

NEPTUNE MIXER COMPANY LIMITED WARRANTY

All Neptune Mixers are tested at the factory prior to shipment. Each part used in their construction has been carefully checked for workmanship.

If the mixer is installed properly, Neptune Mixer Company warrants to the purchaser of this product for a period of twelve months from the date of first use or eighteen months from shipment, whichever occurs first, this product shall be free of defects in material and/or workmanship, as follows:

1. Neptune Mixer Company will replace, at no charge, any part that fails due to a defect in material and/or workmanship during the warranty period, FOB our factory, Lansdale, Pennsylvania. To obtain warranty service, you must forward the defective parts to the factory for examination, freight pre-paid.¹
2. This warranty period does not cover any product or product part which has been subject to accident, misuse, abuse or negligence. Neptune Mixer Company shall only be liable under this warranty if the product is used in the manner intended by the manufacturer as specified in the written instructions furnished with this product.

Any express warranty not provided in this warranty document, and any remedy for breach of contract that, but for this provision, might arise by implication or operation of law, is hereby excluded and disclaimed. Under no circumstances shall Neptune Mixer Company be liable to purchaser or any other person for any charge for labor, repairs, or parts, performed or furnished by others, nor for any incidental consequential damages, whether arising out of breach of warranty, express or implied, a breach of contract or otherwise. Except to the extent prohibited by applicable law, any implied warranty of merchantability and fitness for a particular purpose are expressly limited in duration to the duration of this limited warranty.

Some states do not allow the exclusion or limitation of incidental or consequential damages, or allow limitations on how long any implied warranty lasts, so the above limitations may not apply to you. This warranty gives you specific legal rights, and you may have other rights which may vary from state to state.

IMPORTANT

SHOULD IT BE NECESSARY TO SEND THE MIXER TO THE FACTORY FOR REPAIR OR MAINTENANCE REBUILDING, DRAIN ALL OIL AND CLEAN ALL CHEMICAL FROM MIXER BEFORE SHIPPING. FAILURE TO DO SO CAN BE HARMFUL.

¹ SEE IMPORTANT NOTICE — RETURN GOODS AUTHORIZATION

IMPORTANT NOTICE RETURN GOODS AUTHORIZATION

- (1) All equipment returned to Neptune Mixer Company requires proper Returned Goods Authorization Number (RGA) and tags.
- (2) All equipment returned to the factory for repair or service must first be thoroughly flushed and have all chemical contact areas neutralized.
- (3) All equipment which has been in contact with chemicals must be accompanied by a copy of the Chemical Product Material Safety Data Sheet (MSDS).
- (4) Failure to comply with the above instructions, will result in equipment being returned to sender, freight collect, without service.

SAFETY INSTRUCTIONS:

DO NOT OPERATE MIXER UNLESS PROPERLY INSTALLED, AVOID ROTATING SHAFT AND BLADES, TURN OFF POWER AND LOCKOUT EQUIPMENT BEFORE ADJUSTING OR SERVICING, ETC.

PARTS ORDERING INSTRUCTIONS

The complete model number and serial number of the mixer must be furnished to insure prompt and accurate parts service. These numbers are found on the name plate (sample photo below) located on the side of the mixer. Refer to Pages 5 and 7 for complete parts list.



Send all orders or inquiries for parts to:

**Parts Department
Neptune Mixer Company**

**P.O. Box 247
Lansdale, PA 19446
Tel: 215-699-8700
FAX: 215-699-0370**

INTRODUCTION

The Neptune mixer is a carefully designed piece of precision equipment which will give you years of satisfactory service under normal operating conditions.

A. INSPECTION

All Neptune mixers are shipped in a specially designed carton to insure against damage in shipment. Each shaft is shipped in an individual box. Upon receipt, examine the mixer for damage; report any damage to Neptune and the delivering carrier at once.

B. LUBRICATION

The upper ball bearing (Part #GD-17 or #DD-17) is sealed and pre-greased for bearing life. The gears and needle bearings (Part #GD-22 or DD-22) are lubricated at the factory. To change the gear grease; remove motor, clean gearbox and gears with solvent. Repack with Lubriplate No. 1200-2 multipurpose grease (Neptune P/N ZTS114444) or for food service repack with Hasco Alaska Crystal FM grease 2 (Neptune P/N ZZ113293). Approximately 20 to 24 oz. will be required.

TO CHANGE THE GREASE IN THE NEEDLE BEARINGS:

GEAR DRIVE MIXER MODELS

To change the needle bearing grease; remove motor, (3) retaining rings (Part #GD-9), (3) idler gears (Part #GD-6), remove flat head socket cap screw (Part #GD-19) and washer (Part #GD-18), then remove planet carrier (Part #GD-11) and key (Part #GD-20). Next pull out the shaft collar (Part #GD-21), and remove the oil seal (Part #GD-23). Clean the needle bearing and bearing chamber with solvent, and inspect the bearing, replace if necessary. Install a new seal (Part #GD-23) then repack bearing chamber with LUBRIPLATE NO. 1200-2 MULTI-PURPOSE GREASE (3 oz.). To reassemble mixer, replace shaft collar (Part #GD-21) into mixer, and secure collar by placing the key (Part #GD-20) and planet carrier (Part #GD-11) on the collar. Install washer (Part #GD-18) and tighten flat head socket screw (Part #GD-19). Replace idler gears (Part #GD-6) and retaining rings (Part #GD-9), then repack gear chamber with grease.

DIRECT DRIVE MIXER MODELS

To change the needle bearing grease; remove motor, coupling (Part #DD-36) and locking nut (Part #DD-37). Next pull out the shaft collar (Part #DD-21), and remove the oil seal (Part #DD-23). Clean the needle bearing and bearing chamber with solvent, and inspect the bearing, replace if necessary. Install a new seal (Part #DD-23) then repack bearing chamber with LUBRIPLATE NO. 1200-2 MULTI-PURPOSE GREASE (3 oz.). To reassemble mixer, replace shaft collar (Part #DD-21) into mixer, and secure collar by placing the locking nut (Part #DD-37) and coupling (Part #DD-36).

C. MOUNTING THE MIXER

Remove the mixer from the carton and attach clamp. Rotate the clamp to an initial position such that the motor will be upright when the unit is clamped to the tank.

Place the clamp on the desired location on the tank, being certain that both the horizontal and vertical surfaces of the clamp are in contact with the top and side of the tank. Tighten the clamp with a 3/4 box wrench. Do not apply force greater than 50 ft./lbs. when tightening bolt.

D. MOUNTING MIXER SHAFT

Neptune supplies standard square pitch propellers which may be put on the mixer shaft either face up or face down. Place the propellers on the end of the shaft WITHOUT the cut groove. If two propellers are used, they should be spaced at least two propeller diameters apart. Be certain to securely tighten the propeller set screw or screws. Place the end of the shaft, with the groove, into the shaft collar until it bottoms, then tighten the collar set screw securely.

E. ELECTRICAL CONNECTIONS

Your Neptune mixer is designed to rotate clockwise when looking down on the end of the motor. This is so indicated by arrows cast on the mixer housing.

Follow the wiring directions as indicated on the motor to obtain proper rotation.

F. MIXER POSITIONING

The positioning scale of the mixer combines a vertical index on the ball of the housing and a horizontal index on the clamp. Mixing positions are determined by referencing one index against another.

To change the position, loosen the wedge nut, move the mixer to desired position, and retighten.

Correct positioning varies from case to case. Use Chart "A" to position the mixer in relation to the tank diameter and height for normal applications. Some adjustments may be required to produce results that suit your requirements.

CHART "A"

MIXING PATTERN	HEIGHT (H)	DIAMETER (D)	CLAMP RIM INDEX	BALL INDEX
Normal mixing. Off center position. Top to bottom turnover, no swirling.	H/D less than 1		D	5
	H/D greater than 1		D	6
Gentle vortexing, on center position.	H/D less than 1		E	5
	H/D greater than 1		E	6
Swirling. Off center position, usually.	H/D less than 1		F	6
	H/D greater than 1		F	7

G. MIXER OPERATION

Neptune mixers are designed for continuous operation under most normal conditions. It is not good practice to operate continuously when extreme vortexing occurs.

After mixer has been turned on and the mixing pattern developed, adjust mixer position if necessary.

After ten days of operation, check the motor housing screws (Part #DD-14 or #GD-14), the clamp screw (Part #DD-32 or #GD-32), wedge nut (Part #DD-27 or #GD-27), and shaft collar set screw (Part #DD-24 or #GD-24) for tightness. At the end of a mixing period, it is a good practice to turn off the mixer before the tank is drained.

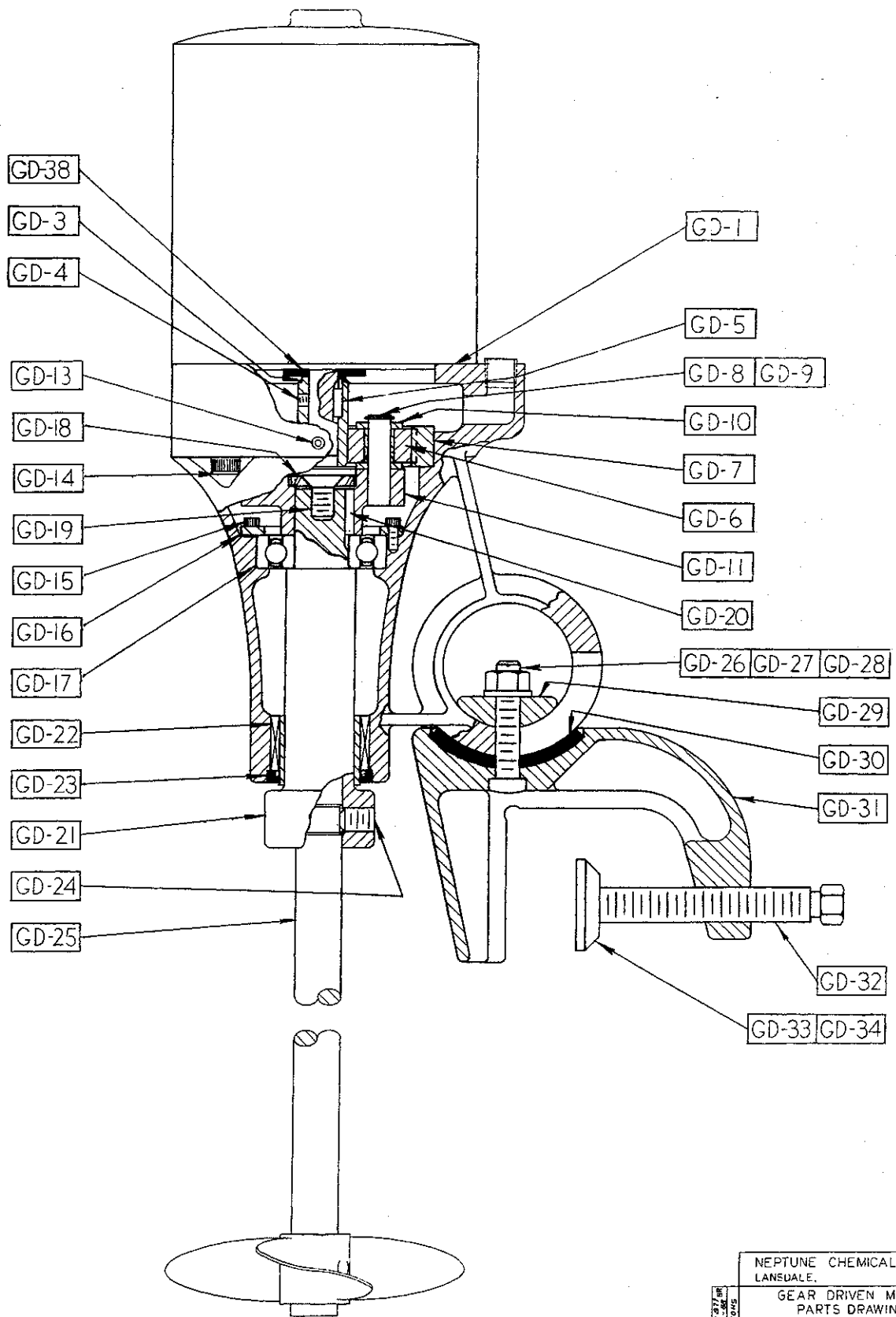
GEAR DRIVE MIXER PARTS LIST

(Refer to Drawing No. M-1020)

PART NO.	STOCK NO.	DESCRIPTION	QUANTITY REQUIRED
GD-1	000461	Body	1
GD-2	106097	Motor Gasket	1
GD-3	000463	Pinion Gear	1
GD-4	100191	Set Screw	1
GD-5	100351	Key (Round)	1
GD-6	001674	Idler Gear and Idler Gear Bushing	3
GD-7	000465	Internal Gear	1
GD-8	000250	Dowel Pin	3
GD-9	100353	Retaining Ring	3
GD-10	100367	Washer	6
GD-11	000466	Planet Carrier	1
GD-13	100356	Set Screw	2
GD-14	100357	Socket Head Cap Screw	4
GD-15	100358	Socket Head Cap Screw	4
GD-16	002048	Bearing Retainer	1
GD-17	100359	Ball Bearing	1
GD-18	000468	Washer	1
GD-19	100360	Flat Head Socket Head Cap Screw	1
GD-20	100218	Key (Square)	1
GD-21	000470	Shaft Collar, 1" ID	1
GD-21.1	000469	Shaft Collar, 1 1/4" ID	1
GD-22	100362	Inner Race and Needle Bearing	1
GD-23	100363	Oil Seal	1
GD-24	100364	Set Screw (1" shafts)	2
GD-24.1	106170	Set Screw (1 1/4" shafts)	2
GD-25	000473	Mixer Shaft (48" x 1")	1
GD-25.1	000472	Mixer Shaft (60" x 1")	1
GD-25.2	000471	Mixer Shaft (60" x 1 1/4")	1
GD-26	100365	Hex Head Bolt	1
GD-27	100366	Nut	1
GD-28	100367	Washer	1
GD-29	100509	Pivot Washer	1
GD-30	100369	Washer-Spherical Seat	1
GD-31	000474	Mounting Clamp	1
GD-32	000475	Stud	1
GD-33	000476	Clamp Button	1
GD-34	100370	Rivet	1
GD-35	100391	Propeller (10" dia. x 1" bore)	1
GD-35.1	100390	Propeller (11" dia. x 1" bore)	1
GD-35.2	100388	Propeller (11" dia. x 1 1/4" bore)	1
GD-35.3	100389	Propeller (12" dia. x 1" bore)	1
GD-35.4	100387	Propeller (12" dia. x 1 1/4" bore)	1
GD-35.5	100386	Propeller (13" dia. x 1 1/4" bore)	1
GD-35.6	100385	Propeller (14" dia. x 1 1/4" bore)	1
GD-38	100214	Oil Seal	1

RECOMMENDED SPARE PARTS

GD-17	100359	Ball Bearing	1
GD-22	100362	Inner Race and Needle Bearing	1
GD-23	100363	Oil Seal	1
GD-30	100369	Washer-Spherical Set	1



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NEPTUNE CHEMICAL PUMP CO. LANESDALE, PENNA.		
GEAR DRIVEN MIXER PARTS DRAWING		
DRAWN BY D. P.	DATE 8-19-70	DWG. NO. M-102C

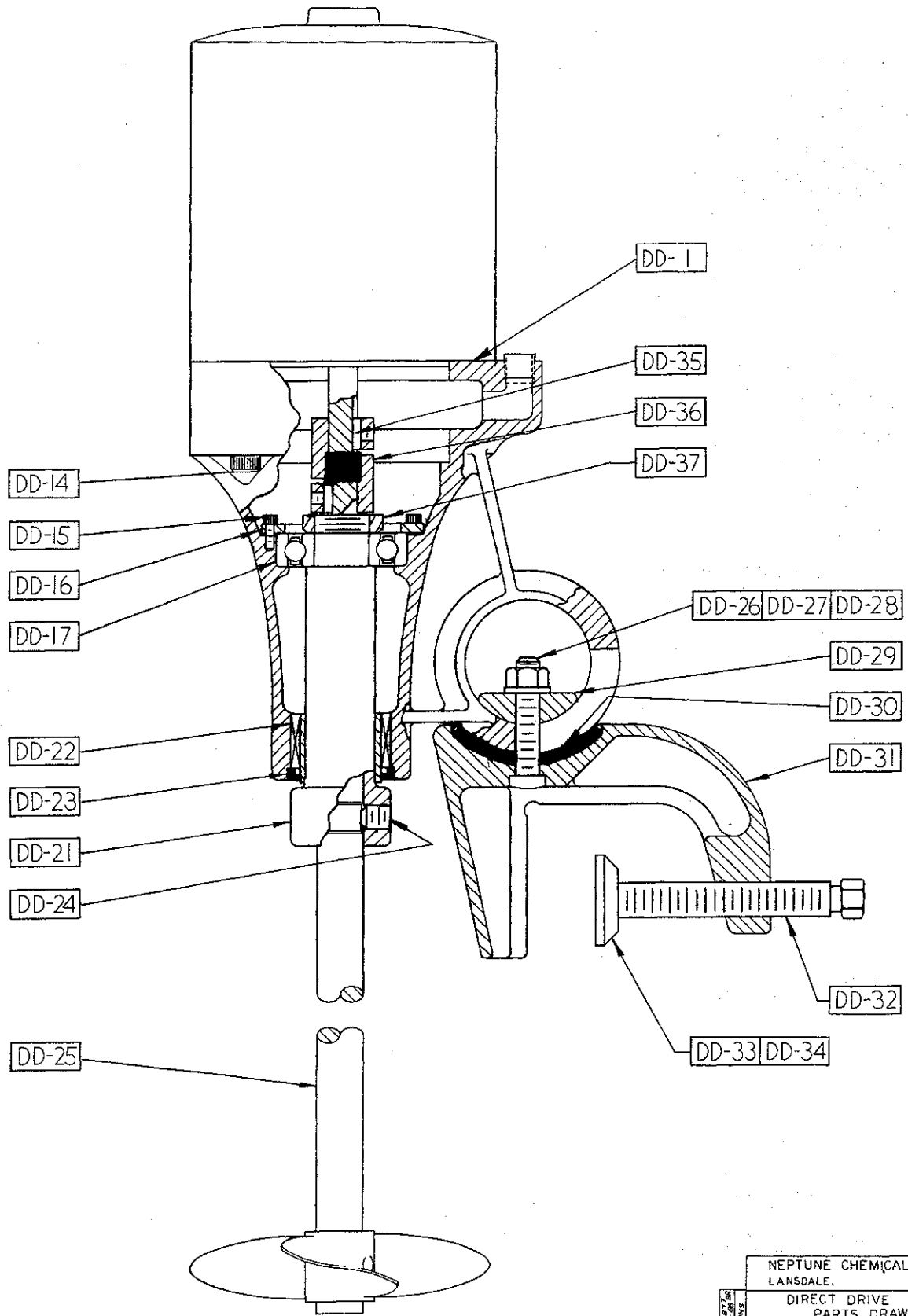
DIRECT DRIVE MIXER PARTS LIST

(Refer to Drawing No. M-1019)

PART NO.	STOCK NO.	DESCRIPTION	QUANTITY REQUIRED
DD-1	000461	Body	1
DD-2	106097	Motor Gasket	1
DD-14	100357	Socket Head Cap Screw	4
DD-15	100191	Socket Head Cap Screw	4
DD-16	002048	Bearing Retainer	1
DD-17	100359	Ball Bearing	1
DD-21	000479	Shaft Collar, 3/4" ID	1
DD-21.1	000478	Shaft Collar, 1" ID	1
DD-22	100362	Inner Race and Needle Bearing	1
DD-23	100363	Oil Seal	1
DD-24	100364	Set Screw (3/4" shafts)	2
DD-24.1	106170	Set Screw (1" shafts)	2
DD-25.1	000481	Mixer Shaft (48" x 3/4")	1
DD-25.2	000480	Mixer Shaft (60" x 3/4")	1
DD-25.3	000472	Mixer Shaft (60" x 1")	1
DD-26	100365	Hex Head Bolt	1
DD-27	100366	Nut	1
DD-28	100367	Washer	1
DD-29	100509	Pivot Washer	1
DD-30	100369	Washer-Spherical Seat	1
DD-31	000474	Mounting Clamp	1
DD-32	000475	Stud	1
DD-33	000476	Clamp Button	1
DD-34	100370	Rivet	1
DD-35A	100218	Key, 3/4" Lg.	1
DD-35B	105299	Key, 1/2" Lg.	1
DD-36	100053	Coupling	1
DD-37	100372	Nut	1
DD-38.1	100384	Propeller (4" dia. x 3/4" bore)	1
DD-38.2	100383	Propeller (5" dia. x 3/4" bore)	1
DD-38.3	100393	Propeller (5" dia. x 1" bore)	1
DD-38.4	100395	Propeller (6" dia. x 3/4" bore)	1
DD-38.5	100392	Propeller (6" dia. x 1" bore)	1

RECOMMENDED SPARE PARTS

DD-17	100359	Ball Bearing	1
DD-22	100362	Inner Race and Needle Bearing	1
DD-23	100363	Oil Seal	1
DD-30	100369	Washer-Spherical Set	1



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NEPTUNE CHEMICAL PUMP CO. LANSDALE, PENNA.		
DIRECT DRIVE MIXER PARTS DRAWING		
ALLEN & BRADLEY DRAWINGS	DRAWN BY D. P.	DATE 8-17-70
		DWG. NO. M-1019

MATERIAL SAFETY DATA SHEET

(Essentially similar to Form OSHA-20) < Complies with 29CFR 1910.1200 >

SECTION I

CODE NUMBER: I0356 DATE: 940203
TRADE NAME: HASCO ALASKA CRYSTAL FM GREASE 2 SUPERCEDES: 931014
CHEMICAL FAMILY: Synthetic
CARCINOGENIC INGREDIENTS/OSHA/NTP/IARC: None C.A.S. NO.: "Mixture"
TSCA INFORMATION: Components of this product are listed

SECTION II — HAZARDOUS INGREDIENTS

COMPONENTS	C.A.S. NOS.:	TLV/PEL		PERCENT BY WEIGHT/VOLUME
		PPM	mg/m ³	
Non-Hazardous				

SECTION III — FIRE AND EXPLOSION HAZARD DATA

HAZARDOUS THERMAL DECOMPOSITION: Carbon Monoxide and Asphyxiants
FLAMMABLE LIMITS: LEL — UEL
N/D
ASTM D92 (COC)
EXTINGUISHING MEDIA: Dry Chemical and Carbon Dioxide.
Foam and water fog effective, but may cause frothing.
FLASH POINT: <232°C 450°F
DOT INFORMATION: Grease, N.O.S.

UNUSUAL FIRE AND EXPLOSION HAZARDS:
Slightly combustible, when heated above flash point will release flammable vapors which can burn in open or be explosive in confined spaces if exposed to source of ignition.

SPECIAL FIRE FIGHTING PROCEDURES:
Do not enter enclosed or confined area without proper protective equipment and self contained breathing apparatus. Do not use water, as oil and flames will float to adjacent areas.

SECTION IV — PHYSICAL DATA

BOILING RANGE: >325°C SOLUBILITY: INSOL PH: N/D
VOC, 1 HR @ 110 DEG C (02369), Non-Exempt = NIL
VAPOR PRESSURE: <0.01mm Hg @ 20°C APPEARANCE AND ODOR: Clear Water White Grease, Odorless

VAPOR DENSITY	EVAPORATION RATE	SPECIFIC GRAVITY	WEIGHT PER GALLON	% VOLATILE BY VOLUME
Heavier THAN AIR	Less THAN ETHER	N/D	N/D	NIL

SECTION V — REACTIVITY DATA

INCOMPATIBILITY < MATERIALS TO AVOID >:
Strong Oxidizing Agents

STABILITY: Stable CONDITIONS TO AVOID: Do not heat above flash point

HAZARDOUS DECOMPOSITION PRODUCTS:
Carbon Monoxide and Asphyxiants

HAZARDOUS POLYMERIZATION: None OCCUPATIONAL EXPOSURE LIMIT:
TLV = 5mg/m³ as Oil Mist

EMERGENCY 24 HOURS:
CHEMTREC: 800/424-9300

SECTION VI — HEALTH HAZARD DATA

ADVERSE EFFECTS:		FIRST AID PROCEDURES:	NFPA
I N G	Ingestion will produce a laxative effect and may be irritating to digestive tract.	Do not induce vomiting. Physician need not be notified if symptoms decrease within 24 hours.	
I N H	No adverse effect expected. Excessive aspiration into lungs may cause lipoid pneumonia.	Remove from mist filled area to fresh air. Unless large amounts have been inhaled, doctor's care probably not required.	
E Y E C O N	No irritation is expected upon short term exposure except in very sensitive individuals.	Have eye wash station available. Safety glasses recommended as insurance against splashing in eyes.	
A S C O N T A I N E R	No significant signs or symptoms indicative of any adverse health effects are expected to occur.	Practice good personal hygiene before eating, drinking or smoking. Use mild soap and water to wash. Change oil soaked clothing.	
C S C H R I N I C	No significant signs or symptoms indicative of any adverse health effects are expected to occur.	Practice good personal hygiene before eating, drinking or smoking. Use mild soap and water to wash. Change oil soaked clothing.	

ROUTE OF EXPOSURE

< DOT > SECTION VII — SPILL OR LEAK PROCEDURES < EPA >

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:

Stop flow. Wipe or mop up or absorb with diatomaceous earth or other inert material. Store in appropriate container for disposal.

WASTE DISPOSAL METHOD:

In accordance with local, state and federal regulations.

TRANSPORTATION INFORMATION:

Not a DOT "Hazardous Material!" Not regulated by DOT.

SECTION VIII — SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION:

None normally required unless enclosed area exceeds DEL (See Sect. V).

PROTECTIVE GLOVES:

Recommended

EYE PROTECTION:

Recommended

OTHER PROTECTIVE EQUIPMENT:

Oil resistant boots and aprons recommended.

VENTILATION:

Sufficient to maintain atmosphere below TLV limit.

SECTION IX — SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN WHEN HANDLING OR STORING:

Avoid storing near flame or other sources of ignition. Excessive misting may cause slippery floors.

PERSONAL HYGIENE:

Good personal hygiene required.

OTHER PRECAUTIONS:

Wash or take shower if general contact occurs. Remove oil-soaked clothing and launder before reuse. Discard contaminated leather gloves and shoes.

APPROVED BY: Richard J. Eberhardt, Laboratory Manager

DATE: 940301

ALASKA
Alaska Lubricants Company

HASCO ALASKA CRYSTAL FM GREASE 2

Manufactured by ALASKA LUBRICANTS CO

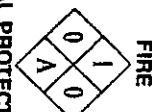
CODE NUMBER

10356

PERSONAL PROTECTION (NFPA)

HEALTH

REACTIVITY



SECTION 4 - REACTIVITY HAZARD DATA

STABILITY

- Stable
 Unstable

Conditions
To Avoid

N/A

Incompatibility
(Materials to Avoid)

Avoid contact with strong oxidants like liquid chlorine, concentrated oxygen.

Hazardous
Decomposition ProductsMay form SO₂ if incomplete combustion, carbon monoxide.**HAZARDOUS POLYMERIZATION**

- May Occur
 Will Not Occur

Conditions
To Avoid

N/A

SECTION 5 - HEALTH HAZARD DATA

**PRIMARY ROUTES
OF ENTRY**

- Inhalation Ingestion
 Skin Absorption Not Hazardous

**CARCINOGEN
LISTED IN**

- NTP OSHA
 IARC Monograph Not Listed

HEALTH HAZARDS

Acute

This product has a low order of acute oral toxicity.

Chronic

N/A

Signs and Symptoms
of Exposure

Human health risks vary from person to person. As a precaution, exposure to liquids, vapors, mists and fumes should be minimized.

Medical Conditions
Generally Aggravated by Exposure

Prolonged or repeated skin contact may cause skin irritation. Product contacting the eyes may cause eye irritation.

EMERGENCY FIRST AID PROCEDURES - Seek medical assistance for further treatment, observation and support if necessary.

Eye Contact

Flush with clear water for 15 minutes or until irritation subsides.

If irritation persists, consult a physician.

Skin Contact

Remove any contaminated clothing and wash thoroughly with soap and warm water. If injected under skin, regardless of appearance or size, contact physician immediately. Delay may cause loss of affected part of the body.

Inhalation

Vapor pressure is very low and inhalation at room temperature is not a problem, if overcome by vapor from hot product, immediately remove from exposure and call physician. If over-exposed to oil mist, remove from further exposure until excessive oil mist condition subsides.

Ingestion

If ingested, call a physician immediately.

SECTION 6 - CONTROL AND PROTECTIVE MEASURES

Respiratory Protection
(Specify Type)

Normally not needed.

Protective Gloves

Use oil-resistant gloves, if needed.

Eye Protection

If chance of eye contact wear goggles.

**VENTILATION
TO BE USED** Local Exhaust Mechanical (general) Special Other (specify)Other Protective
Clothing and Equipment

Use oil-resistant apron, if needed.

Hygienic Work
Practices

N/A

SECTION 7 - PRECAUTIONS FOR SAFE HANDLING AND USE / LEAK PROCEDURES

Steps to be Taken if Material
is Spilled or Released

Scrape up grease, wash remainder with suitable petroleum solvent or add absorbent. Keep petroleum products out of sewer and waste courses. Advise authorities if product has entered or may enter sewer and water courses.

Waste Disposal
Methods

Assure conformity with applicable disposal regulations.

Dispose of absorbed material at an approved waste disposal facility or site.

Precautions to be Taken
in Handling and Storage

Keep containers closed when not in use.

Do not handle or store near heat, sparks, flame, or strong oxidants.

Other Precautions and/or Special Hazards

Avoid breathing oil mist. Remove oil-soaked clothing and laundry before reuse.

Cleanse skin thoroughly after contact.

NFPA
Rating*

Health___ Flammability___ Reactivity___ Special___

HMIS
Rating*

Health___ Flammability___ Reactivity___ Personal Protection___

*Optional

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Reorder No. 2217-2

— NOTES —