

Model RS

Light-Duty Swing Gate Operator

Safety, Installation, and

Service Manual



OSCO requires use of an electric edge or photoelectric control for pedestrian protection on all automatic or remotely controlled gate operators.

OSCO[®]

OPERATOR SPECIALTY CO., INC.
P.O. BOX 128, CASNOVIA, MI 49318

Safety Information and Warnings

Read the following before beginning to install the Model RS operator:

1. Read the orange "SAFETY INSTRUCTIONS" brochure enclosed with the packet of information. It's extremely important that the safety warnings and precautions be understood and followed by the installing contractor. Leave all instructions with the end user.
2. Do not attempt to operate the machine unless it is completely installed as instructed.
3. The installation must be made in a neat and professional manner, observing all rules of good workmanship and personal safety.
4. All electrical connections to the power supply must be made by a qualified and licensed electrician. All local and national codes must be observed.
5. A power-disconnect switch should be located near the operator so that primary power can be turned off when necessary.
6. Do not remove the operator cover unless you are qualified to service this equipment and the power is turned off. There are no user-serviceable parts inside.
7. Install the enclosed warning signs on both sides of the gate.
8. Operate the gate only when it is in full view.
9. Do not permit children to play on or around the gate.
10. Never reach between, through, or around the fence to operate the gate.
11. Install all recommended safety equipment.

General Description

OSCO's Model RS operator is designed for use on single or double residential gates. Crank-driven and available with master/slave control for a pair of gates, the RS is offered in single-button or radio-controlled, 1/2 HP, 115V or 220V.

If the gate is closed, a single push on the control will open the gate to the fully open position. If the gate is open, a single push on the control will fully close the gate. The operator, if properly adjusted and maintained, is designed to reverse on contact while closing and return the gate to the fully open position. During closing, any signal received will reverse the gate to fully open. If the gate is obstructed while closing, the gate will reverse to fully open and stop until another close signal is received.

Manual Operation

In the event of power loss or mechanical failure, the Model RS can be disconnected by removing the quick-disconnect pin (or padlock) located on the crank arm assembly, then pushing the pin down through the crank extension. This will allow the gate to be pulled open. (See Dwg #2700-074 on Page 6 and illustration on Page 7.)

CAUTION

OSCO STRONGLY RECOMMENDS USE OF AN ELECTRIC EDGE OR PHOTOELECTRIC CONTROL FOR PEDESTRIAN PROTECTION ON ALL AUTOMATIC OR REMOTELY CONTROLLED GATE OPERATORS.

Children should never be allowed to play on, near, or around a motorized gate. Any control devices should be placed so as to be inaccessible to small children.

The gate should never be operated unless it is in visual sight of the user.

Warning signs must be installed on or near the gate.

A pushbutton or keyswitch should not be installed within reach of the gate or operator.

LIMITED ONE-YEAR WARRANTY

This electric operator is warranted for a period of one (1) full year from date of installation against defects in materials or workmanship. Any part, parts, or complete unit which fails because of such defects within this period shall, at the manufacturer's option, be repaired or replaced at no charge. The manufacturers will not be responsible for transportation and/or field service charges.

This warranty is in lieu of all other warranties, expressed or implied, and shall be considered void if visible evidence implies recommended installation procedures and maintenance instructions were not followed.

Unpacking and Inspection

Before unpacking, inspect the carton for exterior damage. If you find damage, advise the delivery carrier of a potential claim.

If any of the following parts are missing from the carton, immediately notify your supplier. Claims for shortages will be honored for only 30 days from the date of shipment:

- | | | |
|--|--------------------------------|---------------------------------------|
| (1) RS Operator | (1) Hardware Bag Containing: | |
| (1) Arm Carton (2 pieces) | (1) 1/2"-13 x 1 3/4" HHCS | (1) 3/4" x 1/2" x 3/4" Spacer |
| (1) Hardware Box Containing: | (1) 1/2"-13 x 1 1/4" HHCS | (1) Pull Pin or optional Padlock |
| (2) Pad Mounting Angles | (2) 3/4" x 1/2" x 9/16" Spacer | (1) Disconnect Pin |
| (2) Gate Arm Clamp | (6) 1/2" Flat Washers | (4) 3/8" x 3/4" HHCS |
| (1) Gate Plate | (1) 1/2"-13 Nylon Lock Nuts | (3) 3/4" ID Nylon Washer |
| (4) 4" U-Bolts | (8) 3/8" Hex Nuts | (1) 1/2"-13 x 2 3/4" HHCS |
| (8) 3/16" Side Plates | (8) 3/8" Lock Washers | (2) 5/16"-18 x 3/4" Sq. Hd. Set Bolts |
| (1) Overtravel Stop | (8) 3/8" Flat Washers | (2) 1/2" Lock Washers |
| (1) 1 1/4" OD x 1/2" ID x 1.06" LTB Spacer | | |

Pre-Installation Information

Before installing the Model RS, read this manual completely to ensure all requirements for proper installation are present.

The RS operator is primarily available in 115V 1 Phase, but it is also available in 230V 1 Phase. Verify that the voltage to be used matches the voltage of the operator.

IMPORTANT: Before installing the gate operator to the gate, make sure the gate's swing is free and level throughout the entire swing path. If the gate does not seem to operate properly, it may affect the operator performance or greatly shorten the life of the unit. The gate should be so designed that airflow through the fabric is ample to prevent wind resistance and drag.

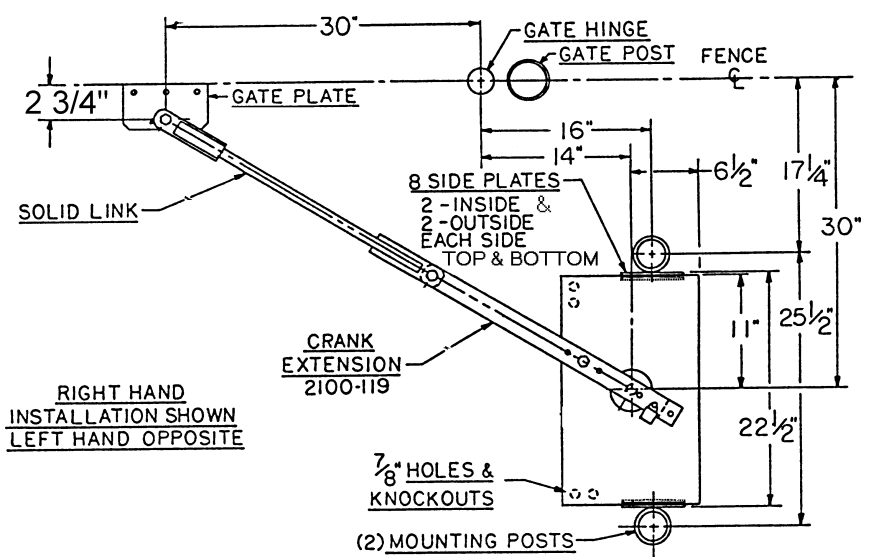
Mounting Instructions

Post Mounting

Step 1: Locate and secure two galvanized posts, 3" outer diameter, length to be determined by local codes, frostline depth, and soil conditions. See the dimensions on the drawing at right for proper post alignment.

Step 2: After the concrete has set, attach the operator to the posts with the U bolts and hardware provided. The operator should be positioned at a level to allow the arm to be installed at midheight on the gate. Ensure that the posts don't protrude above the operator cabinet.

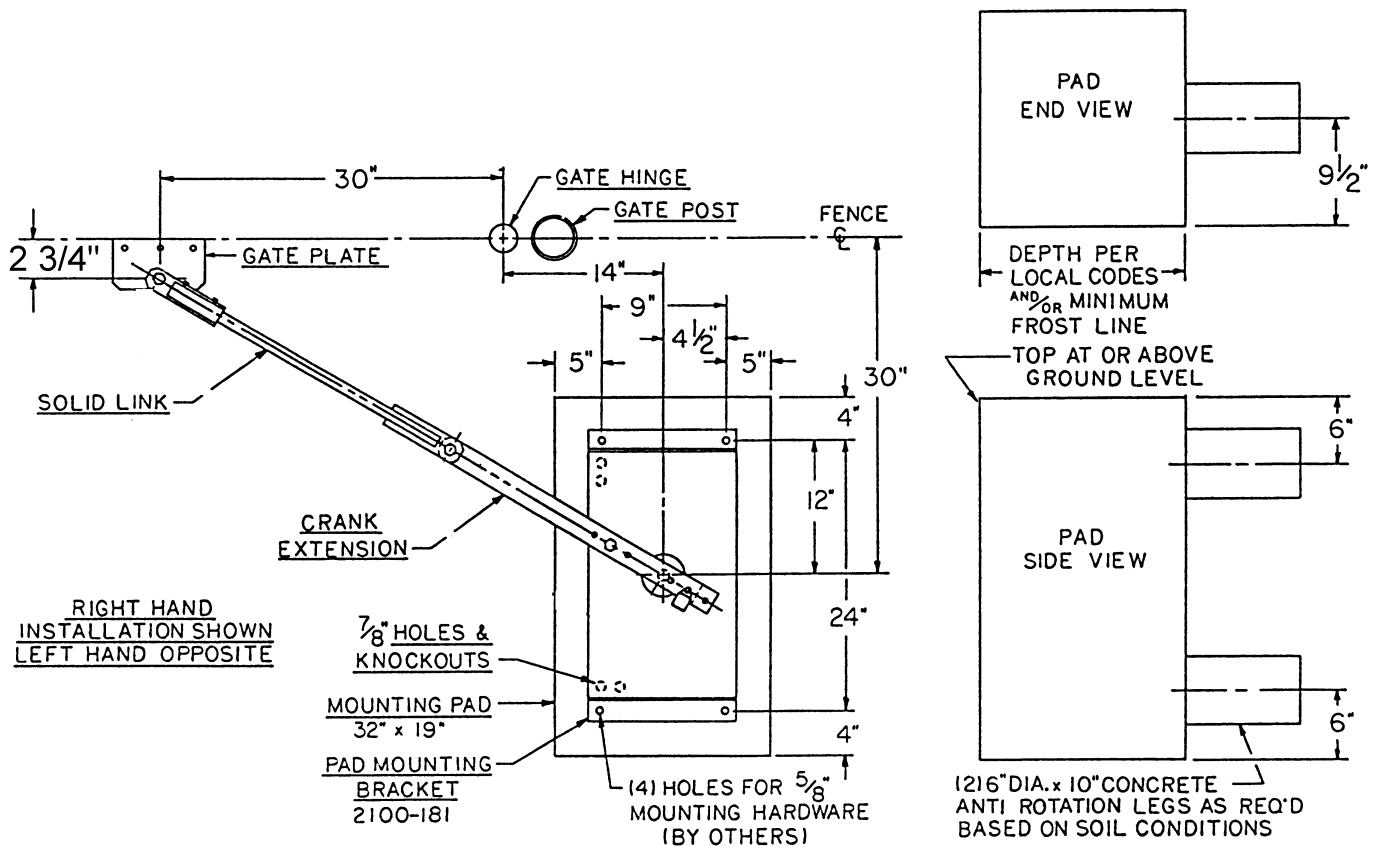
Step 3: Assemble the crank and linkage components as shown later in this manual.



Pad Mounting

NOTE: If an obstruction exists to prevent the following mounting, refer to “**String Method for Nonstandard Installation of Swing Gate Operators**” on Page 5.

- Step 1: The recommended pad size is 32" X 19" to a depth dependent on local codes or frostline. The minimum recommended depth is 18". While 5/8" J bolts may be set in the concrete before it sets, it's more common to drill and set bolts after the pad cures. (See the pad installation layout below.)
- Step 2: Attach the pad-mounting angle brackets to the operator base with (4) 3/8" bolts and nuts. Place the operator on the pad at the proper dimensions as shown. Using 5/8" hardware, securely bolt down the operator at all four mounting holes.
- Step 3: Attach the gate mounting bracket on the gate where indicated, ensuring the height is in proper alignment with the height of the arm.



Electrical Installation and Connection

See “**Wiring Specifications**” on Page 12 as well as the wiring diagram (supplied with each machine). Connect power to the operator at the labeled leads from the power ON/OFF switch

Connection of the optional reversing gate edge is made to terminals #6 and #2.

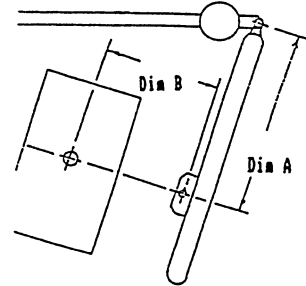
If yours is a master/slave installation, power for the slave will come from connections between terminals #LL1, 22, and 23 on the terminal strip in the master operator to terminals #LL1, 20, and 21 in the slave operator.

In addition to the power wires between the master and slave operators, there will be two low-voltage wires from terminals #6 and #2 in the master to terminals #6 and #2 in the slave. Also, the red coil wire in the slave operator must be disconnected.

String Method for Nonstandard Installation of Swing Gate Operators

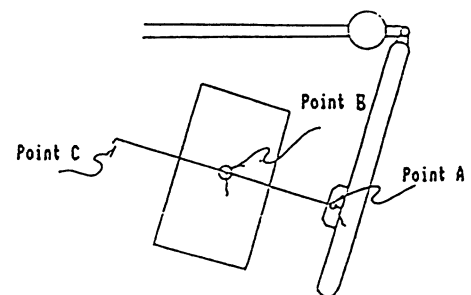
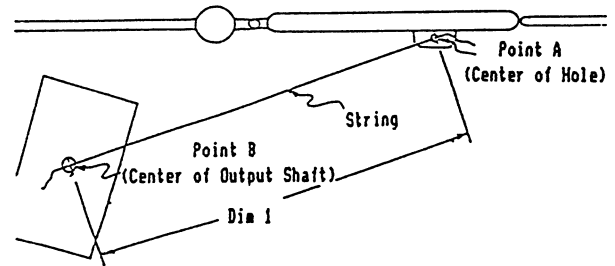
Step A: Position the Operator

1. Connect the gate plate assembly onto the gate at the manufacturer's recommended location for a standard installation (Dimension A).
2. Open the gate to its fully open position.
3. Position the operator parallel to the gate. The distance of the operator output shaft to the gate hinge should be Dimension A. Dimension B should be the manufacturer's recommended location for a standard installation.



Step B: Measure for the Crank Extension and Link Assembly

1. Close the gate.
2. Using a piece of tape, attach a string to the top of the operator's output shaft. Holding the string taut and using another piece of tape, hold the other end of the string across the hole in the gate plate.
3. Measure the distance between Point A and Point B (Dimension 1).
4. Open the gate.
5. Pick up the string, pulling it taut to remove all slack so that it goes from Point A and **directly over** Point B to Point C.
6. Measure the distance between Points B and C. This dimension will be the total length from center point to center point of the crank extension.
7. Measure the distance between Points A and C. This dimension will be the total length from center point to center point of the link assembly.
8. When added together (and if done correctly) the total center-point-to-center-point dimensions will equal Dimension 1 of Step B.3., above.



NOTE: These are center-point-to-center-point dimensions. You must remember to take into consideration connecting devices for these arms.

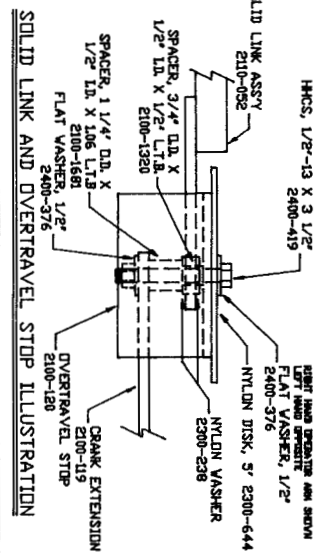
It is possible both open and close limit switches may be activated at either end of gate travel due to the total gate travel required, the shape of the limit cam, and the shape of the limit switches. This problem is corrected simply by bending the open or close limit switch arms slightly, which will, in turn, enable the repositioning of that limit cam, eliminating the problem.

GATE SIZE	A	B	C	D	L ₁	CLT	CR
UP TO 17'	30	30	16	19	29.50	42"	21.87

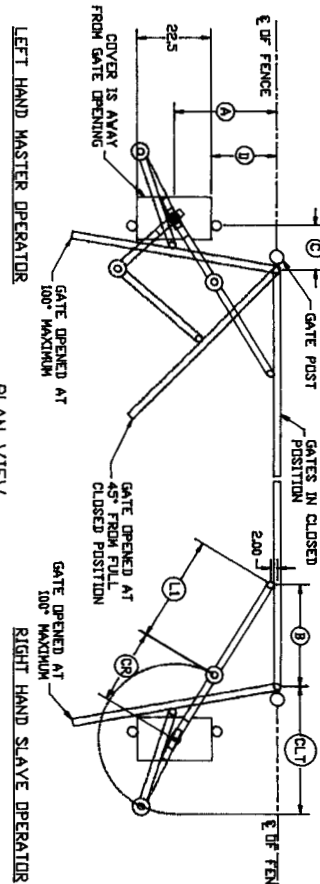
INSTALLATION DIMENSIONS

- A. POWER SUPPLY MUST BE OF CORRECT VOLTAGE AND PHASE.
 - B. DISCONNECT POWER FROM OPERATOR BEFORE SERVICING.
 - C. KEEP CLEAR OF GATE DURING OPERATION.
- IMPORTANT NOTES**

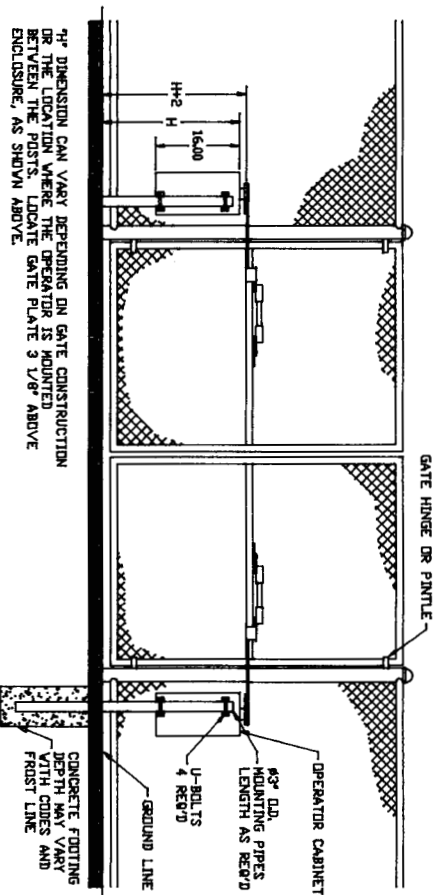
IMPORTANT NOTES



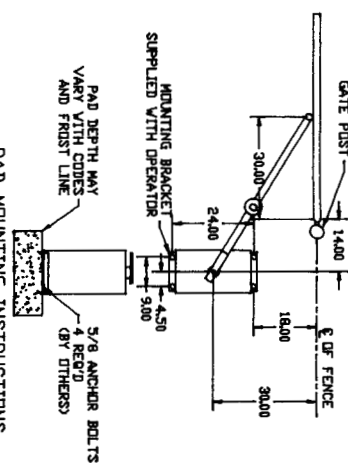
SOLID LINK AND OVERTRAVEL STOP ILLUSTRATION



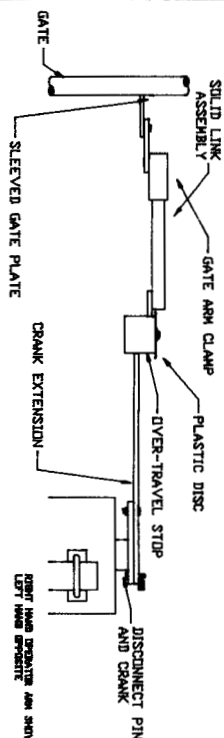
PLAN VIEW



ELEVATION VIEW

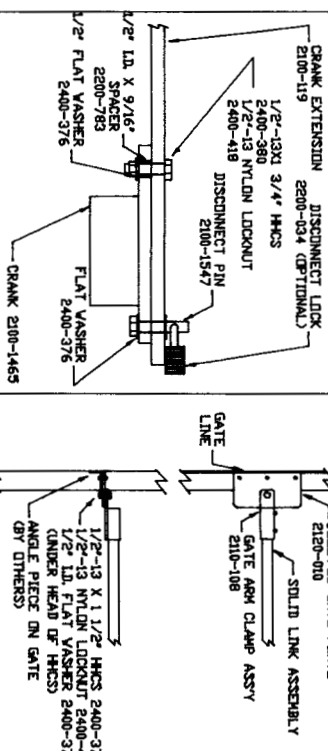


PAD MOUNTING INSTRUCTIONS



GATE ARM ASS'Y ILLUSTRATION

RIGHT HAND DEPARTER ARM SHOWN
LEFT HAND OPPOSITE
SEE ARM ASSY 2120-08
FOR DETAIL



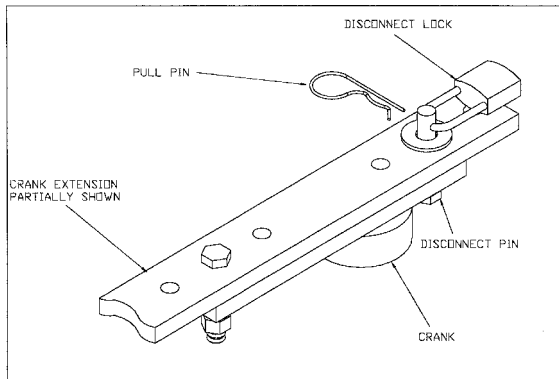
CRANK ASS'Y ILLUSTRATION

GATE PLATE ASS'Y ILLUSTRATION



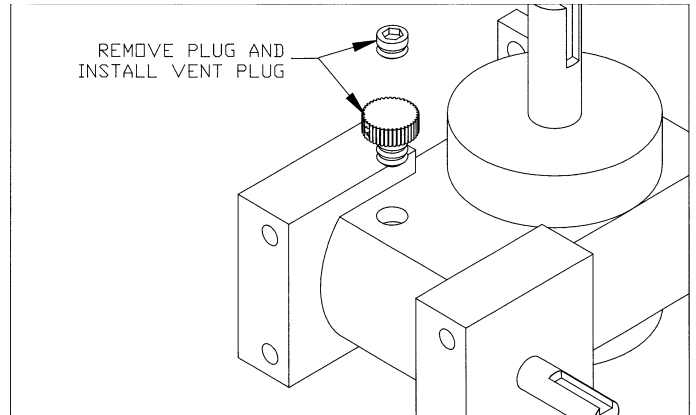
Manual Disconnect

In the event of power loss or mechanical failure, the Model RS can be disconnected by removing the quick-disconnect pull pin (or optional padlock) located on the crank arm assembly, then pushing the disconnect pin down through the crank extension. This will allow the gate to be pulled open. See the illustration below.



Vent Plug Installation

Before running the operator the vent plug should be installed. Carefully remove the factory installed plug as shown below and replace with the vent plug provided. This vent plug is necessary to relieve pressure build up as the unit operates. Failure to install the vent plug may result in damage to the gear reducer seals. Please refer to the illustration below.



Adjustments

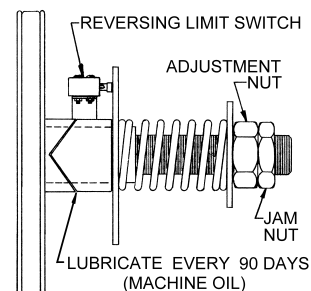
Reversing Cam Assembly

This operator is designed to reverse on contact while closing and return the gate to the fully open position. **This feature will function only if the operator is properly adjusted!**

CAUTION: Always disconnect power when making adjustments. When checking gate operation, note that the gate linkage will be moving.

To adjust, loosen the two large nuts on the cam assembly shaft (see at right) until only minor tension remains on the spring. Close the gate. If the gate closes completely, loosen the nuts further. Re-attempt to close the gate. If it starts to close but reverses on its own, the cam is now too loose. Tighten the nuts 3/4 turn and retest until the gate closes without reversing. The cam assembly is now properly adjusted. To confirm proper adjustment, while the gate is closing, grasp the leading edge while standing out of the path of the gate swing. The gate should reverse without major force being exerted.

IMPORTANT: The reversing cam assembly should be tested at regular intervals and readjusted as needed. Monthly testing should be adequate.



SENSITIVITY IS SET AT THE FACTORY.

Loosen the jam nut.

For more sensitivity slippage, loosen the adjustment nut.

For less sensitivity slippage, tighten the adjustment nut.

Retighten the jam nut.

Limit Switches

Limit switches are not preset at the factory and will require field adjustment to suit individual gate travel.

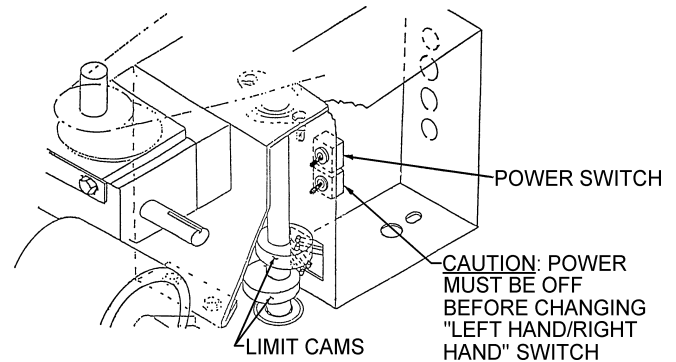
CAUTION: Always disconnect the power when making adjustments. When checking gate operation, note that the gate linkage will be moving.

Close Limit Switches:

1. Close the gate completely.
2. Locate the lower cam and loosen the set screw.
3. Rotate the cam until the switches have been contacted.
4. Securely tighten the set screw.

Open Limit Switches:

1. Open the gate completely.
2. Locate the upper cam and loosen the set screw.
3. Rotate the cam until the switches have been contacted.
4. Securely tighten the set screw. Readjust for fully open.



General Maintenance

NOTE: If service is ever required, we recommend that a competent installer be used to service your unit. A yearly maintenance contract is usually available from most installation companies.

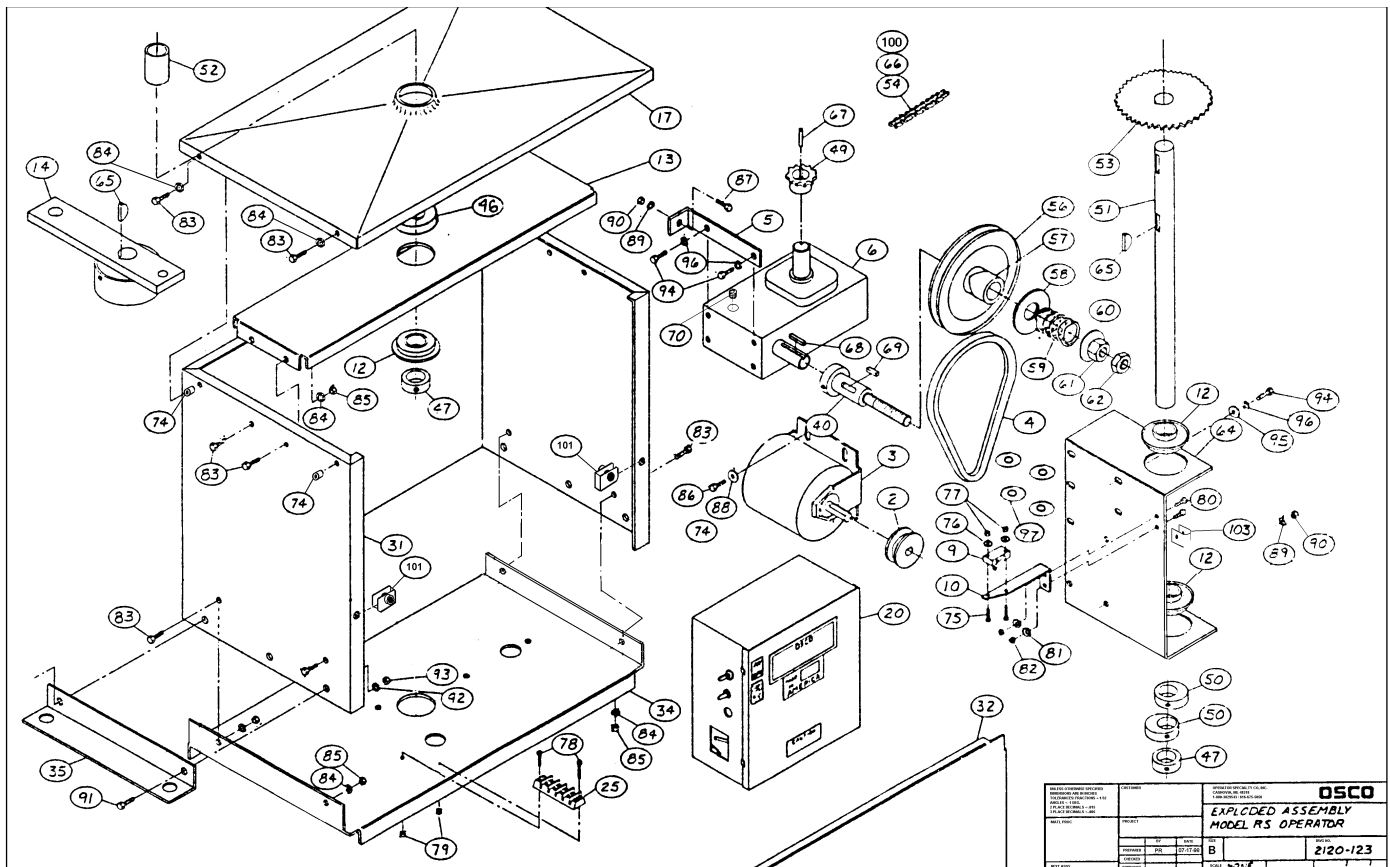
The Model RS is an excellent product and—when installed properly and not abused—should offer many years of trouble-free service. Periodic semiannual inspection is suggested as follows:

- | | |
|---------------------------------------|--|
| 1. Disconnect the power. | 7. Reconnect the power. |
| 2. Check the belt for excessive wear. | 8. Test the reverse-while-closing feature |
| 3. Check the chain alignment. | (see “ Reversing Cam Assembly ” on page 7). |
| 4. Check the gear reducer oil level. | 9. Disconnect the power. |
| 5. Check bolts for tightness. | 10. Adjust the reverse mechanism if necessary. |
| 6. Check set screws in sprockets. | 11. Reconnect the power. |

Ordering Replacement Parts

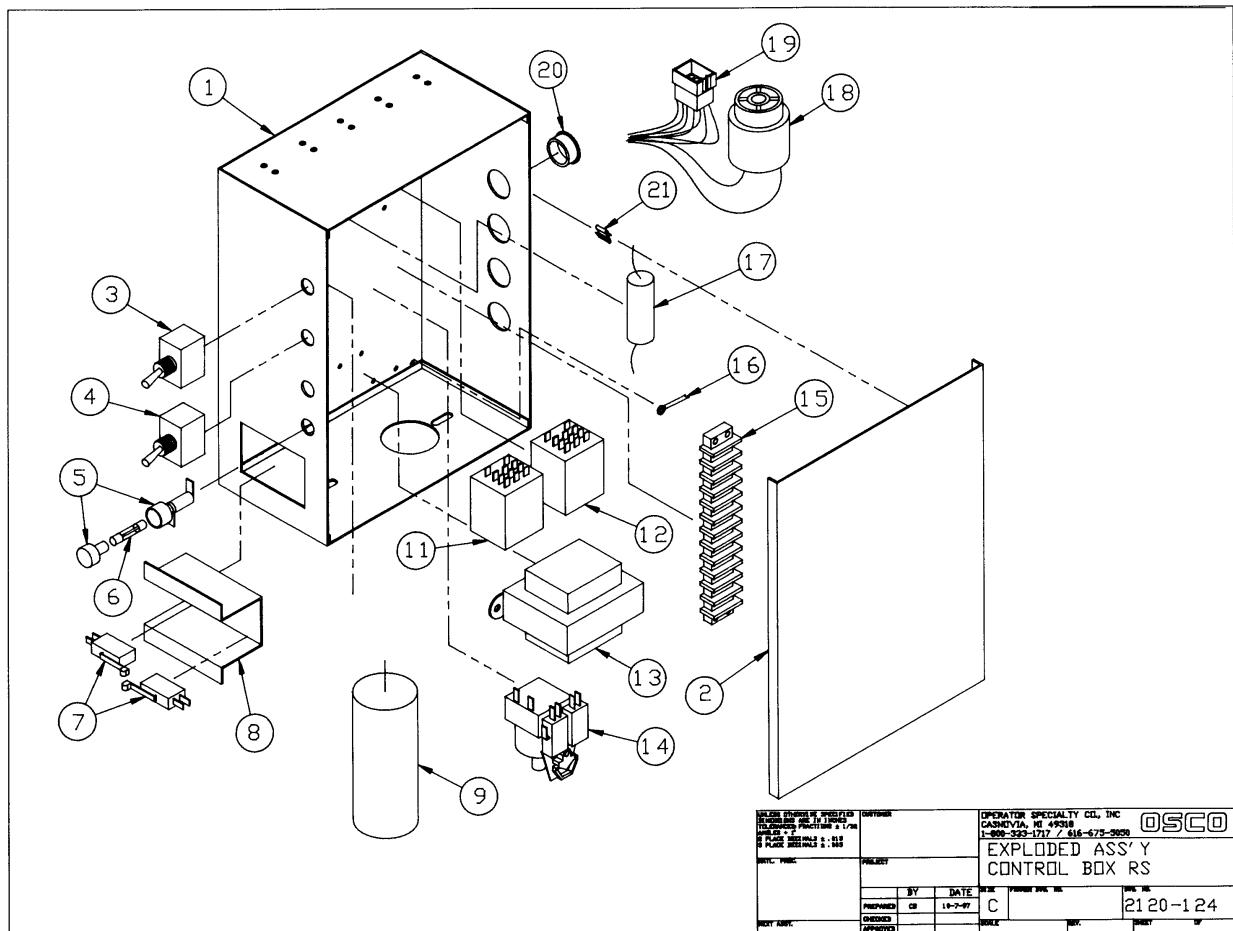
Use the numbers shown in the lists on the following pages to order all replacement parts.

1. Supply the serial number of your operator.
2. Specify the quantity of pieces needed.
3. Order by part number and name of part.
4. State whether to ship by freight, truck, parcel post, UPS, or air express.
5. State whether transportation charges are to be prepaid or collect.
6. Specify name and address of person or company to whom parts are to be shipped.
7. Specify name and address of person or company to whom the invoice is to be sent.



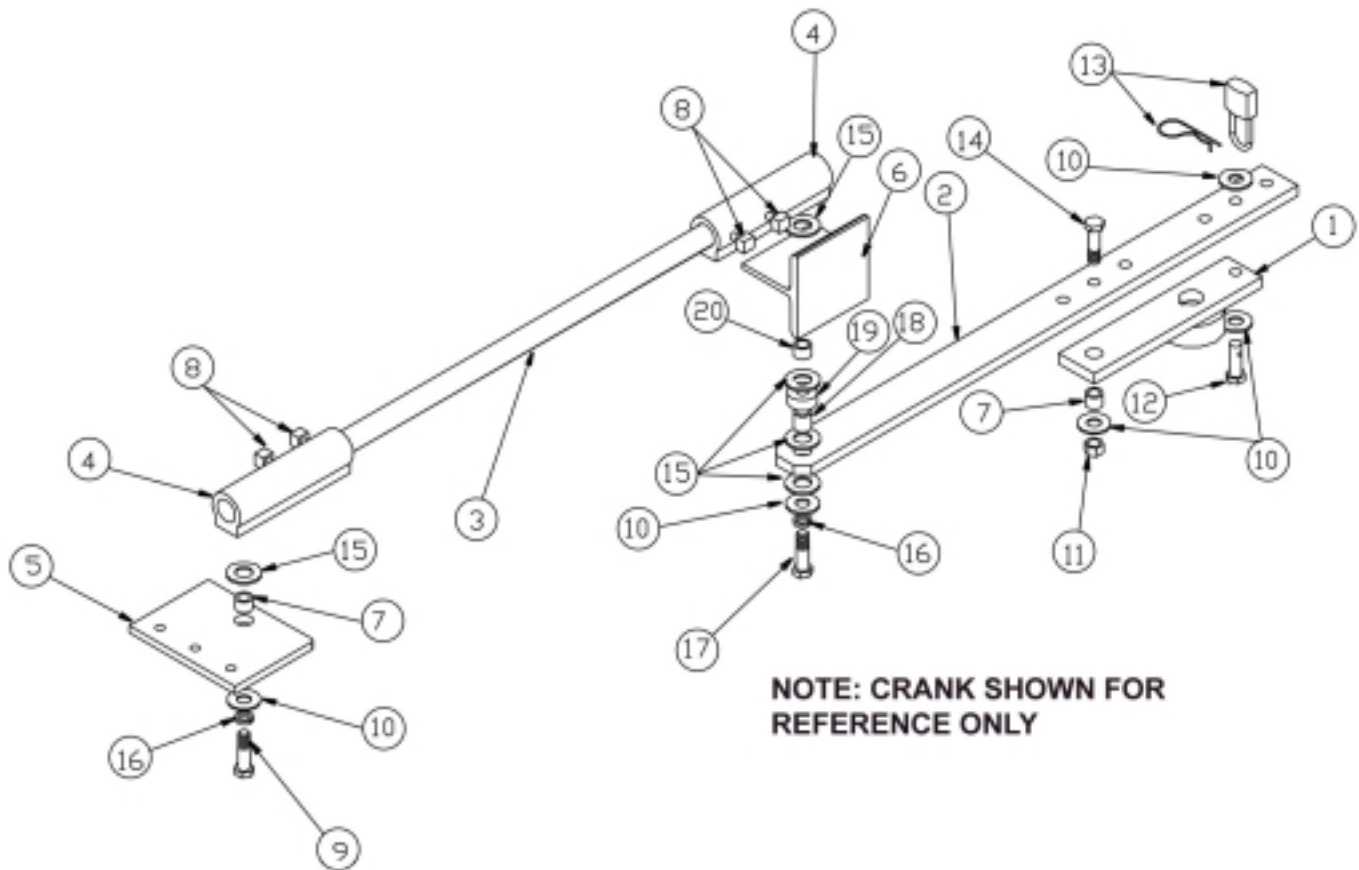
Model RS
Parts List #104 (Mechanical)
OSCO Drawing #2120-123

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
2	2200-132	Motor Pulley, 2"	47	2200-015	Shaft Collar, 1" x 9/16"
3	2510-188	Motor Assembly, 115V, 1 Phase	49	2200-050	Sprocket, 41 B 12, 3/4" Bore
	2510-185	Motor Assembly, 230V, 1 Phase	50	2100-1748	Limit Cam
4	2200-052	V-Belt, 24"	51	2100-530	Main Shaft, 1" x 18"
5	2100-1632-BT	Support Bracket	52	2100-519	Output Spacer
6	2200-819	Gear Reducer, 60:1	53	2200-057	Sprocket, 41 B 30, 1" Bore
			54	2200-825	#41 Roller Chain, 19 Links
9	2500-110	Limit Switch		2110-628	Clutch Assembly
10	2100-1633	Bracket for Reversing Switch	40	2110-010	Shaft and Collar Assembly
12	2200-001	Radial Flange Bearing, 1"	56	2100-114	Pulley, 6" with Cam Hub
13	2110-604	Upper Brg Channel with Bearing	57	2100-083	Cam
14	2100-1465-BT	Crank		2400-347	Key, 1/4" x 1/4" x 5/8"
17	2100-1767-BT	Top Cover	58	2400-067	Flat Washer
20		Electrical Enclosure (refer to Electrical Parts List on pg. 10)	59	2300-014	Spring
25	2500-087	Terminal Strip, 4-141	60	2400-066	Flat Washer
31	2100-096-BT	Enclosure Wrap	61	2400-061	Hex Nut, 5/8"-18
32	2100-094-BT	Front Cover	62	2400-062	Jam Nut, 5/8"-18
34	2100-1721	Main Frame			
35	2100-181-BT	Pad-Mounting Angle	64	2110-680	Motor/Reducer Bracket with bearings
46	2200-016	Moisture Seal	65	2100-529	Woodruff Key
			66	2200-027	#41 Master Link
			100	2400-128	#41 Half Link
			101	2400-343	U-Nut, 1/4" - 20
			103	2300-199	Wire Restraint



Model RS
Parts List #104 (Electrical)
OSCO Drawing #2120-124

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
	2520-182	Controller, 115V, 1Phase (WD #2600-165)	15	2500-725	Terminal Strip, 12-141
1	2110-323	Enclosure without Cover	16	2510-121	Ground Wire Assembly
2	2100-1056	Enclosure Cover only	17	2520-136	Delay Reverse Module
3	2500-034	Power Switch	18	2500-779	Alarm, 120V
4	2500-127	Right/Left Hand Switch	19	2500-365	Plug
5	2500-1819	Fuse Holder	20	2200-122	Bushing
6	2500-1666	Fuse, 1 1/2 Amp	21	2400-001	S-Clip
7	2500-110	Limit Switch		2520-226	Controller, 230V, 1 Phase (WD #2600-166)
8	2100-092	Limit Switch Bracket	9	2500-552	Capacitor, 370V
9	2500-113	Capacitor, 330V	12	2500-543	Relay, 3PDT, 230V
10	2100-113	Capacitor Clamp	13	2500-791	Transformer, 230/24V, 40VA
11	2500-849	Relay, 24VDC	18	2500-780	Alarm, 230V
12	2500-542	Relay, 3PDT, 120V			
13	2500-212	Transformer, 115/24V, 40VA			
14	2500-417	Ratchet Relay			



MODEL RS GATE ARM ASSEMBLY PARTS LIST

<u>REF#</u>	<u>PART#</u>	<u>DESCRIPTION</u>
	2120-448-BT	Complete Arm Assembly
1	2100-1465-BT	Crank
2	2100-1722-BT	Crank Extension
3	2100-302-BT	Solid Link
4	2100-1598	Gate Arm Clamp
5	2100-1733-BT	Gate Plate
6	2100-1924-BT	Overtravel Stop
7	2200-783	Spacer, 23/32" OD x 1/2" ID x 9/16" LTB
8	2400-378	Set Bolt, 5/16"-18 x 3/4"
9	2400-434	HHCS, 1/2"-13 x 1 1/4"
10	2400-376	Flat Washer, 1/2"
11	2400-418	Nylon Lock Nut, 1/2"-13
12	2100-1547	Disconnect Pin
13	2400-351	Pull Pin
	2200-034	Disconnect Lock (optional)
14	2400-380	HHCS, 1/2" - 13 x 1 3/4"
15	2300-238	Nylon Washer
16	2400-433	1/2" Lock Washer
17	2400-482	HHCS, 1/2" - 13 x 2 1/2"
18	2100-1725	Spacer - yellow, 3/4" OD x 1/2" ID x 3/4" LTB
19	2100-1932	Spacer - black, 1 1/4" OD x 1/2" ID, x 1/2" LTB
20	2100-1320	Spacer - zinc-silver, 3/4" OD x 1/2" ID x 1/2" LTB

Wiring Specifications

1. From the top chart below, find the section corresponding to the voltage and horsepower of your operator.
2. The distance shown in the chart is measured in feet from the operator to the power source. **DO NOT EXCEED THE MAXIMUM DISTANCE.**
3. When large-gauge wire is used, a separate junction box (not supplied) may be needed for the operator power connection.
4. Select the gauge for control wiring from the bottom chart. For distances of more than 350 feet, a long-distance interface is required.
5. Wire run calculations are based on the National Electrical Code, Article 430, allowing 5 percent voltage drop.
6. Supply voltage must be within 10 percent of the operator rating under load conditions (not applicable for 208V).
7. Connect power in accordance with local codes. **The green ground wire must be connected properly.**
8. The wire tables are based on standard copper wire. Wire insulation must be suitable to the application.
9. Install control wiring in a separate conduit from the power wiring whenever possible. If this is not possible, shielded control wiring will be necessary.

USE COPPER WIRE ONLY

Power Wiring							
Volts & HP	Max Distance (ft)		Wire Gauge	Volts & HP	Max Distance (ft)		Wire Gauge
	Single Unit	Dual Unit			Single Unit	Dual Unit	
115V 1/2HP	281	141	12	230V 1/2HP	1213	606	12
	448	224	10		1928	964	10
	713	356	8		3066	1533	8
	1133	567	6		4875	2234	6
	1802	901	4		7753	3877	4

Control Wiring		
Volts	Max Distance (ft)	Wire Gauge
24V	250	14
	350	12
For distances of more than 350 feet, a long-distance interface is required.		

Date Prepared: February 02, 1986
Supersedes: January 07, 1995
MSDS Number: 225570

Cette fiche signalétique est aussi disponible en français

1. PRODUCT INFORMATION

Product Identifier: ESSO GEAR OIL GX 80W-90

Application and Use:
Premium quality multigrade extreme pressure gear oil for use in automotive applications including some manual transmissions

Product Description:

A lubricating oil consisting of a mixture of saturated and unsaturated hydrocarbons derived from paraffinic distillate, and additives.

REGULATORY CLASSIFICATION

WHMIS:

Not a controlled product

CEPA: CANADIAN ENVIRONMENTAL PROTECTION ACT

All components of this product are either on the Domestic Substances List (DSL) or are exempt.

TRANSPORTATION OF DANGEROUS GOODS INFORMATION

Shipping Name: Petroleum Lubricating Oil
Class: Not regulated Packing Group: Not regulated
PIN Number: Not regulated Guide Number: 129

Please be aware that other regulations may apply.

TELEPHONE NUMBERS

Emergency 24 hr. (519) 339-2145
Technical Info. (800) 268-3123

MANUFACTURER/SUPPLIER:

IMPERIAL OIL
Products Division
111 St. Clair Avenue West
Toronto, Ontario
M5W 1K3
(416) 968-4111

2. REGULATED COMPONENTS

The following components are defined in accordance with sub-paragraph 13(a) (i) to (iv) or paragraph 14(a) of the Hazardous Products Act:

NAME	%	CAS #
------	---	-------

Not applicable

3. TYPICAL PHYSICAL & CHEMICAL PROPERTIES

Physical State: Liquid
Specific gravity: not available
Viscosity: 15.50 cSt at 100 deg C
Vapour Density: not available
Boiling Point: 229 to 600 deg C
Evaporation rate: < 0.1 (1 = n-butylacetate)
Solubility in water: negligible
Freezing/Pour Point: -27 deg C D97
Odour Threshold: not available
Vapour Pressure: < 0.1 kPa at 20 deg C
Density: 0.89 g/cc at 15 deg C
Appearance/odour: Dark brown liquid, petroleum hydrocarbon odour.

4. HEALTH HAZARD INFORMATION

NATURE OF HAZARD

INHALATION:

Negligible hazard at normal temperatures (up to 38 deg C).
Elevated temperatures or mechanical action may form vapours, mists or fumes which may be irritating to the eyes, nose, throat and lungs.
Avoid breathing vapours or mists.

EYE CONTACT:

Slightly irritating, but will not injure eye tissue.

SKIN CONTACT:

Low toxicity.
Frequent or prolonged contact may irritate the skin.

INGESTION:

Low toxicity.

ACUTE TOXICITY DATA:

Based on animal testing data from similar materials and products, the acute toxicity of this product is expected to be:

Oral : LD50 > 5000 mg/kg (Rat)
Dermal : LD50 > 3160 mg/kg (Rabbit)
Inhalation : LC50 > 5000 mg/m3 (Rat)

OCCUPATIONAL EXPOSURE LIMIT:

ACGIH recommends:
For oil mists, 5 mg/m3.

Local regulated limits may vary.

5. FIRST AID MEASURES

INHALATION:

Vapour pressure of this material is low and as such inhalation under normal conditions is usually not a problem. If overexposed to oil mist, remove from further exposure. Administer artificial respiration if breathing has stopped. Keep at rest. Call for prompt medical attention.

EYE CONTACT:

Flush eyes with large amounts of water until irritation subsides. If irritation persists, get medical attention.

SKIN CONTACT:

Flush with large amounts of water. Use soap if available.
Remove severely contaminated clothing (including shoes) and launder before reuse.
If irritation persists, seek medical attention.

INGESTION:

If swallowed, DO NOT induce vomiting. Keep at rest. Get prompt medical attention.

6. PREVENTIVE AND CORRECTIVE MEASURES

PERSONAL PROTECTION:

The selection of personal protective equipment varies, depending upon conditions of use.
In open systems where contact is likely, wear safety goggles, chemical-resistant overalls, and chemically impervious gloves.
Where only incidental contact is likely, wear safety glasses with side shields. No other special precautions are necessary provided skin/eye contact is avoided.

Where concentrations in air may exceed the occupational exposure limits given in Section 4 and where engineering, work practices or other means of exposure reduction are not adequate, approved respirators may be necessary to prevent overexposure by inhalation.

ENGINEERING CONTROLS:

The use of local exhaust ventilation is recommended to control emissions near the source. Laboratory samples should be handled in a fumehood. Provide mechanical ventilation of confined spaces.

HANDLING, STORAGE AND SHIPPING:

Keep containers closed. Handle and open containers with care.
Store in a cool, well ventilated place away from incompatible materials.
Do not handle or store near an open flame, sources of heat, or sources of ignition.
Odorous and toxic fumes may form from the decomposition of this product if stored at temperatures in excess of 45 deg C for extended periods of time or if heat sources in excess of 121 deg C are used.
Empty containers may contain product residue. Do not pressurize, cut, heat, or weld empty containers. Do not reuse empty containers without commercial cleaning or reconditioning.

LAND SPILL:

Eliminate source of ignition. Keep public away. Prevent additional discharge of material, if possible to do so without hazard.
Prevent spills from entering sewers, watercourses or low areas. Contain

Please turn over

IMPERIAL OIL

Products Division

ESSO GEAR OIL GX 80W-90

Date Prepared: June 12, 1997
Supersedes: February 02, 1996
MSDS Number: 08068

Cette fiche signalétique est aussi disponible en français

1. PRODUCT INFORMATION

Product Identifier: ESSO GEAR OIL GX 75W-90
Application and Use: Transmission and gear lubricant.
Product Description: Mixture of paraffinic and naphthenic hydrocarbons (saturated and unsaturated), and additives.

REGULATORY CLASSIFICATION

WHMIS: Not a controlled product
CEPA: CANADIAN ENVIRONMENTAL PROTECTION ACT
All components of this product are either on the Domestic Substances List (DSL) or are exempt.

TDG INFORMATION (RAIL/ROAD):

Shipping Name:	Not regulated	PIN Number:	Not regulated
Class:	Not regulated		
Packing Group:	Not regulated		

Please be aware that other regulations may apply.

TELEPHONE NUMBERS

Emergency 24 hr. 519-339-2145
Technical Info. 800-268-3183

MANUFACTURER/SUPPLIER

IMPERIAL OIL
Products Division
111 St. Clair Ave. West
Toronto, Ontario M5W 1K3
416-968-4111

2. REGULATED COMPONENTS

The following components are defined in accordance with subparagraph 13(a) (I) to (IV) or paragraph 14(a) of the Hazardous Products Act:

NAME	%	CAS #
Not applicable		

3. TYPICAL PHYSICAL & CHEMICAL PROPERTIES

Physical State: Liquid
Specific gravity: not available
Viscosity: 15.80 cSt at 100 deg. C
Vapour Density: not available
Boiling point: 230 to 460 deg. C
Evaporation rate: <0.1 (1=n-butylacetate)
Solubility in water: negligible
Freezing/Pour Point: -42 deg. C ASTM D97
Odour Threshold: not available
Vapour Pressure: <0.1 kPa at 20 deg. C
Density: 0.89 g/cc at 15 deg. C
Appearance/odour: yellow oil; petroleum odour

4. HEALTH HAZARD INFORMATION

NATURE OF HAZARD:

INHALATION: Negligible hazard at normal temperatures (up to 38 deg. C). Elevated temperatures or mechanical action may form vapours, mists or fumes which may be irritating to the eyes, nose, throat and lungs. Avoid breathing vapours or mists.

EYE CONTACT: Slightly irritating, but will not injure eye tissue.

SKIN CONTACT: Low toxicity. Frequent or prolonged contact may irritate the skin.

INGESTION: Low toxicity.

ACUTE TOXICITY DATA: Based on animal testing data from similar materials and products, the acute toxicity of this product is expected to be:

Oral: LD50 > 5000 mg/kg (rat)

Dermal: LD50 > 3160 mg/kg (rabbit)

Inhalation: LC50 > 5000 mg/m3 (rat)

OCCUPATIONAL EXPOSURE LIMIT:

ACGIH recommends: For oil mists, 5 mg/m3. Local regulated limits may vary.

5. FIRST AID MEASURES

INHALATION: Vapour pressure of this material is low and as such inhalation under normal conditions is usually not a problem. If overexposed to oil mist, remove from further exposure. Administer artificial respiration if breathing has stopped. Keep at rest. Call for prompt medical attention.

EYE CONTACT: Flush eyes with large amounts of water until irritation subsides. If irritation persists, get medical attention.

SKIN CONTACT: Flush with large amounts of water. Use soap if available. Remove severely contaminated clothing (including shoes) and launder before reuse. If irritation persists, seek medical attention.

INGESTION: If swallowed, DO NOT induce vomiting. Keep at rest. Get prompt medical attention.

6. PREVENTIVE AND CORRECTIVE MEASURES

PERSONAL PROTECTION: The selection of personal protective equipment varies, depending upon conditions of use. In open systems where contact is likely, wear safety goggles, chemical-resistant overalls, and chemically impervious gloves. Where only incidental contact is likely, wear safety glasses with side shields. No other special precautions are necessary provided skin/eye contact is avoided. Where concentrations in air may exceed the occupational exposure limits given in Section 4 and where engineering, work practices or other means of exposure reduction are not adequate, approved respirators may be necessary to prevent overexposure by inhalation.

ENGINEERING CONTROLS: The use of local exhaust ventilation is recommended to control emissions near the source. Laboratory samples should be handled in a fumehood. Provide mechanical ventilation of confined spaces.

HANDLING, STORAGE AND SHIPPING: Keep containers closed. Handle and open containers with care. Store in a cool, well ventilated place away from incompatible materials. Do not handle or store near an open flame, sources of heat, or sources of ignition. Odorous and toxic fumes may form from the decomposition of this product if stored at temperatures in excess of 45 deg. C for extended periods of time or if heat sources in excess of 121 deg. C are used. Empty containers may contain product residue. Do not pressurize cut, heat, or weld empty containers. Do not reuse empty containers without commercial cleaning or reconditioning.

LAND SPILL: Eliminate source of ignition. Keep public away. Prevent additional discharge of material. If possible to do so without hazard. Prevent spills from entering sewers, watercourses or low areas. Contain spilled liquid with sand or earth. Recover by pumping or by using a suitable absorbent. Consult an expert of disposal or recovered material. Ensure disposal in compliance with government requirements and ensure conformity to local disposal regulations. Notify the appropriate authorities immediately. Take all additional action necessary to prevent and remedy the adverse effects of the spill.

WATER SPILL: Remove from surface by skimming or with suitable absorbents. If allowed by local authorities and environmental agencies, sinking and/or suitable dispersants may be used in unconfined waters. Consult an expert on disposal of recovered material. Ensure disposal in compliance with government requirements and ensure conformity to local disposal regulations. Notify the appropriate authorities immediately. Take all additional action necessary to prevent and remedy the adverse effects of the spill.

7. FIRE AND EXPLOSION HAZARD

Flashpoint and method: 150 deg. C COC ASTM D92

Autoignition: 240 deg. C Flammable Limits: LEL: NA UEL: NA

GENERAL HAZARDS:

Low hazard; liquids may burn upon heating to temperatures at or above the flash point. Decomposes; flammable/toxic gases will form at elevated temperatures (thermal decomposition). Toxic gases will form upon combustion.

FIRE FIGHTING: Use water spray to cool fire exposed surfaces and to protect personnel. Shut off fuel to fire.

Use foam, dry chemical or water spray to extinguish fire. Respiratory and eye protection required for fire fighting personnel. Avoid spraying water directly into storage containers due to danger of boilover. A self-contained breathing apparatus (SCBA) should be used for all indoor fires and any significant outdoor fires. For small outdoor fires, which may easily be extinguished with a portable fire extinguisher, use of an SCBA may not be required.

HAZARDOUS COMBUSTION PRODUCTS: Smoke, carbon monoxide, carbon dioxide and traces of oxides of sulphur. Alkyl mercaptans and sulfides may also be released.

8. REACTIVITY DATA

STABILITY: This product is stable. Hazardous polymerization will not occur.

INCOMPATIBLE MATERIALS AND CONDITIONS TO AVOID: Strong oxidizing agents.

HAZARDOUS DECOMPOSITION: Fumes, smoke, carbon monoxide and sulphur oxides in case of incomplete combustion.

9. NOTES

All components of this product are listed on the U.S. TSCA inventory.

10. PREPARATION

Date Prepared:	June 12, 1997
Prepared by:	Lubricants & Specialties IMPERIAL OIL Products Division 111 St. Clair Avenue West Toronto, Ontario M5W 1K3 800-268-3183

CAUTION: "The information contained herein relates only to this product or material and may not be valid when used in combination with any other product or material or in any process. If the product is not to be used for a purpose or under conditions which are normal or reasonably foreseeable, this information cannot be relied upon as complete or applicable. For greater certainty, uses other than those described in Section 1 must be reviewed with the supplier. The information contained herein is based on the information available at the indicated date of preparation. This MSDS is for the use of Imperial Oil. Customers and their employees and agents only. Any further distribution of this MSDS by Imperial Oil customer is prohibited without the written consent of Imperial Oil."

IMPERIAL OIL
Products Division

MSDS NO. 8068

ESSO GEAR OIL GX EXTRA 75W-90