.00 X 3.00 X 0.25	159 1/2"
6	4	TUBE, SQUARE 3.00 X 3.00 X 0.25	136 1/2"
7	3	TUBE, SQUARE 3.00 X 3.00 X 0.25	66"
8	2	TUBE, SQUARE 3.00 X 3.00 X 0.25	50 5/8"

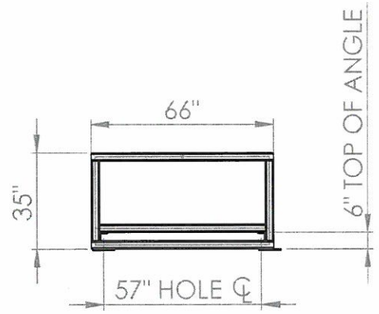


CONVEYOR JOINT



TAIL END





Job No. 112-494

lang structural engineering inc.
#201-2313 West Railway Street
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Abbotsford (604) 853-8522
Toll Free (604) 857-1757
Fax (604) 853-0158
E-mail mail@langeng.com

1-34581 4th Ave
Abbotsford, BC
V2S 8E5

TITLE: M2 - Tail Conveyor Frame

CUSTOMER:		REVISION
TRANSFORM COMPOST SYSTEMS		2
DATE: 14/08/13	PART WEIGHT: 1783.28 lbs	PART MATERIAL: MILD STEEL
DRAWN BY: KURT	SHEET NO. 8 OF 8	SCALE: NOT TO SCALE

WARRANTY INFORMATION

1. EXCLUSIVE WRITTEN LIMITED WARRANTY

ALL PRODUCTS SOLD ARE WARRANTED BY THE COMPANY (4B COMPONENTS LIMITED, (4B) BRAIME ELEVATOR COMPONENTS LIMITED, AND (4B) S.E.T.E.M. Sarl HEREIN AFTER REFERRED TO AS 4B TO THE ORIGINAL PURCHASER AGAINST DEFECTS IN WORKMANSHIP OR MATERIALS UNDER NORMAL USE FOR ONE (1) YEAR AFTER DATE OF PURCHASE FROM 4B. ANY PRODUCT DETERMINED BY 4B AT ITS SOLE DISCRETION TO BE DEFECTIVE IN MATERIAL OR WORKMANSHIP AND RETURNED TO A 4B BRANCH OR AUTHORIZED SERVICE LOCATION, AS 4B DESIGNATES, SHIPPING COSTS PREPAID, WILL BE, AS THE EXCLUSIVE REMEDY, REPAIRED OR REPLACED AT 4B'S OPTION.

2. DISCLAIMER OF IMPLIED WARRANTY

NO WARRANTY OR AFFIRMATION OF FACT, EXPRESSED OR IMPLIED, OTHER THAN AS SET FORTH IN THE EXCLUSIVE WRITTEN LIMITED WARRANTY STATEMENT ABOVE IS MADE OR AUTHORIZED BY 4B. 4B SPECIFICALLY DISCLAIMS ANY LIABILITY FOR PRODUCT DEFECT CLAIMS THAT ARE DUE TO PRODUCT MISUSE, ABUSE OR MISAPPLICATIONS, AS AUTHORIZED BY LAW, 4B SPECIFICALLY DISCLAIMS ALL WARRANTIES THAT THE PRODUCT IS FIT OR MERCHANTABLE FOR A PARTICULAR PURPOSE.

3. NO WARRANTY "BY SAMPLE OR EXAMPLE"

ALTHOUGH 4B HAS USED REASONABLE EFFORTS TO ACCURATELY ILLUSTRATE AND DESCRIBE THE PRODUCTS IN ITS CATALOGS, LITERATURE, AND WEBSITES, SUCH ILLUSTRATIONS AND DESCRIPTIONS ARE FOR THE SOLE PURPOSE OF PRODUCT IDENTIFICATION AND DO NOT EXPRESS OR IMPLY A WARRANTY AFFIRMATION OF FACT, OF ANY KIND OR A WARRANTY OR AFFIRMATION OF FACT THAT THE PRODUCTS WILL CONFORM TO THEIR RESPECTIVE ILLUSTRATIONS OR DESCRIPTIONS. 4B EXPRESSLY DISCLAIMS ANY WARRANTY OR AFFIRMATION OF FACT, EXPRESSED OR IMPLIED, OTHER THAN AS SET FORTH IN THE EXCLUSIVE WRITTEN LIMITED WARRANTY STATEMENT ABOVE, INCLUDING, WITHOUT LIMITATION, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

4. LIMITATION OF DAMAGES

ANY LIABILITY FOR CONSEQUENTIAL, INCIDENTAL, SPECIAL, EXEMPLARY, OR PUNITIVE DAMAGES, OR FOR LOSS OF PROFIT WHETHER DIRECT OR INDIRECT, IS EXPRESSLY DISCLAIMED.

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Web: www.go4b.com

WHIRLIGIG®
UNIVERSAL SHAFT SENSOR MOUNT

SENSOR
4B ELEVATOR COMPONENTS LTD
625 ERIE AVE
MORTON ILL.
309-698-5611
www.go4b.com
SLIP SWITCH
M3001V10F

Whirligig® Shown with M300 Slipswitch
(All Sensors Sold Separately)

U.S. Patent #6,109,120

INSTALLATION INSTRUCTIONS

OPERATION MANUAL

WHIRLIGIG - PART NO's. WG1-4B-1, WG1-4B-2, WG1-4B-4, WG1-4B-8

www.go4b.com

Congratulations on your purchase. 4B appreciates your business and is pleased you have chosen our products to meet your needs.

Please read in its entirety and understand the literature accompanying the product before you place the product into service. Please read the safety precautions carefully before operating the product. With each product you purchase from 4B, there are some basic but important safety considerations you must follow to be sure your purchase is permitted to perform its design function and operate properly and safely, giving you many years of reliable service. Please read and understand the Customer Safety Responsibilities listed below. Failure to follow this safety directive and the Operation Manuals and other material furnished or referenced, may result in serious injury or death.

SAFETY NOTICE TO OUR CUSTOMERS

A. In order to maximize efficiency and safety, selecting the right equipment for each operation is vital. The proper installation of the equipment, and regular maintenance and inspection is equally important in continuing the proper operation and safety of the product. The proper installation and maintenance of all our products is the responsibility of the user unless you have asked 4B to perform these tasks.

B. All installation and wiring must be in accordance with Local and National Electrical Codes and other standards applicable to your industry. (Please see the article "Hazard Monitoring Equipment Selection, Installation and Maintenance" at www.go4b.com.) The installation of the wiring should be undertaken by an experienced and qualified professional electrician. Failure to correctly wire any product and/or machinery can result in the product or machine failing to operate as intended, and can defeat its design function.

C. Periodic inspection by a qualified person will help assure your 4B product is performing properly. 4B recommends a documented inspection at least annually and more frequently under high use conditions.

D. Please see the last page of this manual for all warranty information regarding this product.

CUSTOMER SAFETY RESPONSIBILITIES

1. READ ALL LITERATURE PROVIDED WITH YOUR PRODUCT

Please read all user, instruction and safety manuals to ensure that you understand your product operation and are able to safely and effectively use this product.

2. YOU BEST UNDERSTAND YOUR NEEDS

Every customer and operation is unique, and only you best know the specific needs and capabilities of your operation. Please call the 24-hour hotline at 309-698-5611 for assistance with any questions about the performance of products purchased from 4B. 4B is happy to discuss product performance with you at any time.

Correct installation of the product is important for safety and performance. If you have not asked 4B to perform the installation of the unit on your behalf, it is critical for the safety of your operation and those who may perform work on your operation that you select a qualified and competent electrical installer to undertake the installation. The product must be installed properly to perform its designed functions. The installer should be qualified, trained, and competent to perform the installation in accordance with Local and National Electrical Codes, all relevant OSHA Regulations, as well as any of your own standards and preventive maintenance requirements, and other product installation information supplied with the product. You should be prepared to provide the installer with all necessary installation information to assist in the installation.

4. ESTABLISH AND FOLLOW A REGULAR MAINTENANCE AND INSPECTION SCHEDULE FOR YOUR 4B PRODUCTS

You should develop a proper maintenance and inspection program to confirm that your system is in good working order at all times. You will be in the best position to determine the appropriate frequency for inspection. Many different factors known to the user will assist you in deciding the frequency of inspection. These factors may include but are not limited to weather conditions; construction work at the facility; hours of operation; animal or insect infestation; and the real-world experience of knowing how your employees perform their jobs. The personnel or person you select to install, operate, maintain, inspect or perform any work whatsoever, should be trained and qualified to perform these important functions. Complete and accurate records of the maintenance and inspection process should be created and retained by you at all times.

5. RETAIN AND REFER TO THE OPERATION MANUAL FOR 4B'S SUGGESTED MAINTENANCE AND INSPECTION RECOMMENDATIONS

As all operations are different, please understand that your specific operation may require additional adjustments in the maintenance and inspection process essential to permit the monitoring device to perform its intended function. Retain the Operation Manual and other important maintenance and service documents provided by 4B and have them readily available for people servicing your 4B equipment. Should you have any questions, please call the free 24-hour hotline number (309-698-5611).

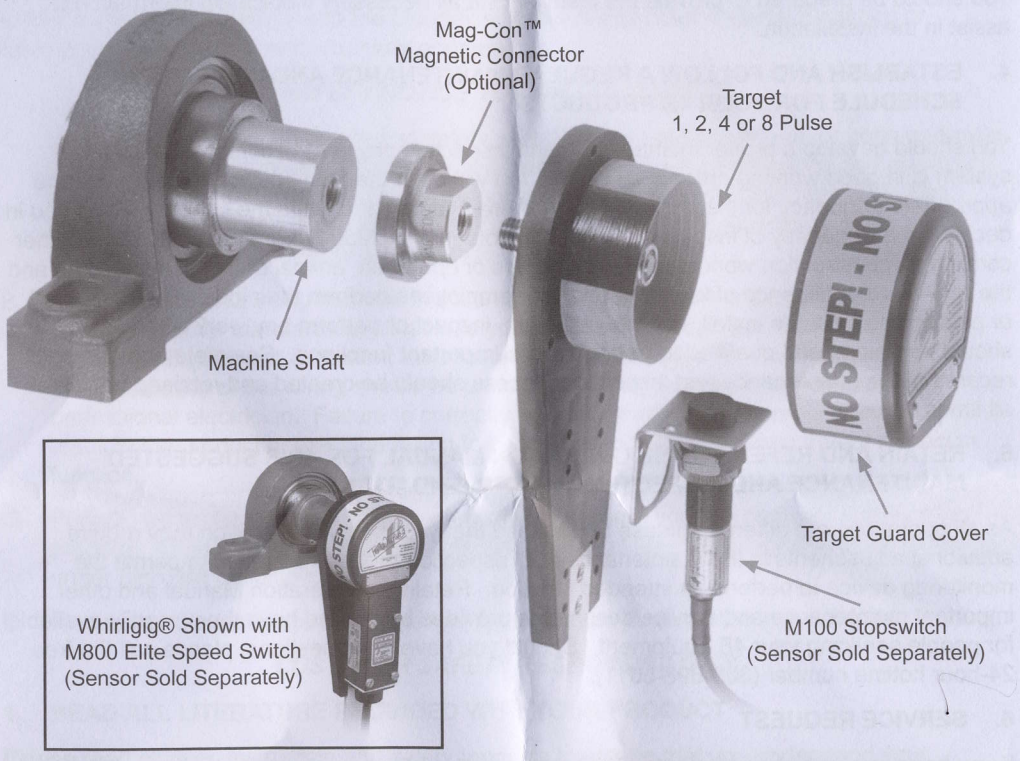
6. SERVICE REQUEST

If you have questions or comments about the operation of your unit or require the unit to be serviced please contact the 4B location who supplied the product or send your request via fax (309-698-5615) or call us via our 24-hour hotline number in the USA (309-698-5611). Please have available product part numbers, serial numbers, and approximate date of installation. In order to assist you, after the product has been placed into service, complete the online product registration section which is accessed via our website www.go4b.com.

INTRODUCTION

The Whirligig is a fully guarded target for easy mounting of motion sensors. It is a target, bracket and guard suitable for all industry standard cylindrical or DIN style inductive sensors including 4B's M100, M300, and M800 Elite speed switches or P100, P300 and P800 proximity sensors.

Sensors (sold separately) bolt to the Whirligig and the complete assembly either bolts to the machines shaft through a 1/2" UNC tapped hole, or is connected magnetically using 4B's patented Mag-Con™ adaptor. Shaft or machine vibration does not affect the performance of the sensor, as the whole assembly moves with the shaft. With the Whirligig, installation of speed sensors is now simple, safe and reliable.

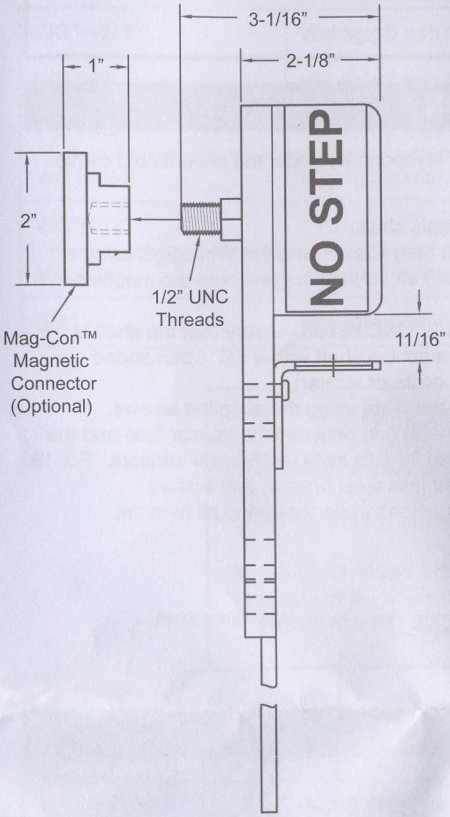


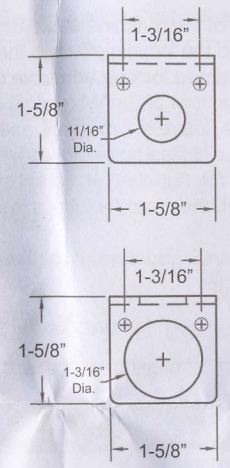
Whirligig® Shown with
M800 Elite Speed Switch
(Sensor Sold Separately)

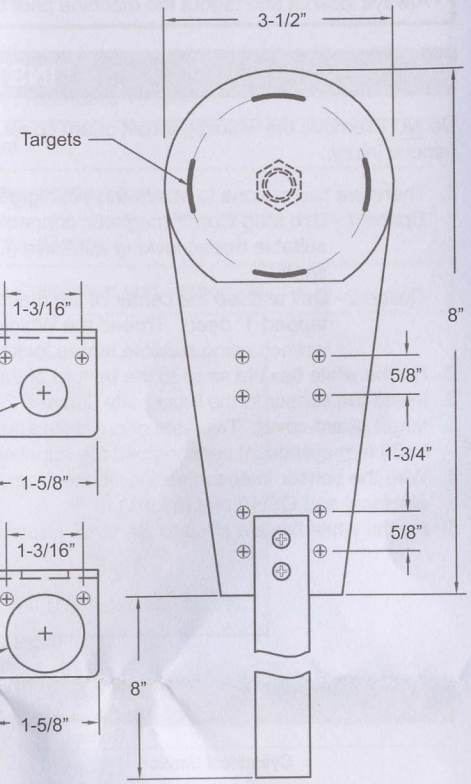
SPECIFICATIONS

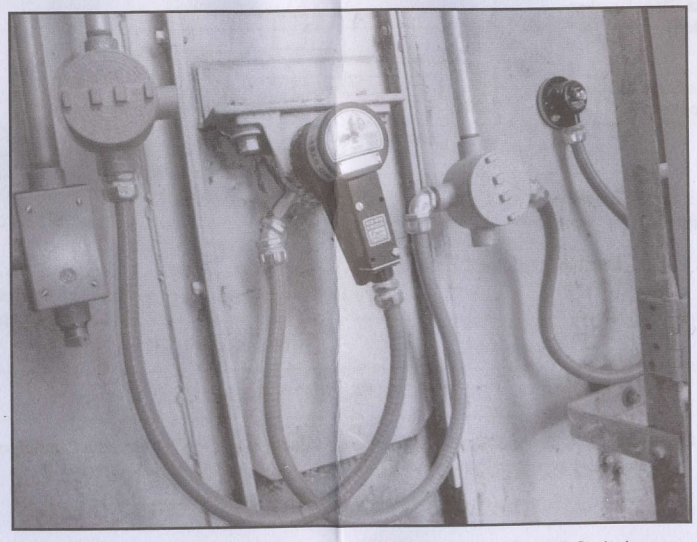
Shaft Material -	Stainless Steel
Body Material -	Polypropylene
Bearing -	Sealed Stainless Steel
Thread Size -	1/2" UNC
Hex Wrench Size -	5/8"
Maximum Speed -	1,500 RPM
Pulses / Targets -	1, 2, 4 or 8 (Must Specify)Text

DIMENSIONS









Whirligig® on Bucket Elevator with M800 Elite Speed Switch

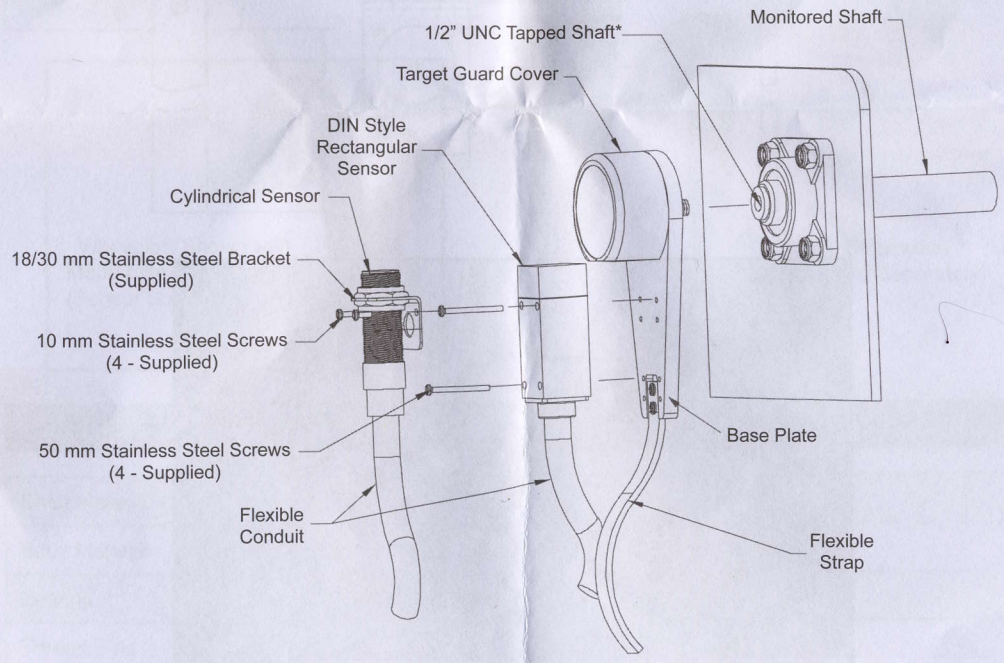
⚠WARNING

- Rotating machinery can cause serious injury or death.
- Always lockout and tagout the machine prior to installation.

INSTALLATION

Do *NOT* remove the whirligig target guard cover. The rotating components under the cover could cause serious injury.

1. There are two options to attach the Whirligig® to the machine's shaft:
   Option 1 - Use Mag-Con™ magnetic connector. Thread the Mag-Con™ onto the Whirligig® using a suitable thread locking adhesive (Loctite or similar) and attach the unit onto the machine shaft.
   Option 2 - Drill and tap the center of the machine shaft for 1/2" UNC thread, ensure that the shaft is tapped 1" deep. Thread the Whirligig® onto the machine shaft with a 5/8" open ended wrench using suitable thread locking adhesive (Loctite or similar).
2. Fix the white flexible strap to the bottom of the Whirligig® base plate using the supplied screws.
3. Install the sensor to the base plate, leave a 2 mm (approximate) gap between the sensor face and the target guard cover. Two sets of pre-drilled holes are provided for DIN style rectangular sensors. For 18 or 30 mm cylindrical sensors, use the supplied universal stainless steel bracket and screws.
4. Wire the sensor in accordance with the manufacturer's instructions while observing all relevant electrical and OSHA regulations.
5. Fix the white flexible strap to the static structure (if required).



* NOTE - 1/2" UNC Tapped Shaft Not Required If Using Mag-Con™ Magnetic Connector

PART NUMBERS / ACCESSORIES

WG1-4B-1	Whirligig® with 1 Pulse / Target
WG1-4B-2	Whirligig® with 2 Pulse / Target
WG1-4B-4	Whirligig® with 4 Pulse / Target (Standard Version)
WG1-4B-8	Whirligig® with 8 Pulse / Target
WGB1830	18 / 30 mm Stainless Steel Bracket (Supplied)
MAG2000	Mag-Con™ Magnetic Connector (Optional)
SM1	SpeedMaster™ Speed Switch Calibration and Testing Device

Mag-Con™ Magnetic Connector

This device screws onto the Whirligig® and magnetically couples to the shaft being monitored, simplifying installation.

Material - Stainless Steel
Holding Force - Over 150 lbs.
Maximum Speed - 300 RPM

U.S. Patent #6,964,209

4B COMPATIBLE SENSORS

M8001V10C	M800 Elite Speed Switch
M3001V10F	M300 Slipswitch (2 Wire)
M3005V10CA	M300 Slipswitch (5 Wire)
M1001V10F	M100 Stopswitch
P8002V10FC	P800 ProxSwitch
P8001V34FC	P800 ProxSwitch (NPN/PNP)
P3002V10AI	P300 ProxSwitch
P300V34AI	P300 ProxSwitch (NPN/PNP)
P1002V10A	P100 ProxSwitch
P100V34A	P100 ProxSwitch (NPN/PNP)

For more information on Whirligig® accessories and compatible sensors, visit www.go4b.com