

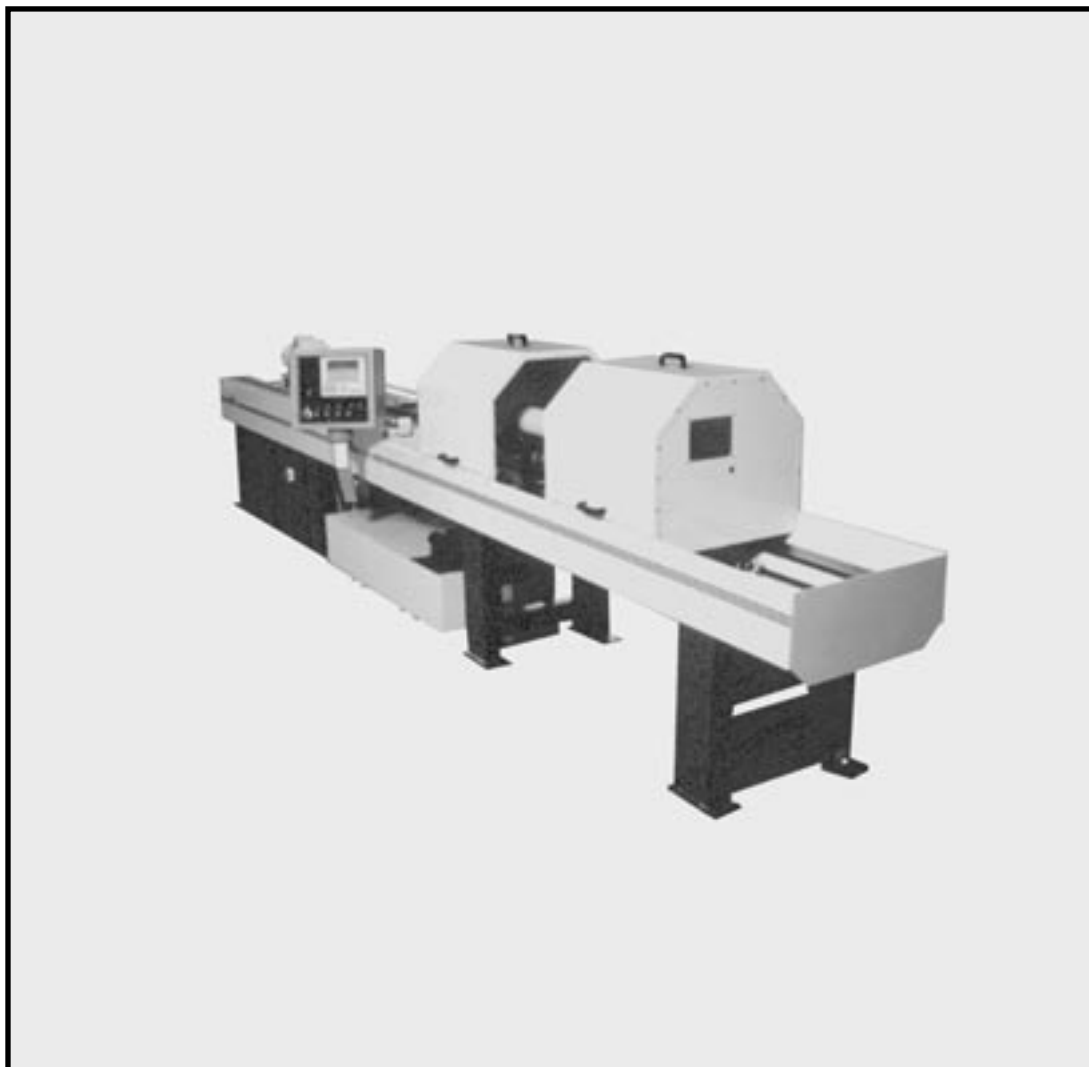


REPAIR PARTS CATALOG FOR SUNNEN 2M TUBE HONE

MODEL:

STH-2000L & STH-2000H

THIS CATALOG COVERS THE
ABOVE MODEL BEGINNING
WITH SERIAL NO. 1015 & UP.



SUNNEN PRODUCTS COMPANY
7910 MANCHESTER AVENUE • ST. LOUIS, MO 63143, U.S.A. • PHONE: 314-781-2100

X-STH-2002

INTRODUCTION

Illustrations show all major components in exploded detail. Item numbers on each illustration are keyed to the corresponding parts list, providing a descriptive identification of each part.

The parts lists include assemblies as well as detail parts. An item listed without a part number can be obtained as a component of the complete assembly of which it is a part.

Standard hardware items are listed with complete descriptions, such as Item 29 below. **These may be purchased at your local hardware store**, but it is important to replace an item with one having the same dimensions as the original. In some places brand names and part numbers are shown. These may change depending upon availability.

Sunnen Products Company reserves the right to make changes, without notice, to materials, specifications, colors, designs and accessories included with units.

HOW TO ORDER

When ordering replacement parts be sure to include the following information to ensure prompt shipment of correct parts:

1. The part number and description of each part desired, obtained from this parts catalog.
2. The quantity of each part desired.
3. The voltage, frequency and phase, when ordering electrical parts.
4. The model and serial number of the machine, obtained from the name plate, where there is any question concerning a part.

HOW TO USE THIS PARTS LIST

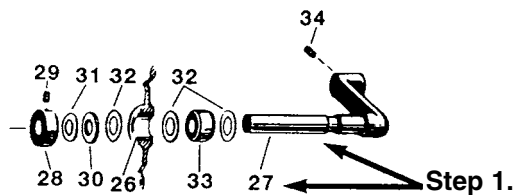
Step 1. – Locate desired part on illustration. Note item number.

Step 2. – Locate item number in the parts list.

Step 3. – If the item has a part number listed, order by part number and the description. A part number in light face type indicates that it is a component of the last preceding part number in bold face type.

Step 4. – If no number is listed, order the part number of the unit of which the desired part is a component. **ORDER ONLY BY PART NUMBER AND DESCRIPTION – NOT by item number.**

NOTE: In this manual, parts may be followed by “(For CE Machines)” or “(For Non-CE Machines)” to denote domestic machines from exported machines. The CE version is constructed to meet the requirements of the European market, and is available to any customer.



	ITEM NO.	ORDER BY PART NUMBER	QTY.	DESCRIPTION
Step 2. →	27	MBB-2920A	1	....Arm & Shaft Assembly with
	28	MBB-866A	1	.....Set Collar with
Step 3. →	29		1	.....Set Screw (1/4-28 X 5/16 Soc. Cup Pt.)
Step 4. →	30		1	.....Washer (Special)
	31		1	.....Spring Washer
	32	MBB-867A	3	.....Thrust Bearings-Nylon (Pkg. of 3)
	33	MBB-1897A	1	.....Spacer
	34		1	.....Set Screw (3/8-16 X 1/2 Soc. Cup Pt.)

Like any machinery, this equipment may be dangerous if used improperly. Be sure to read and follow instructions for operation of equipment.

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SECTION I - MACHINE BASE

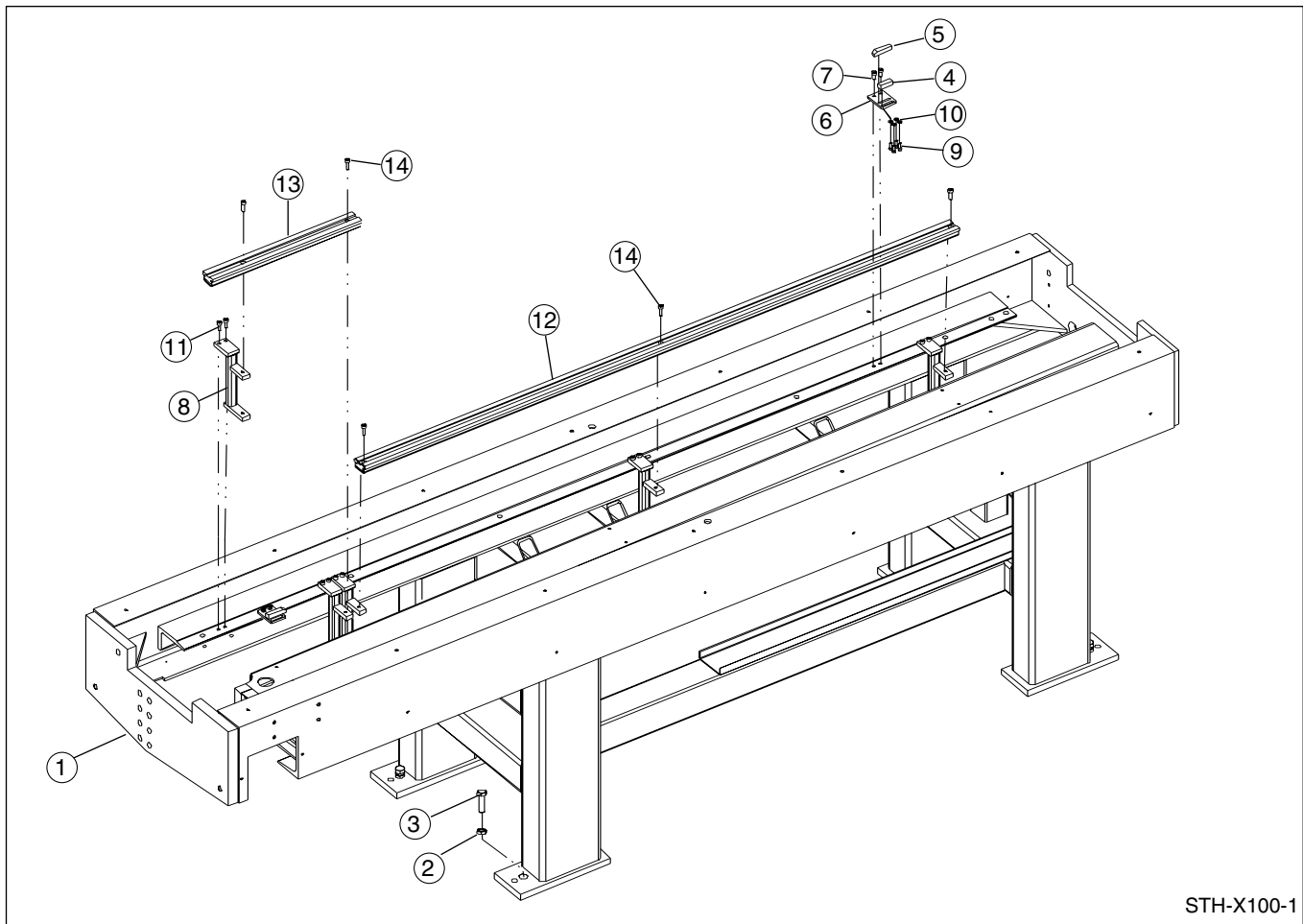


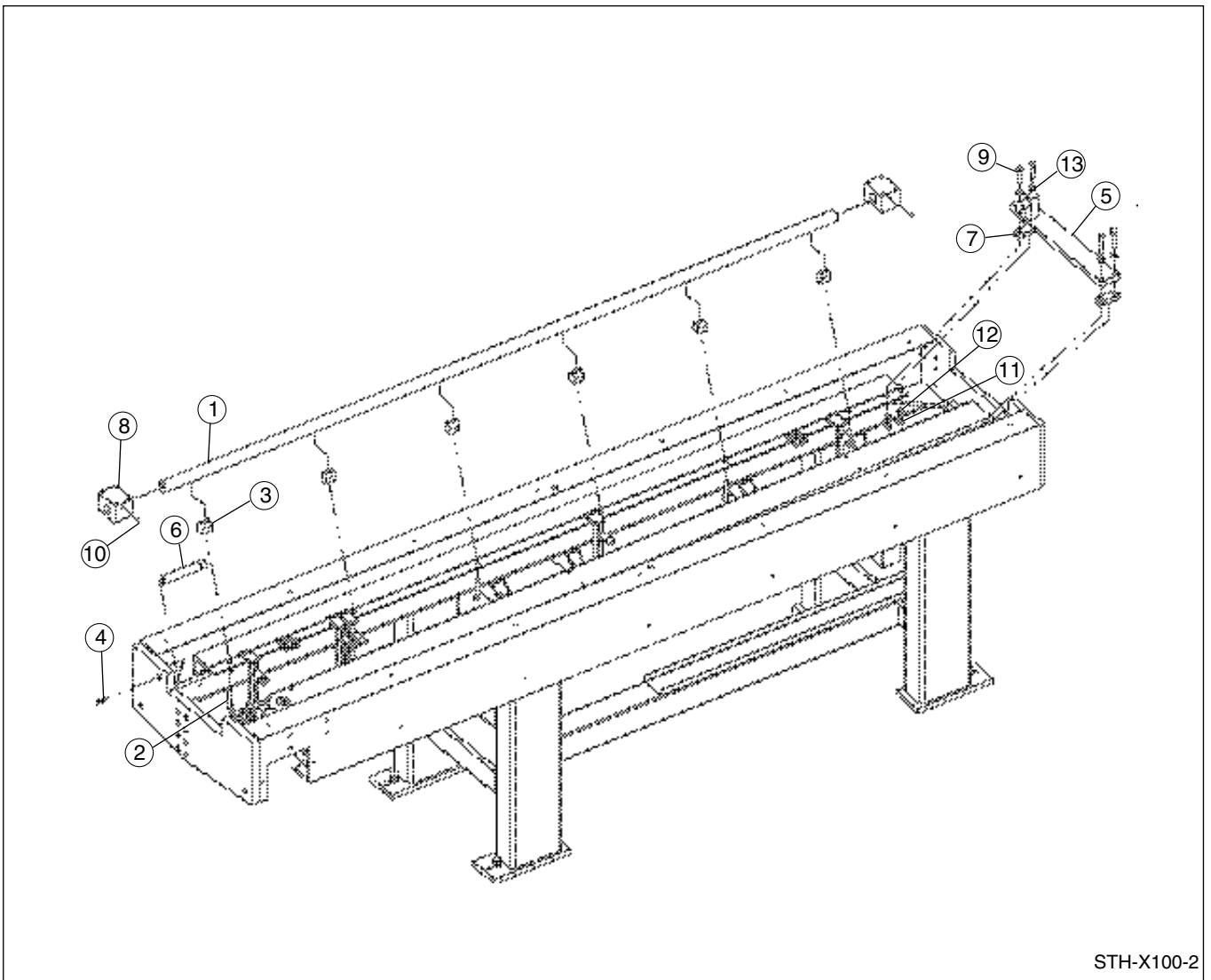
FIGURE A - TUBE HONE MACHINE BASE ASSEMBLY (1 of 8)

PARTS LIST COVERING FIGURE "A" (1 of 8)

ITEM NO.	ORDER BY PART NUMBER	QTY.	DESCRIPTION
-	STH-X100	Ref.	....Tube Hone Machine Base Assembly (1 of 8) includes
1	STH-2100	1	.....Machine Base Assembly
2	PHNM-420	4	.....Nut, Jam (M16x20)
3	PHSM-458	4	.....Screw (M16x50 HHCS)
4	STH-2039	1	.....Prox. Stop
5	STH-2037	2	.....Limit Switch Stop
6	STH-2038	2	.....Slot Plate
7	PHSM-959	4	.....Screw (M8x16 SHCS)
8	STH-2040	5	.....Chain Guide Support
9	PHSM-405	6	.....Screw (M6x16 SHCS)
10	PHWM-541	6	.....Washer, Flat (M6)
11	PHSM-965	10	.....Screw (M8x20 SHCS)
12	STH-4124	2	.....Chain Guide (Upper & Lower)
13	STH-2126	2	.....Chain Guide, Short (Upper & Lower)
14	PHSM-555	10	.....Screw (M8x12 SHCS)

N/S indicates Not Shown

(Parts continued on next page)



STH-X100-2

FIGURE A – TUBE HONE MACHINE BASE ASSEMBLY (2 of 8)
PARTS LIST COVERING FIGURE “A” (2 of 8)

ITEM NO.	ORDER BY PART NUMBER	QTY.	DESCRIPTION
-	STH-X100	Ref.	....Tube Hone Machine Base Assembly (2 of 8) includes
1	STH-2326	2	.....Linear Rail (Front & Rear)
2	PHSM-480	12	.....Screw (M12x65 SHCS)
3	STH-2327	12	.....Rail Support
4	HL-639	1	.....Screw (M12x30 SHCS)
5	STH-2140	1	.....Rear Damper Assembly (see Figure D)
6	STH-2180	1	.....Front Bumper Assembly (see Figure E)
7	STH-2146	2	.....Block
8	F545-4	4	.....Linear Bearing
9	---	4	.....Screw (M12x60)
10	---	4	.....Grease Fitting (M8)
11	PHNM-461	4	.....Nut, Hex (M12)
12	PHWM-408	4Lockwasher (M12)
13	PHWM-512	4Washer, Flat (M12)

N/S indicates Not Shown

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MACHINE BASE

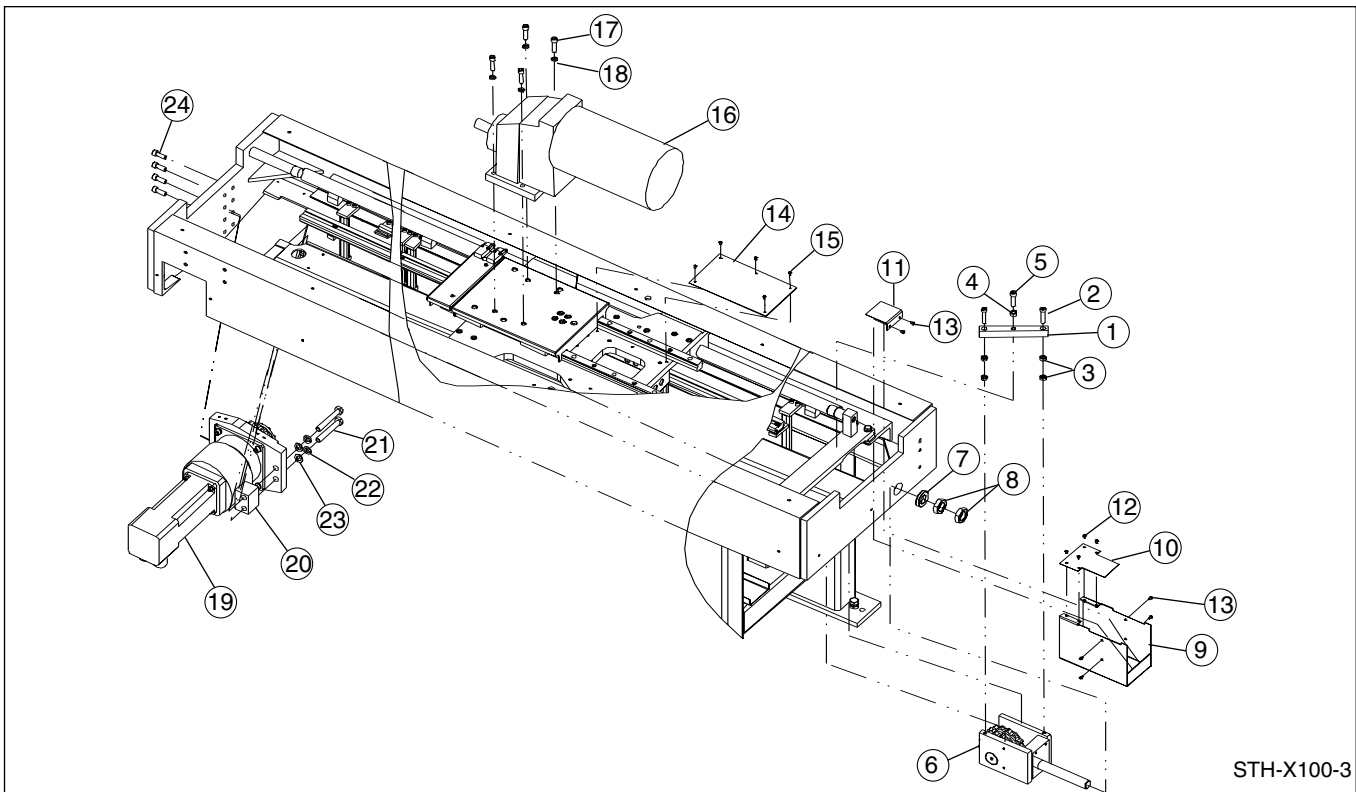


FIGURE A – TUBE HONE MACHINE BASE ASSEMBLY (3 of 8)

PARTS LIST COVERING FIGURE “A” (3 of 8)

ITEM NO.	ORDER BY PART NUMBER	QTY.	DESCRIPTION
-	STH-X4100	Ref.	....Tube Hone Machine Base Assembly (3 of 7) includes
1	STH-2082	1	.....Clamp Arm
2	---	2	.....Screw (M10x50)
3	PHNM-419	4	.....Nut, Hex (M10)
4	PHNM-406	1	.....Nut, Hex (M12)
5	PHSM-453	1	.....Screw (M12x45 SHCS)
6	STH-2075	1	.....Reciprocation Take Up Assembly (see Figure B)
7	STH-2119	1	.....Chain Take Up Washer, Heavy (M30)
8	---	2	.....Nut, Jam (M30)
9	STH-2550	1	.....Take Up Cover Assembly
10	STH-2553	1	.....Take Up Cover Top Plate
11	STH-2551	1	.....Bracket
12	PHSM-472	4	.....Screw (M5x8 BHCS)
13	PHSM-508	6	.....Screw (M6x8 BHCS)
14	STH-2516	1	.....Cover Plate
15	PHSM-472	5	.....Screw (M5x8 SHCS)
16	F439-45	1	.....Motor, Spindle Drive (68-340 rpm)
16	F439-46	1	.....Motor, Spindle Drive (47-234 rpm)
16	F439-47	1	.....Motor, Spindle Drive (38-188 rpm)
16	F439-48	1	.....Motor, Spindle Drive (30-148 rpm)
16	STH-2360	1	.....Motor, Spindle Drive (12-420 rpm)(5,5kW) (see Figure F)
17	PHSM-453	4	.....Screw (M12x45 SHCS)
18	PHWM-408	4	.....Lockwasher (M12)
19	STH-2120	1	.....Servo Motor & Reducer Assembly (see Figure C)
20	STH-2123	1	.....Spacer, Mount
21	---	2	.....Screw (M16x110 HHCS)
22	PHWM-552	2	.....Lockwasher (M16)
23	PHWM-554	2	.....Washer, Flat (M16)
24	PHSM-452	4Screw (M12x35 SHCS)
N/S	F197-5	1Chain, Double Roll (Metric)

N/S indicates Not Shown

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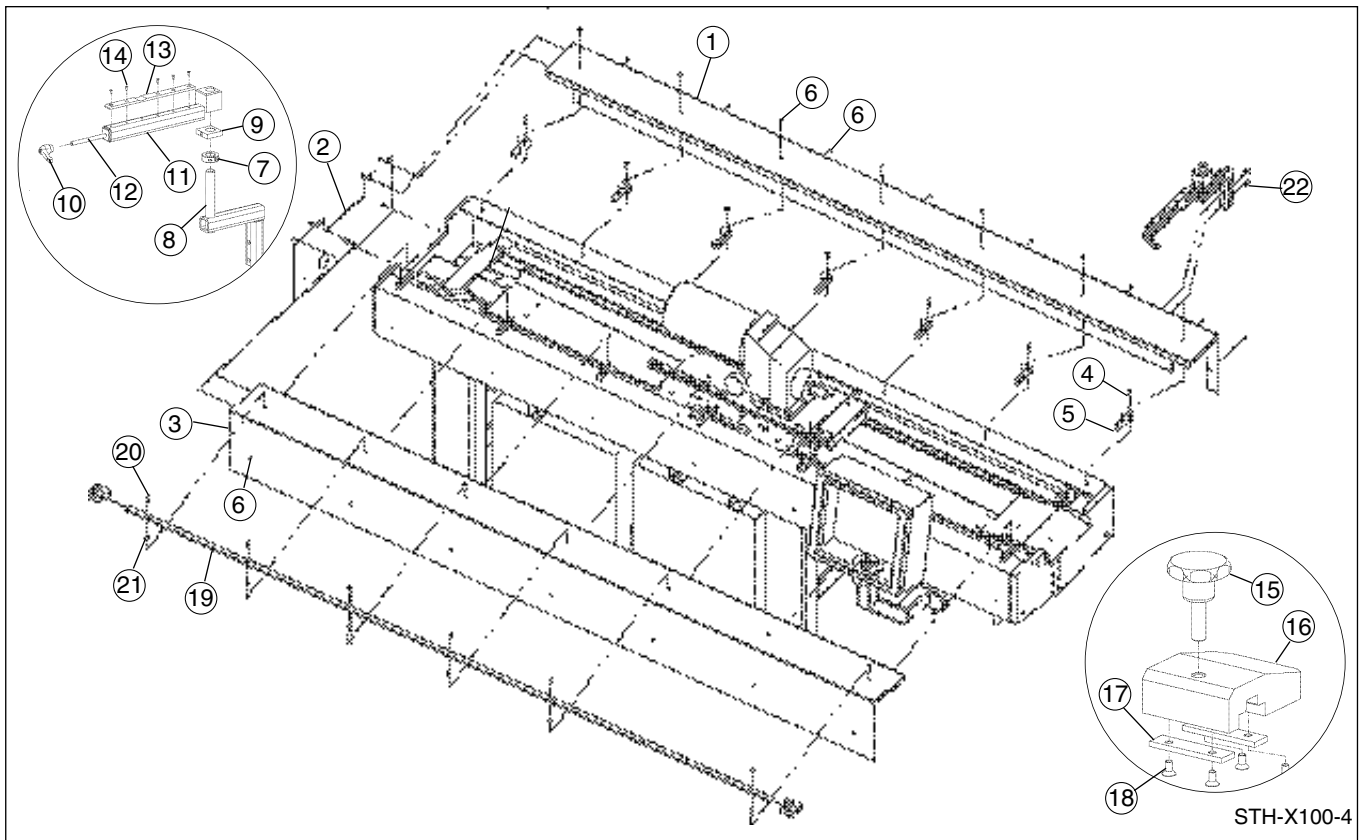


FIGURE A - TUBE HONE MACHINE BASE ASSEMBLY (4 of 8)

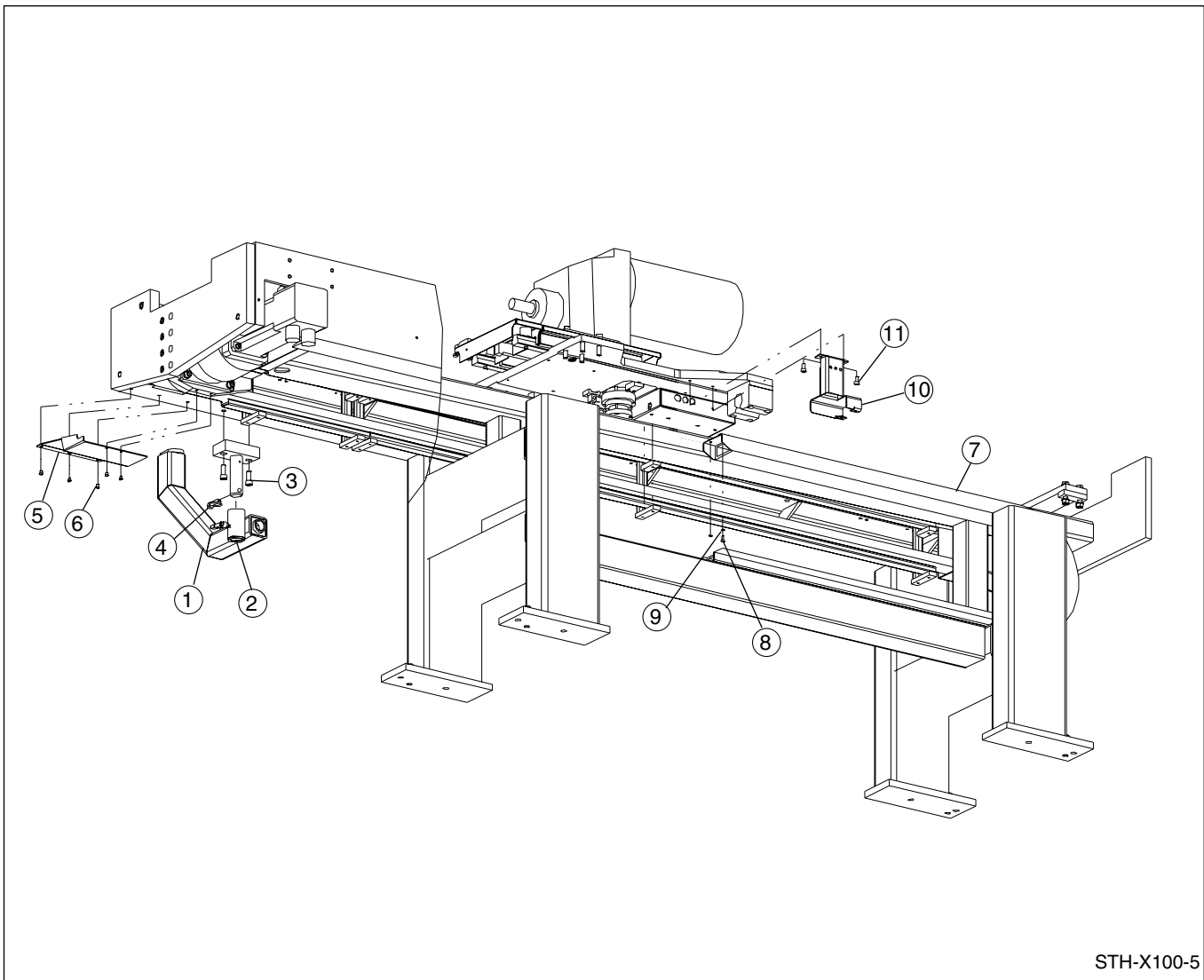
PARTS LIST COVERING FIGURE "A" (4 of 8)

ITEM NO.	ORDER BY PART NUMBER	QTY.	DESCRIPTION
-	STH-X100	Ref.	....Tube Hone Machine Base Assembly (4 of 8) includes
1	STH-2505	1	.....Rear Skin Assembly
2	STH-2508	1	.....Back Plate
3	STH-2510	1	.....Front Skin Assembly
4	PHSM-515	14	.....Screw (M8x25 SHCS)
5	STH-2132	14	.....Cover Support
6	PHSM-508	28	.....Screw (M6x8 BHCS)
-	STH-2110	1	.....Tool Rest Assembly <i>includes</i>
7	PHM-543	1	.....Split Shaft Collar (M25)
8	STH-2105	1	.....Tool Rest Stand
9	STH-2111	1	.....Clamp Block
10	PHM-544	1	.....Adjustable Handle
11	STH-2115	1	.....Arm
12	STH-2117	1	.....Threaded Rod
13	STH-2118	1	.....Wear Strip
14	PHSM-540	5	.....Screw (M4x10 FHCS)
-	STH-2130	2	.....Trip Dog Assembly <i>includes</i>
15	F457-32	1	.....Hand Knob
16	STH-2127	1	.....Trip Dog Body
17	STH-2128	2	.....Dog Latch Plate
18	PHSM-616	4	.....Screw (M4x8 FHCS)
19	STH-2129	1	.....Trip Dog Strip
20	PHSM-534	7	.....Screw (M6x20 SHCS)
21	STH-2131	7Spacer, Trip Dog Strip
22	PHSM-446	2Screw (M10x16 SHCS)

N/S indicates Not Shown

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STH-X100-5

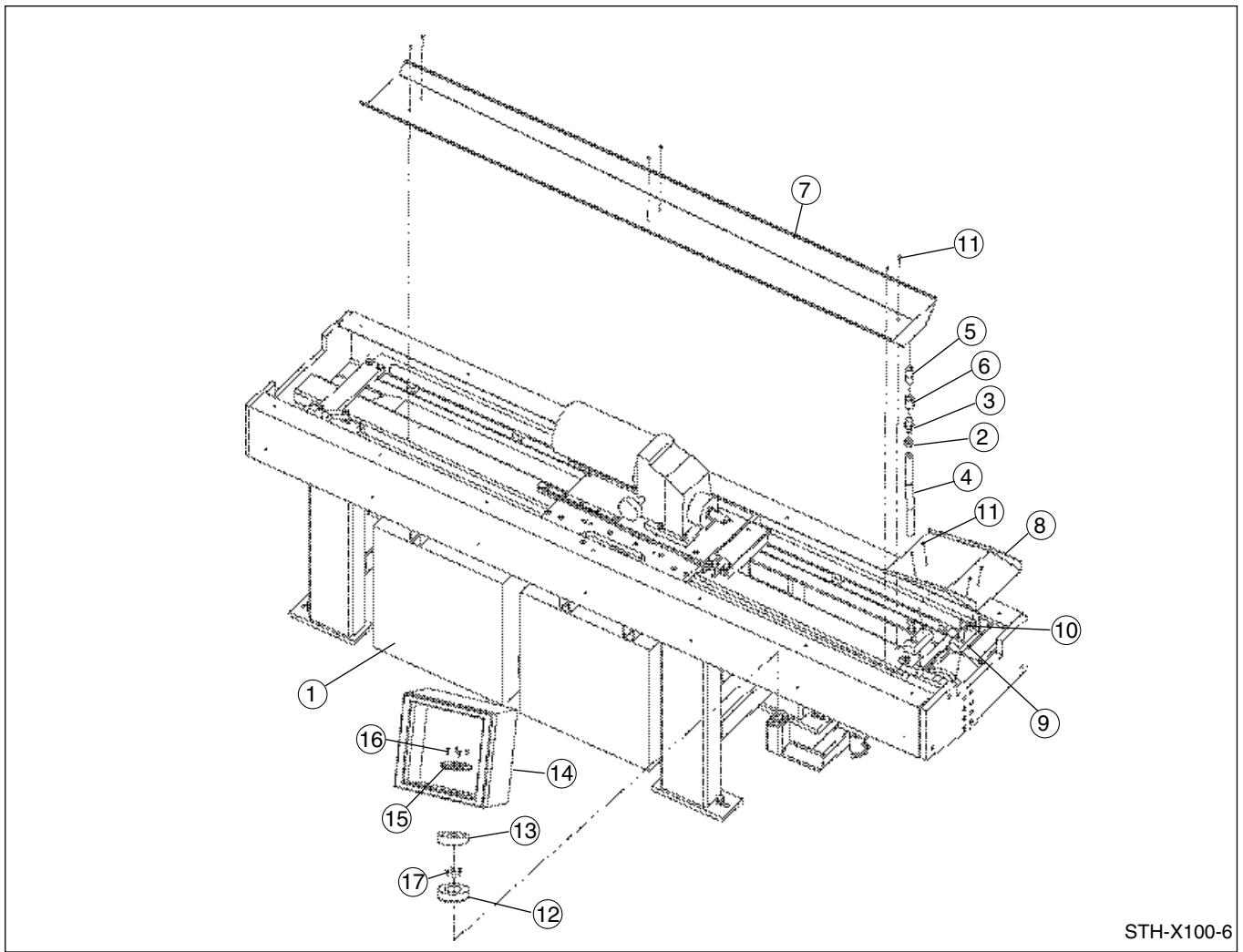
FIGURE A – TUBE HONE MACHINE BASE ASSEMBLY (5 of 8)

PARTS LIST COVERING FIGURE “A” (5 of 8)

ITEM NO.	ORDER BY PART NUMBER	QTY.	DESCRIPTION
-	STH-X100	Ref.	....Tube Hone Machine Base Assembly (5 of 8) includes
1	STH-2200	1	.....Control Panel Mounting Arm <i>includes</i>
2	STH-2196	1	.....Washer
3	HL-639	2	.....Screw (M12x30 SHCS)
4	F457-33	1	.....Lynch Pin
5	STH-2512	1	.....Guard
6	PHSM-508	5	.....Screw (M6x8 BHCS)
7	F414-31	1	.....Cable Carrier <i>includes</i>
N/S	F414-33	2	.....Cable Carrier Ends
8	PHSM-401	1	.....Screw (M5x12 SHCS)
9	PHWM-502	2	.....Washer, Flat (M5)
10	STH-2340	1Adapter Assembly
11	PHSM-959	2Screw, (M8x16 SHCS)

N/S indicates Not Shown

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STH-X100-6

FIGURE A - TUBE HONE MACHINE BASE ASSEMBLY (6 of 8)

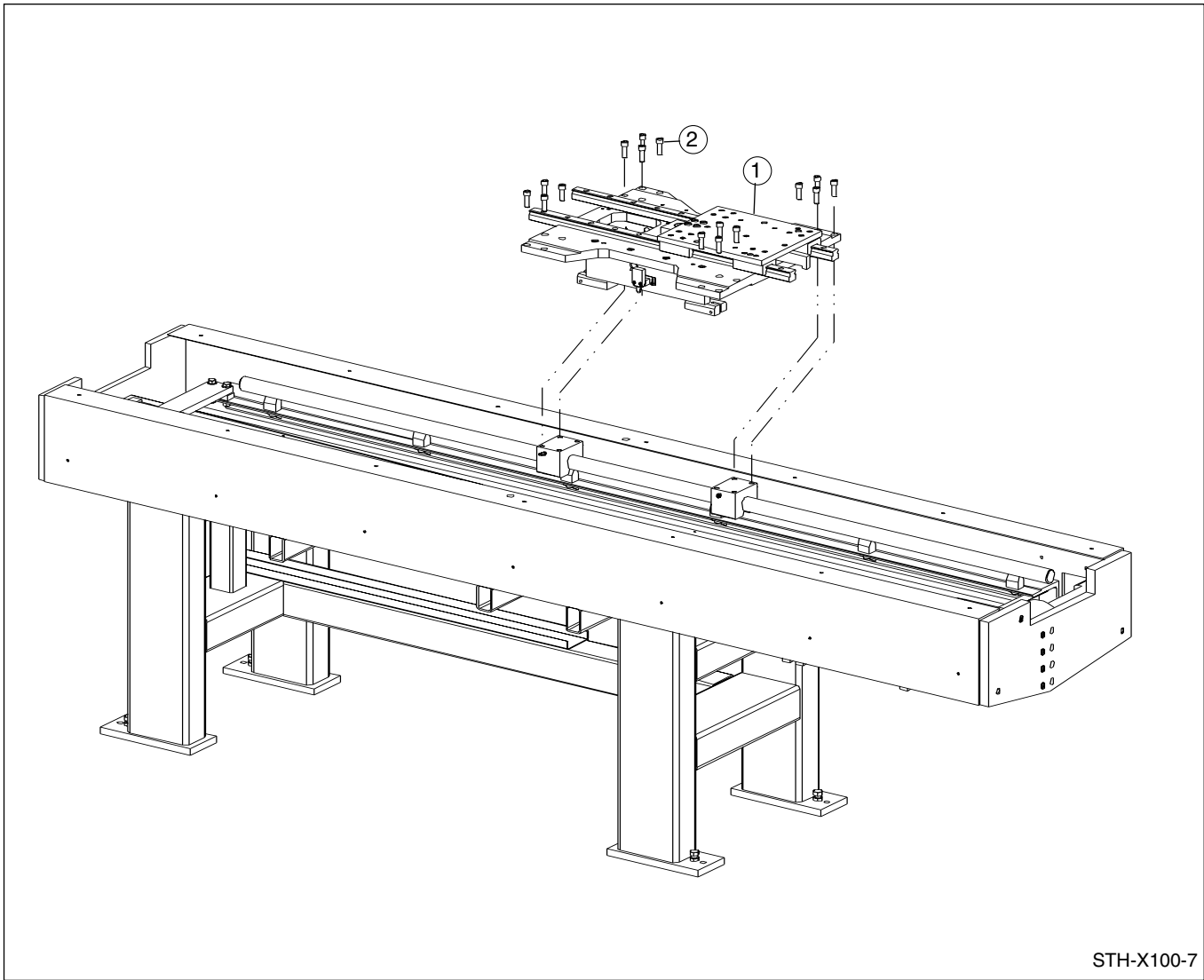
PARTS LIST COVERING FIGURE "A" (6 of 8)

ITEM NO.	ORDER BY PART NUMBER	QTY.	DESCRIPTION
-	STH-X100	Ref.	....Tube Hone Machine Base Assembly (6 of 8) includes
1	---	1	.....Electrical Enclosure (see Figure Q)
2	CK-1292	1	.....Hose Clamp
3	---	1	.....Hose Barb Fitting (3/4 NPT)
4	---	1	.....Hose
5	PPP-331	1	.....Nipple (3/4 NPT)
6	PPP-556	1	.....Coupling (3/4 NPT)
7	STH-2145	1	.....Machine Drip Pan Assembly
8	STH-2545	1	.....Front Drip Pan Assembly
9	STH-2138	2	.....Drip Pan Support
10	PHSM-657	4	.....Screw (M6x45 FHCS)
11	PHSM-508	10	.....Screw (M6x8 BHCS)
12	CP-6525	1	.....Operator Station Swivel
13	CP-6527	1	.....Operator Station Angle Adapter
14	---	1	.....Operator Station (see Figure P)
15	STH-2604	1	.....Box Stiffener
16	PHSM-405	4Screw (M6x16 SHCS)
17	PHSM-965	4Screw (M8x20 SHCS)

N/S indicates Not Shown

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STH-X100-7

FIGURE A – TUBE HONE MACHINE BASE ASSEMBLY (7 of 8)

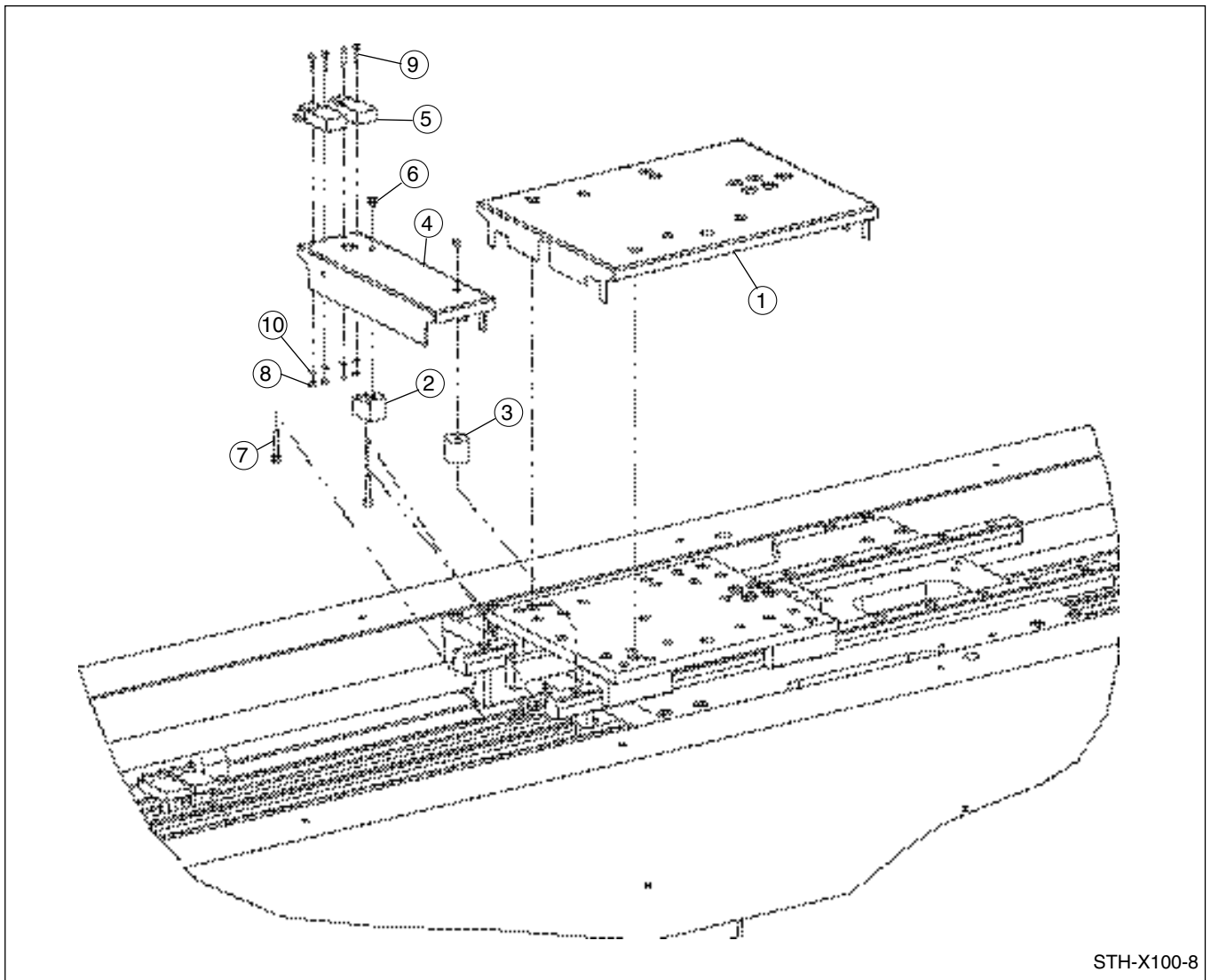
PARTS LIST COVERING FIGURE “A” (7 of 8)

ITEM NO.	ORDER BY PART NUMBER	QTY.	DESCRIPTION
-	STH-X100	Ref.	....Tube Hone Machine Base Assembly (7 of 8) includes
1	STH-2310	1	.....Carriage Assembly (see Figure H)
2	PHSM-452	16	.....Screw (M12x35 SHCS)

N/S indicates Not Shown

(Parts continued on next page)

SECTION I
MACHINE BASE



STH-X100-8

FIGURE A – TUBE HONE MACHINE BASE ASSEMBLY (8 of 8)

PARTS LIST COVERING FIGURE “A” (8 of 8)

ITEM NO.	ORDER BY PART NUMBER	QTY.	DESCRIPTION
-	STH-X100	Ref.	....Tube Hone Machine Base Assembly (8 of 8) includes
1	STH-2319	1	.....Cover
2	STH-2328	1	.....Square Spacer Block
3	STH-2329	1	.....Round Spacer
4	STH-2513	1	.....Cover
5	3SE3180-1G	2	.....Limit Switch
6	PHSM-508	2	.....Screw (M6x8 BHCS)
7	PHSM-964	2	.....Screw (M6x35 SHCS)
8	PHNM-402	4	.....Nut, Hex (M4)
9	PHSM-573	4	.....Screw (M4x20 SHCS)
10	PHWM-517	4	.....Lockwasher (M4)

N/S indicates Not Shown

SECTION I
MACHINE BASE

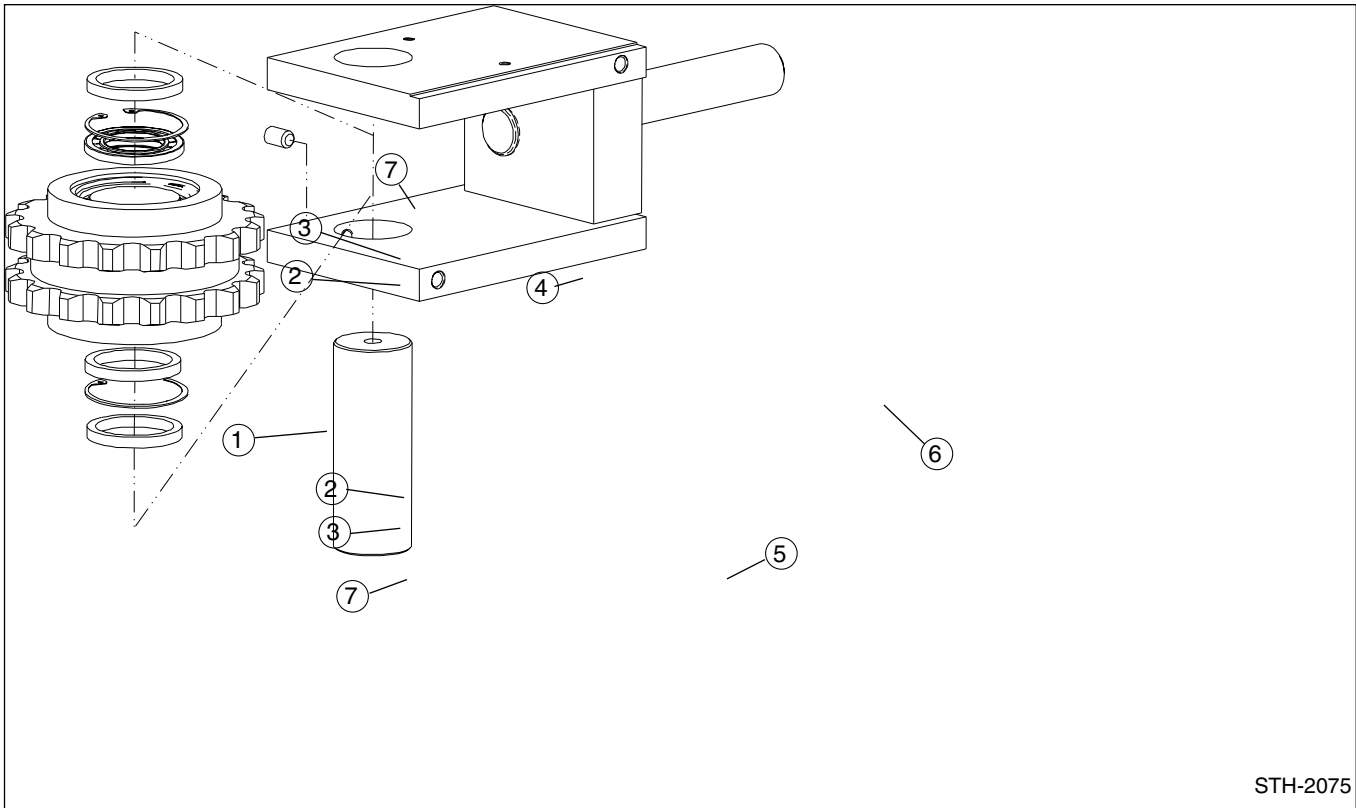


FIGURE B - RECIPROICATION TAKE UP ASSEMBLY

PARTS LIST COVERING FIGURE "B"

ITEM NO.	ORDER BY PART NUMBER	QTY.	DESCRIPTION
-	STH-2075	Ref.	....Reciprocation Take Up Assembly includes
1	STH-2083	1	.....Sprocket, Idler
2	PBR-288	2	.....Bearing, Single Row Angular Contact
3	PHRM-103	2	.....Ring, Bore Retaining
4	PHSM-651	1	.....Setscrew (M10x16 FPSS)
5	STH-2074	1	.....Shaft
6	STH-2080	1	.....Take Up Frame
7	STH-2076	2	.....Washer

N/S indicates Not Shown

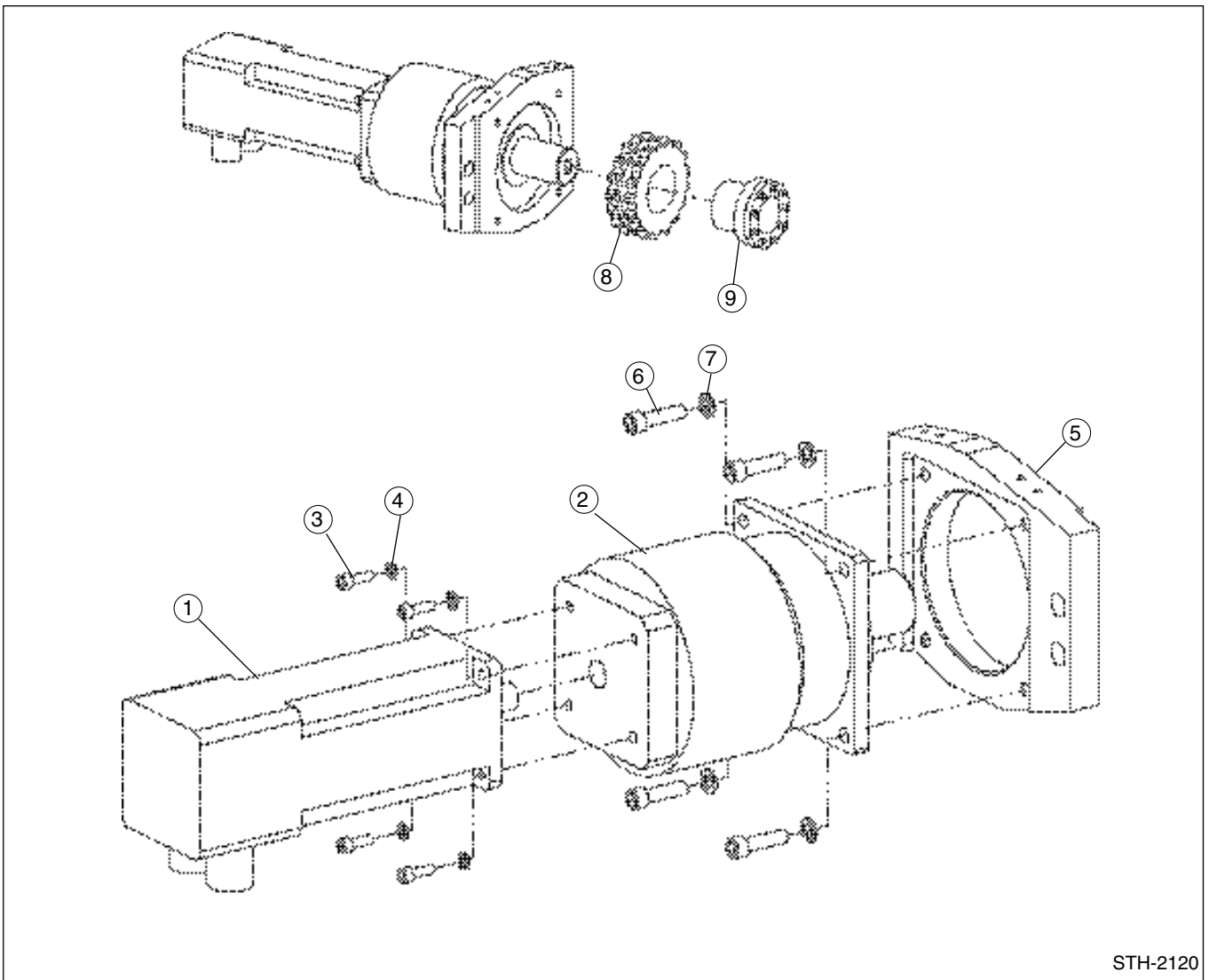


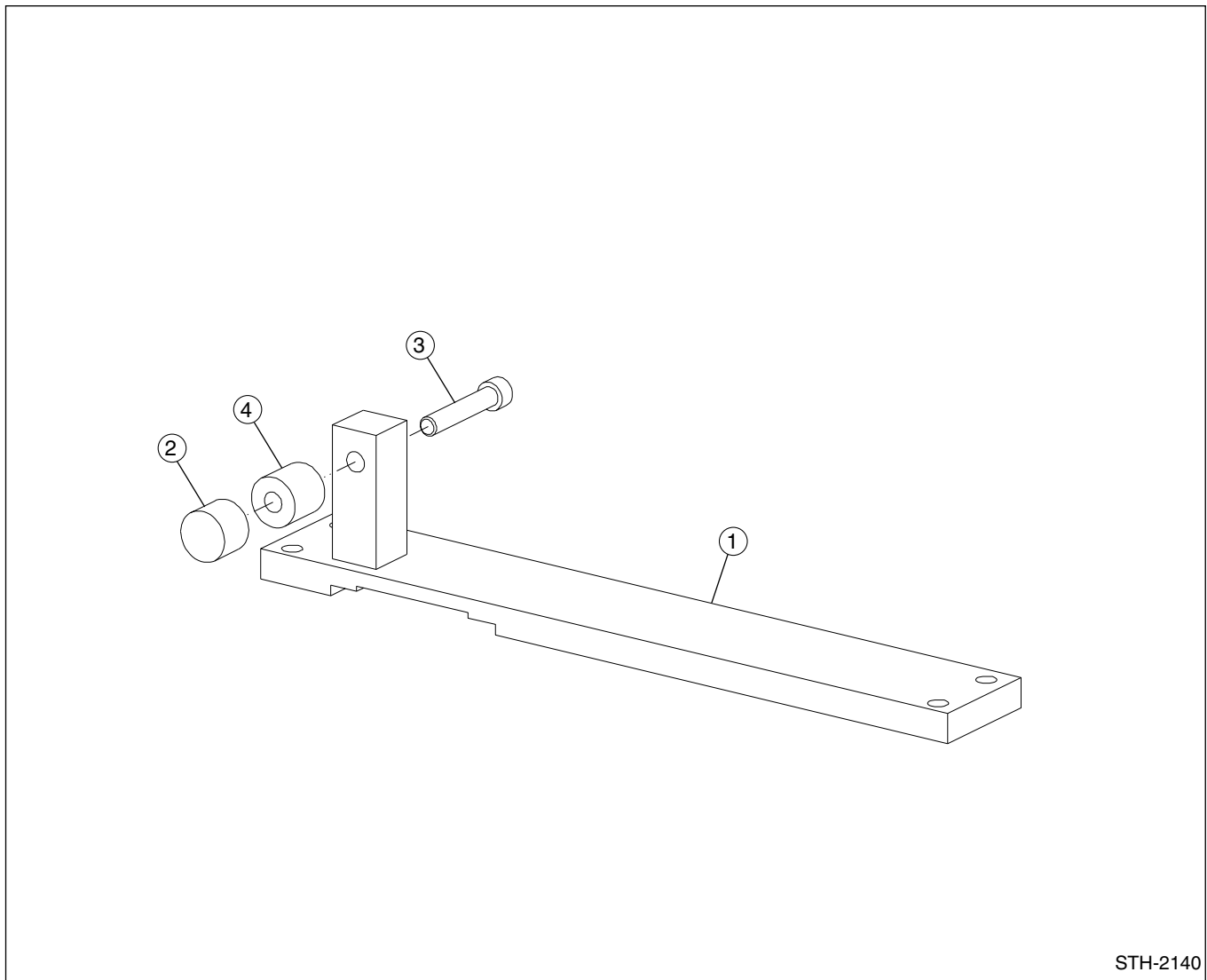
FIGURE C – SERVO MOTOR & REDUCER ASSEMBLY

PARTS LIST COVERING FIGURE “C”

ITEM NO.	ORDER BY PART NUMBER	QTY.	DESCRIPTION
-	STH-2120	Ref.	....Servo Motor & Reducer Assembly <i>includes</i>
1	F544-1	1	.....Motor, Brushless Servo (Standard)
1	F544-2	1	.....Motor, Brushless Servo (Optional with 5,5kW Spindle)
2	F545-1	1	.....Reducer <i>with</i>
3	PHSM-515	4	.....Screw (M8x25 SHCS)
4	PHWM-407	4	.....Lockwasher (M8)
5	STH-2121	1	.....Motor Mount <i>with</i>
6	PHSM-453	4	.....Screw (M12x45 SHCS)
7	PHWM-408	4	.....Lockwasher (M12)
8	STH-2139	1Sprocket, Drive
9	F310-18	1Locking Ring Assembly

N/S indicates Not Shown

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MACHINE BASE



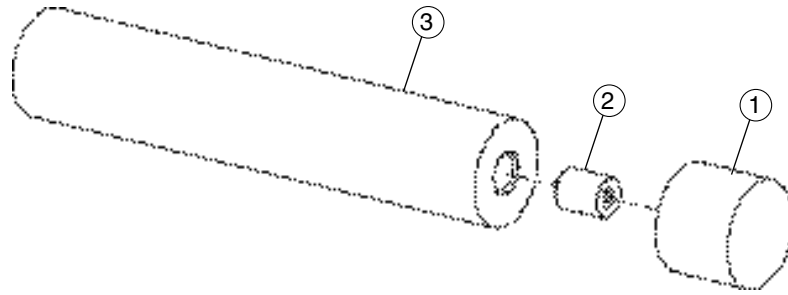
STH-2140

FIGURE D – REAR DAMPER ASSEMBLY

PARTS LIST COVERING FIGURE “D”

ITEM NO.	ORDER BY PART NUMBER	QTY.	DESCRIPTION
-	STH-2140	Ref.	....Rear Damper Assembly <i>includes</i>
1	STH-2175	1	.....Damper Plate Weldment
2	PHM-548	1	.....Bumper, Female
3	PHSM-480	1	.....Screw (M12x65 SHCS)
4	STH-2161	1	.....Extension, Rear Bumper

N/S indicates Not Shown



STH-2180

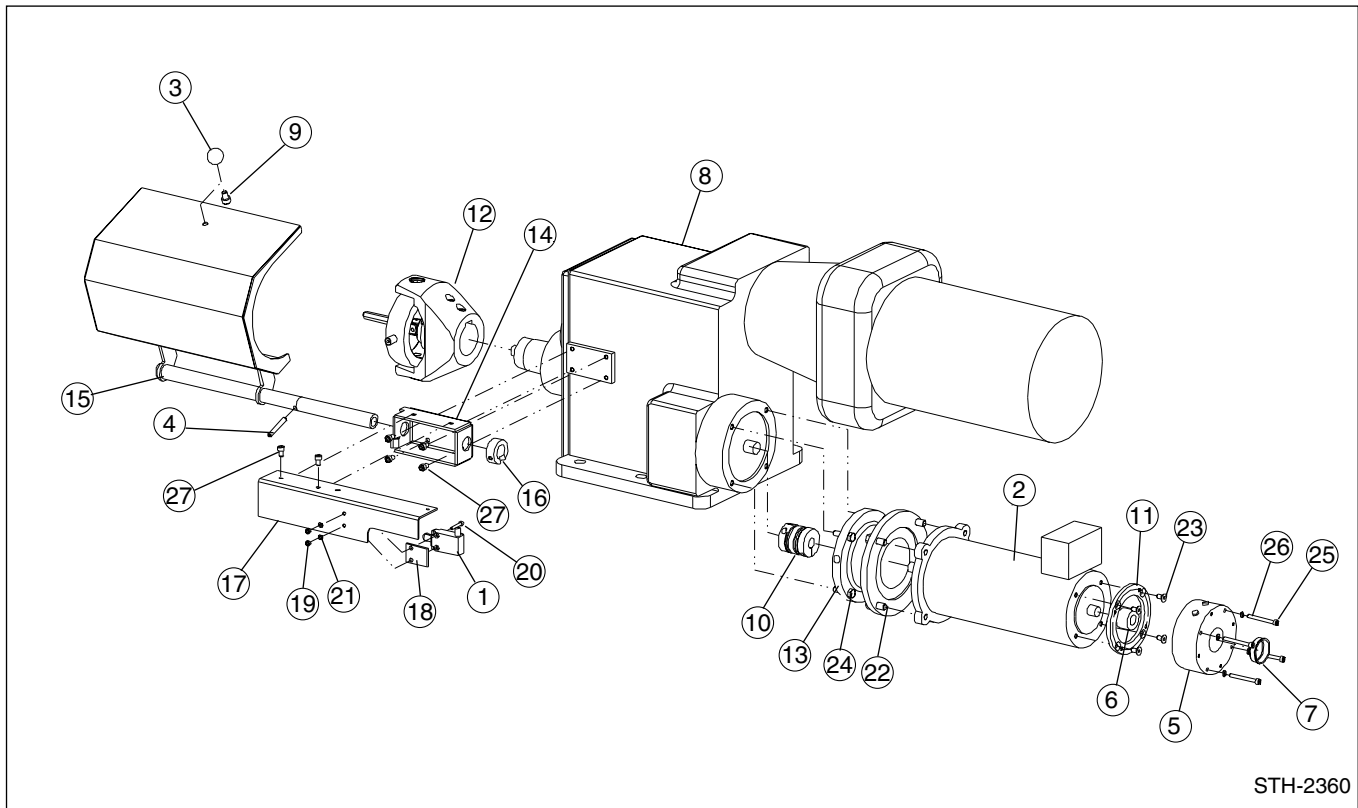
FIGURE E - FRONT BUMPER ASSEMBLY

PARTS LIST COVERING FIGURE "E"

ITEM NO.	ORDER BY PART NUMBER	QTY.	DESCRIPTION
-	STH-2180	Ref.	....Front Bumper Assembly <i>includes</i>
1	PHM-548	1	.....Bumper, Female
2	PHSM-549	1Setscrew (M12x16 FPSS)
3	STH-2159	1Extension, Front Bumper

N/S indicates Not Shown

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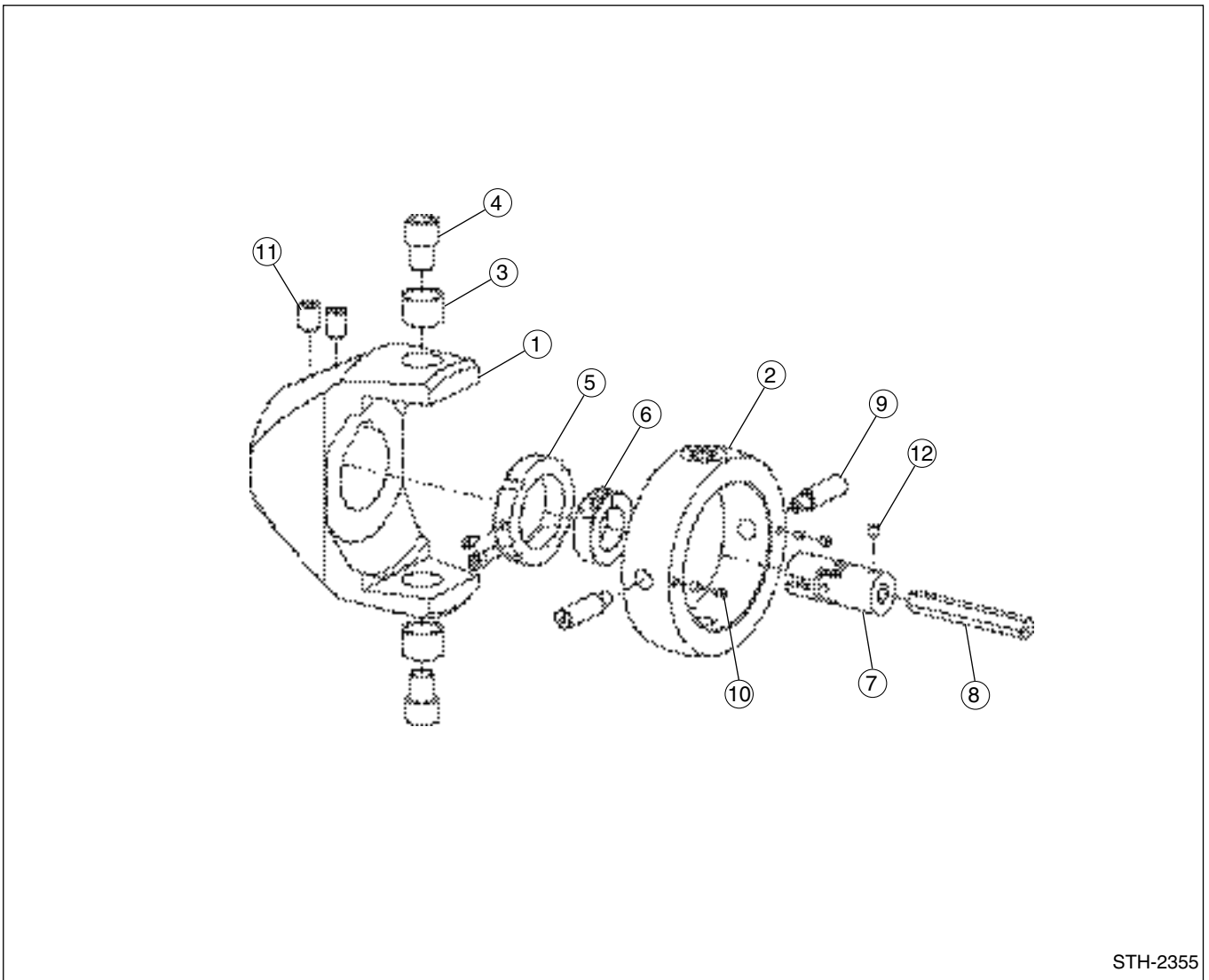
STH-2360

FIGURE F - SPINDLE DRIVE MOTOR (5kW)

PARTS LIST COVERING FIGURE "F"

ITEM NO.	ORDER BY PART NUMBER	QTY.	DESCRIPTION
1	3SE3180-ID	1	.....Limit Switch
2	CDP3320	1	.....Feed motor (Baldor)
3	CLM-442-PB	1	.....Knob
4	- - -	1	.....Spring Roll Pin (DIN-IS08750-6x45)
5	ERS-49	1	.....Brake
6	ERS-49-HUB	1	.....Hub
7	F550-2	1	.....Plug
8	F552-1	1	.....Gearbox
9	PHSM-555	1	.....Screw (M8x1,25x12)
10	SC040	1	.....Coupling
11	STH-2346	1	.....Adapter
12	STH-2355	1	.....Yoke Assemblby (see Figure G)
13	STH-2379	1	.....Feed Motor Adapter
14	STH-2380	1	.....Cover Mount Assembly
15	STH-2385	1	.....Spindle Cover
16	STH-2388	1	.....Stop Collar
17	STH-2389	1	.....Switch Cover
18	STH-2391	1	.....Switch Spacer
19	PHNM-402	2	.....Nut (M4x0,7)
20	PHSM-437	2	.....Screw (M4x0,7x25)
21	PHWM-528	2	.....Lockwasher (M4)
22	KN-422	4	.....Screw (3/8-16x1 HHCS)
23	PHS-763	4	.....Screw (1/4-20x1/2 SHCS)
24	PHSM-498	4	.....Screw (M8x1,25x30 HHCS)
25	PHSM-625	4	.....Screw (M5x0,8x50 SHCS)
26	PHWM-406	4	.....Lockwasher (M5)
27	PHSM-509	6	.....Screw (M6x1,0x10 SHCS)

N/S indicates Not Shown



STH-2355

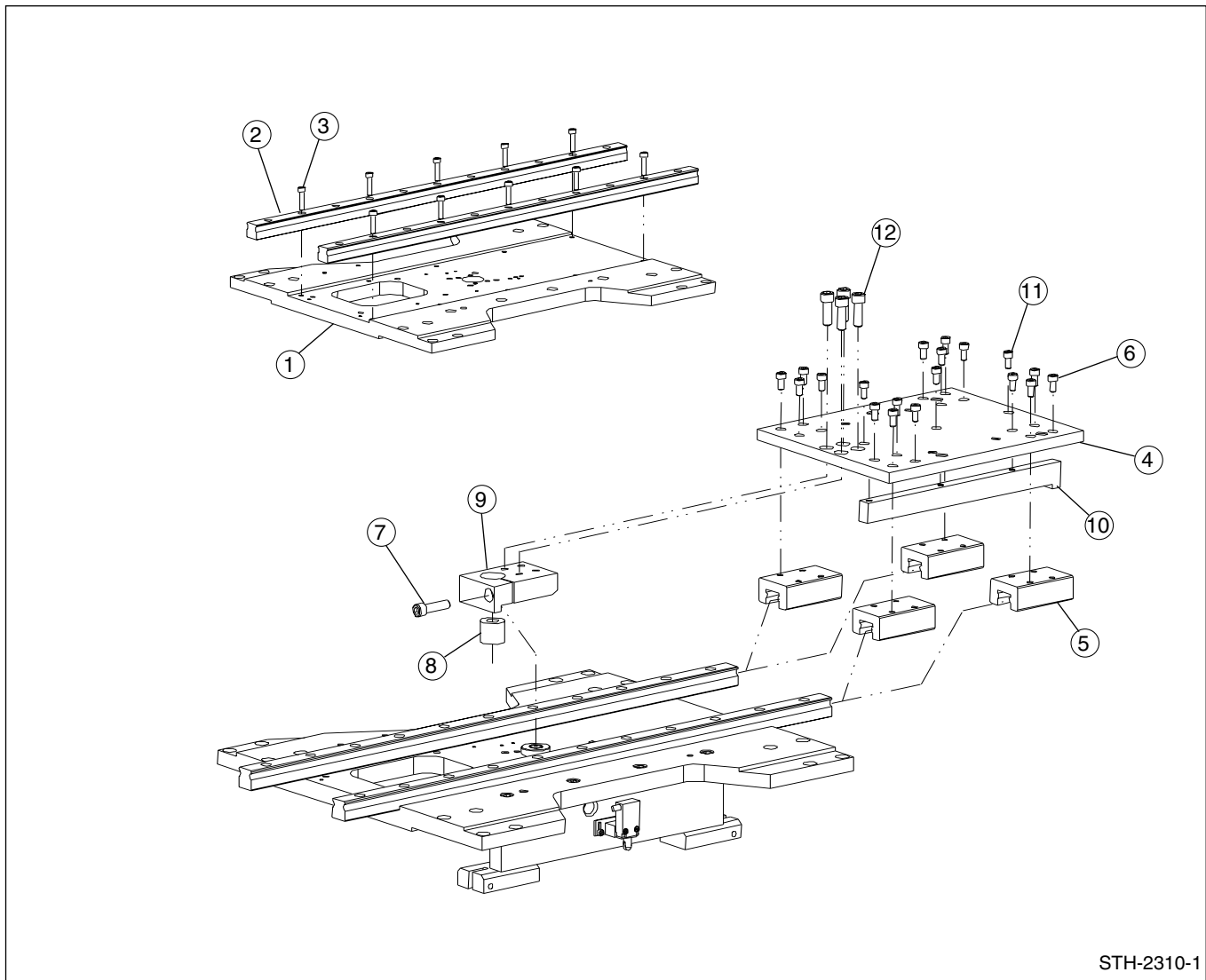
FIGURE G - YOKE ASSEMBLY

PARTS LIST COVERING FIGURE "G"

ITEM NO.	ORDER BY PART NUMBER	QTY.	DESCRIPTION
1	STH-2372	1	.....Drive Yoke
2	STH-2373	1	.....Universal Output Ring
3	F475-68	2	.....Inner Ring
4	STH-2376	2	.....Drive Screw
5	F552-4	1	.....Bearing Nut
6	F461-7	1	.....Split Shaft Collar
7	STH-2377	1	.....Universal Joint
8	STH-2378	1	.....Hex Feed Rod
9	STH-2374	2	.....Drive Pin
10	PHSM-588	4	.....Setscrew (M5x0,8x6)
11	PHSM-549	2Setscrew (M12x1,75x16)
12	PHSM-466	1Setscrew (M6x1,0x6)

N/S indicates Not Shown

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STH-2310-1

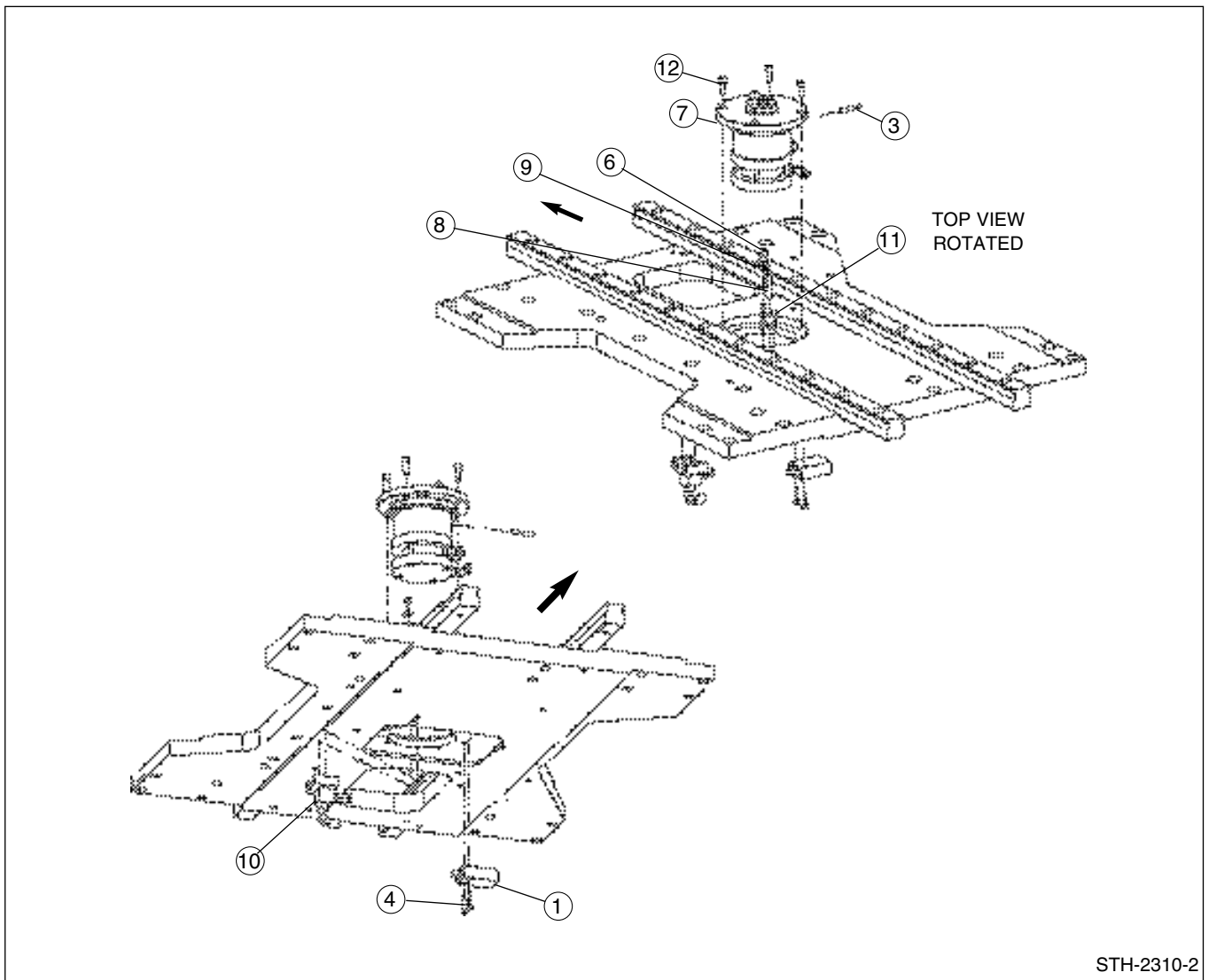
FIGURE H – CARRIAGE ASSEMBLY (1 of 3)

PARTS LIST COVERING FIGURE “H” (1 of 3)

ITEM NO.	ORDER BY PART NUMBER	QTY.	DESCRIPTION
-	STH-2310	Ref.	....Carriage Assembly (1 of 3) includes
1	STH-2301	1	.....Shuttle Plate <i>with</i>
2	F545-3	2	.....Rail, Linear
3	PHSM-443	10	.....Screw (M8x35 SHCS)
4	STH-2306	1	.....Spindle Plate <i>with</i>
5	F545-2	4	.....Bearing, Rail Linear
6	PHSM-959	16	.....Screw (M8x16 SHCS)
7	PHSM-453	1	.....Screw (M12x45 SHCS)
8	STH-2309	1	.....Shot Pin Seat
9	STH-2314	1	.....Shot Pin Seat Mount
10	STH-2321	1	.....Bolt Plate
11	PHSM-959	3Screw (M8x16 SHCS)
12	PHSM-452	4Screw (M12x35 SHCS)

N/S indicates Not Shown

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STH-2310-2

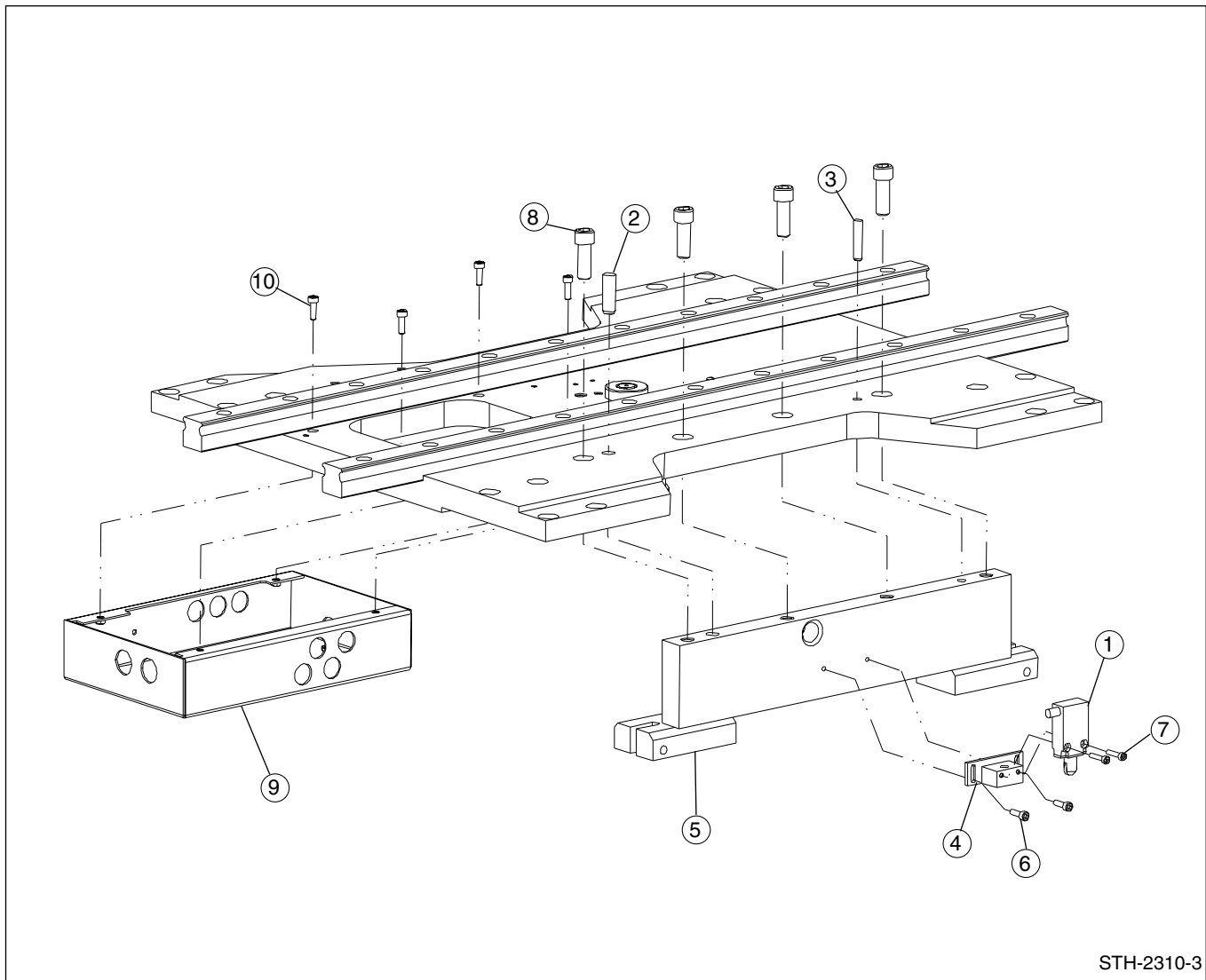
FIGURE H - CARRIAGE ASSEMBLY (2 of 3)
PARTS LIST COVERING FIGURE "H" (2 of 3)

ITEM NO.	ORDER BY PART NUMBER	QTY.	DESCRIPTION
-	STH-2310	Ref.	....Carriage Assembly (2 of 3) includes
1	3SE3180-1C	1	.....Limit Switch
3	STH-2316	1	.....Switch Actuator Pin
4	PHSM-573	2	.....Screw (M4x20 SHCS)
6	PHSM-401	1	.....Screw (M5x12 SHCS)
7	STH-2330	1	.....Cylinder Subassembly <i>includes</i>
N/S	STH-2336	1	.....Shot Pin Guide
N/S	STH-2308	1	.....Shot Pin
N/S	FM-3120-MT	1	.....Air Cylinder
8	STH-2332	1	.....Push Pin
9	STH-2333	1	.....Washer, Guide
10	STH-2335	1	.....Air Switch Assembly <i>includes</i>
N/S	STH-2334	1	.....Valve Mount
N/S	F546-1	1	.....Valve
11	PHSM-574	2	.....Screw (M4x30 SHCS)
12	PHSM-405	4	.....Screw (M6x16 SHCS)

N/S indicates Not Shown

(Parts continued on next page)

SECTION I
MACHINE BASE



STH-2310-3

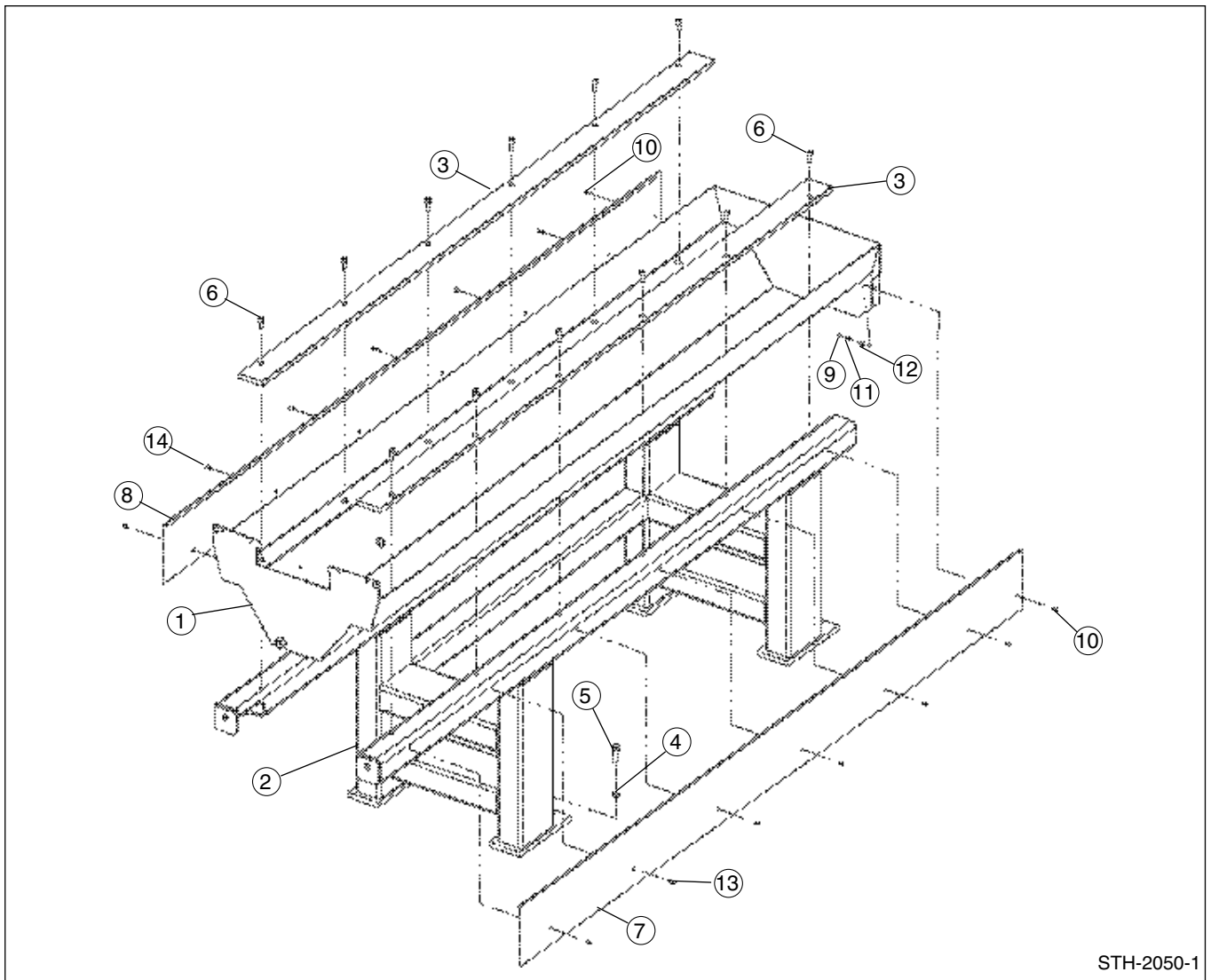
FIGURE H – CARRIAGE ASSEMBLY (3 of 3)

PARTS LIST COVERING FIGURE “H” (3 of 3)

ITEM NO.	ORDER BY PART NUMBER	QTY.	DESCRIPTION
-	STH-2310	Ref.	....Carriage Assembly (3 of 3) includes
1	3SE3180-1D	1	.....Limit Switch
2	---	1	.....Dowel Pin (8x40 DIN 7979 Type D)
3	---	1	.....Dowel Pin (12x40 DIN 7979 Type D)
4	STH-2036	1	.....Switch Mounting Bracket
5	STH-2320	1	.....Chain Anchor
6	PHSM-402	2	.....Screw (M5x16 SHCS)
7	PHSM-573	2	.....Screw (M4x20 SHCS)
8	PHSM-452	4	.....Screw (M12x35 SHCS)
9	STH-2575	1	.....Cover Assembly
10	PHSM-402	4	.....Screw (M5x16 SHCS)

N/S indicates Not Shown

SECTION II - WORK AREA BASE



STH-2050-1

FIGURE I - WORK AREA BASE FINAL ASSEMBLY (1 of 3)

PARTS LIST COVERING FIGURE "I" (1 of 3)

ITEM NO.	ORDER BY PART NUMBER	QTY.	DESCRIPTION
-	STH-2050	Ref.	....Work Area Base Final Assembly (1 of 3) includes
1	STH-2020	1	.....Work Base Coolant Guard
2	STH-2025	1	.....Work Base Assembly (2M)
3	STH-2008	2	.....Fixture Support
4	PHNM-420	4	.....Nut, Jam (M16)
5	PHSM-458	4	.....Screw (M16x50 HHCS)
6	HL-639	12	.....Screw (M12x30 SHCS)
7	STH-2014	1	.....Side Cover, Front
8	STH-2016	1	.....Side Cover, Rear
9	PHNM-407	2	.....Nut, Hex (M6)
10	PHSM-541	2	.....Screw (M6x16 BHCS)
11	PHWM-509	2	.....Lockwasher (M6)
12	PHWM-530	2	.....Washer, Flat (M6)
13	PHSM-510	6	.....Screw (M6x12 BHCS)
14	PHSM-716	6	.....Screw (M8x16 BHCS)

N/S indicates Not Shown

(Parts continued on next page)

SECTION II
WORK AREA BASE

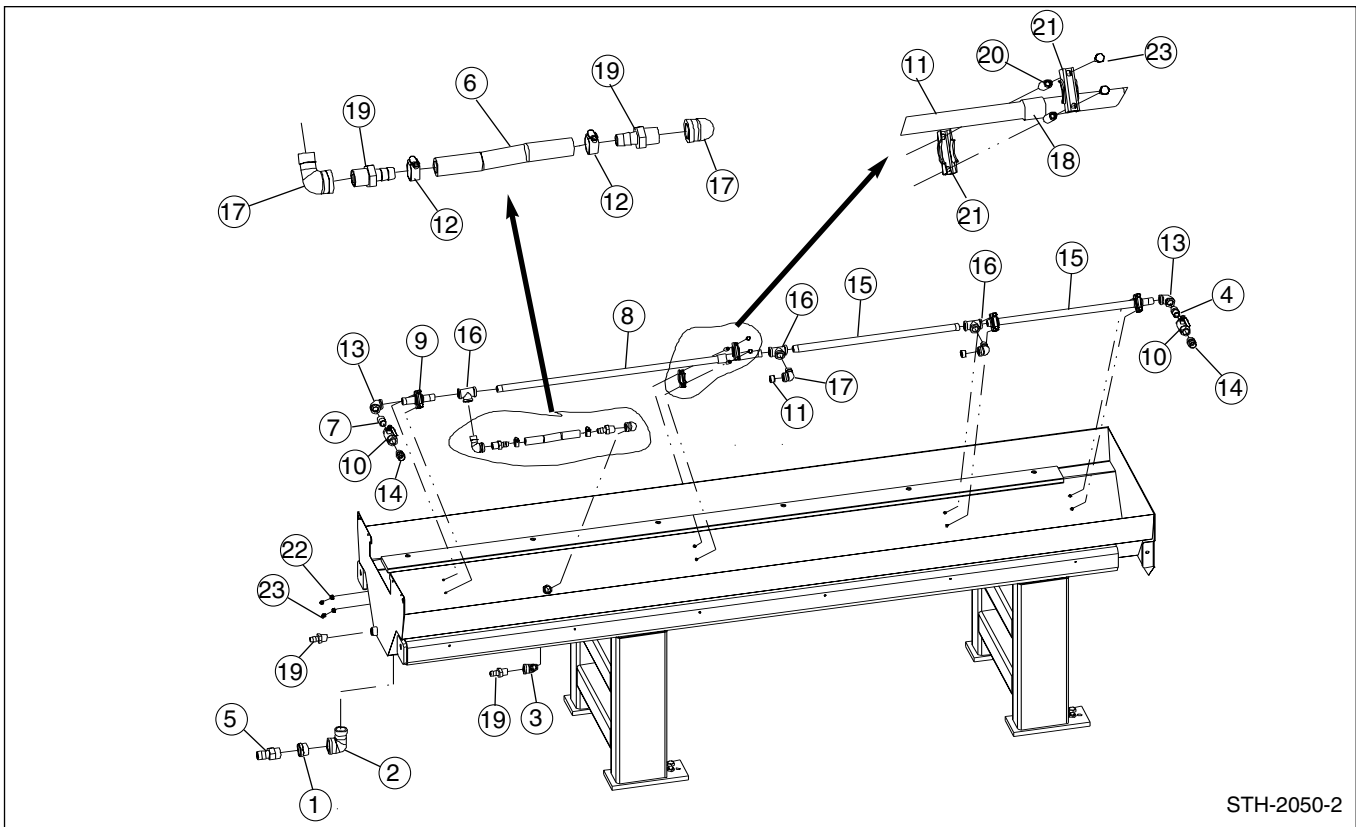


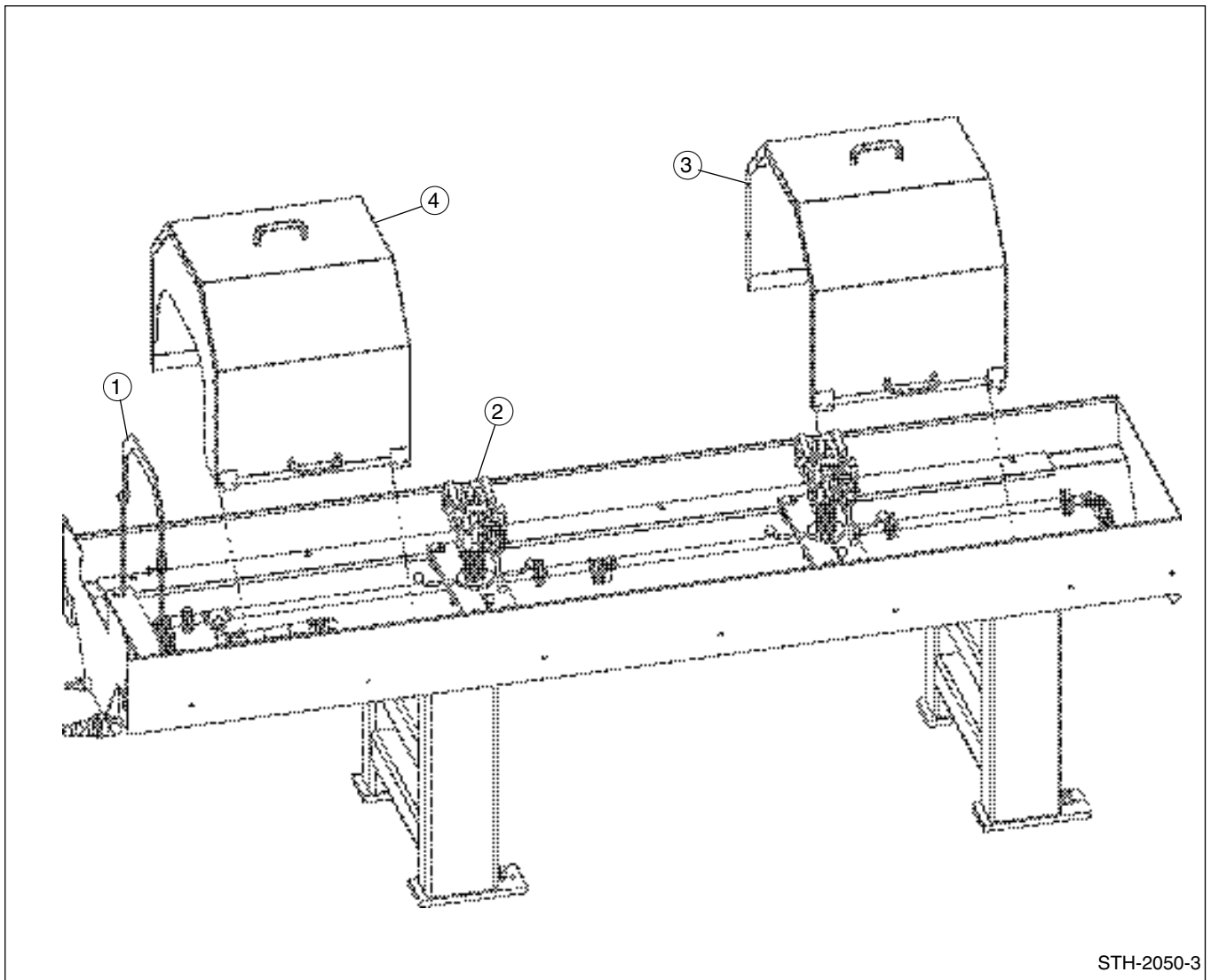
FIGURE I - WORK AREA BASE FINAL ASSEMBLY (2 of 3)

PARTS LIST COVERING FIGURE "I" (2 of 3)

ITEM NO.	ORDER BY PART NUMBER	QTY.	DESCRIPTION
-	STH-2050	Ref.	....Work Area Base Final Assembly (2 of 3) includes
1	---	1	.....Bushing, Reducer (1.5-1.25)
2	---	1	.....Street Nipple (1-1/2 NPT)
3	---	1	.....Street Elbow (3/4 NPT)
4	---	1	.....Hex Nipple (3/4 NPT)
5	F469-85	1	.....Hose Barb Fitting (1-1/4 NPT)
6	---	1	.....Hose (3/4)
7	PPP-152	1	.....Nipple (3/4 NPT)
8	STH-2436	1	.....Pipe, Coolant Supply
9	STH-2438	1	.....Pipe, Coolant Supply
10	---	2	.....Valve, Ball (3/4 NPT)
11	---	2	.....Plug, Pipe (3/4 NPT)
12	CK-1292	2	.....Hose Clamp
13	MAN-1079	2	.....90° Elbow (3/4 NPT)
14	PPP-496	2	.....Loc Line Pipe Adapter (3/4 NPT; F441-8)
15	STH-2437	2	.....Pipe, Coolant Supply
16	PPP-201	3	.....Tee (3/4 NPT)
17	CK-1279	4	.....Street Elbow (3/4 NPT)
18	F434-19	4	.....Pipe Bushing Grommet (3/4 NPT)
19	F469-59	4	.....Hose Barb Fitting (3/4 NPT)
20	F434-9	8	.....Stacking Nut
21	F434-25	8	.....Clamp Unit
22	PHW-119	8	.....Lockwasher (5/16)
23	KN-567	16	.....Screw (5/16-18x.75 HHCS)
N/S	F441-26	16	.....Hose Segment (3/4)
N/S	F441-9	2	.....Nozzle, Round (3/4x3/4)
N/S	F441-15	2	.....Adaptor (3/4x1/2)
N/S	F441-13	2	.....Nozzle, Round (1/2x1/2)

N/S indicates Not Shown

(Parts continued on next page)



STH-2050-3

FIGURE I - WORK AREA BASE FINAL ASSEMBLY (3 of 3)

PARTS LIST COVERING FIGURE "I" (3 of 3)

ITEM NO.	ORDER BY PART NUMBER	QTY.	DESCRIPTION
-	STH-2050	Ref.	....Work Area Base Final Assembly (3 of 3) includes
1	STH-2940	1	.....Driveshaft Safety Cage Assembly (see Figure J)
2	STH-2910	2	.....Tube Support Fixture Assembly (see Figure K)
3	STH-4515	1	.....Removable Splash Guard Assembly, Rear (see Figure L)
4	STH-4520	1	.....Removable Splash Guard Assembly, Front (see Figure M)

N/S indicates Not Shown

SECTION II
WORK AREA BASE

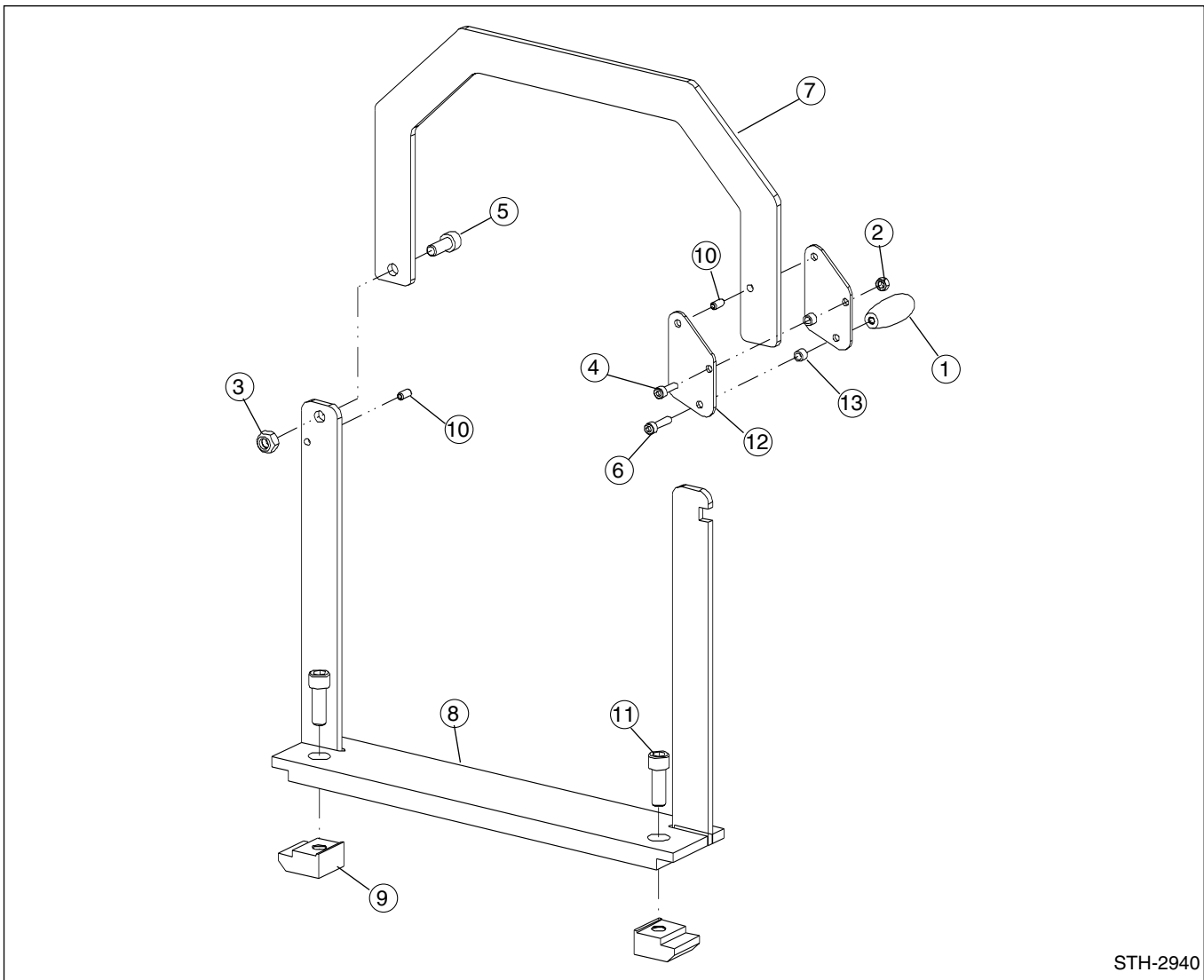
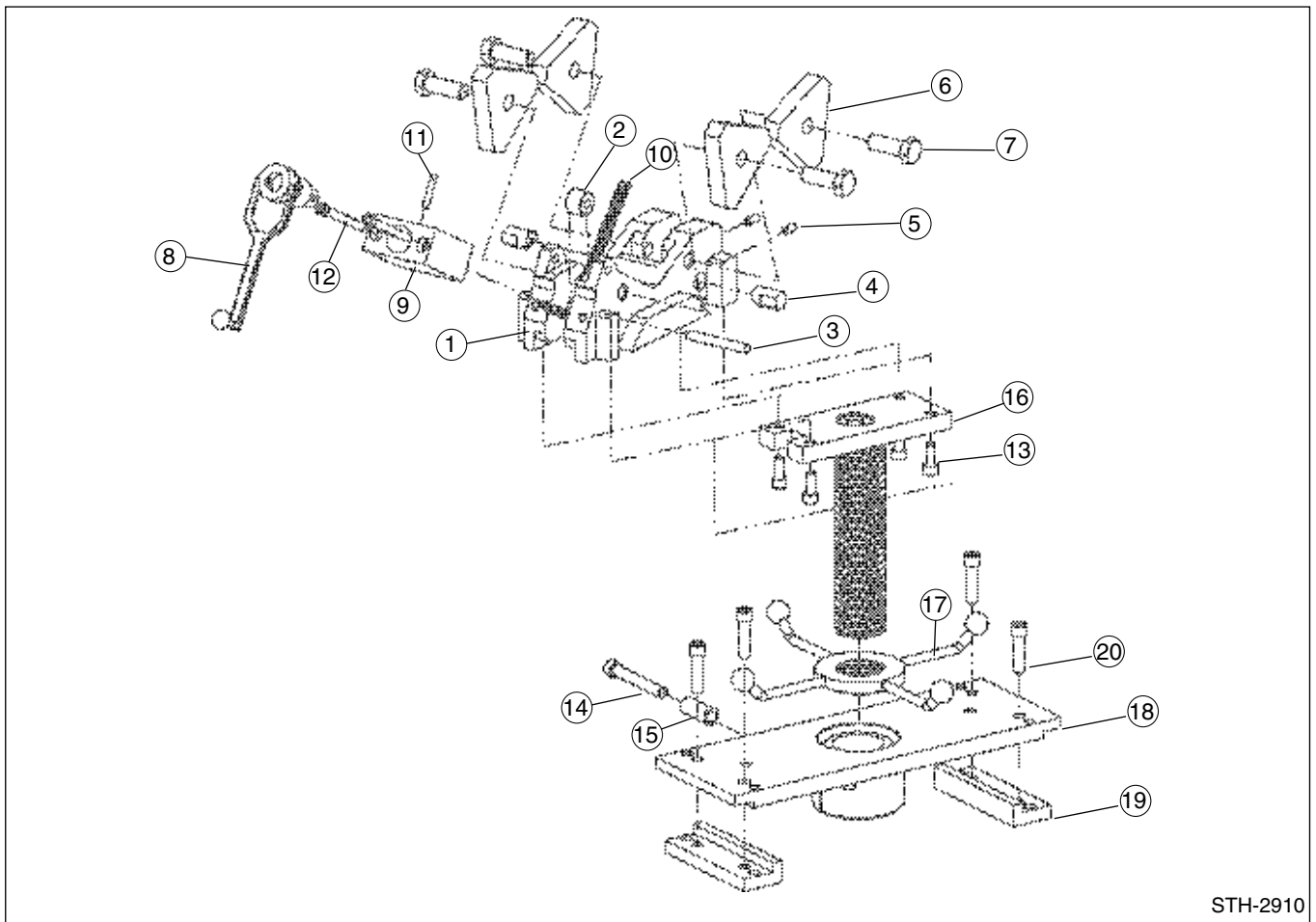


FIGURE J – DRIVESHAFT SAFETY CAGE ASSEMBLY

PARTS LIST COVERING FIGURE “J”

ITEM NO.	ORDER BY PART NUMBER	QTY.	DESCRIPTION
-	STH-2940	Ref.	....Driveshaft Safety Cage Assembly <i>includes</i>
1	F551-2	1	.....Elliptical Knob
2	PHNM-407	1	.....Nut, Hex (M6)
3	PHNM-443	1	.....Nut, Torque
4	PHSM-534	1	.....Screw (M6x20 SHCS)
5	PHSM-606	1	.....Screw (M10x35 SHCS)
6	PHSM-966	1	.....Screw (M6x25 SHCS)
7	STH-2926	1	.....Bracket, Upper Support
8	STH-2945	1	.....Base Plate
9	HL-3289	2	.....Clamp Lock
10	PHSM-405	2	.....Pin, Spring (6x14)
11	PHSM-452	2	.....Screw (M12x35 SHCS)
12	STH-2933	2	.....Slide Plate
13	STH-2934	2	.....Spacer

N/S indicates Not Shown



STH-2910

FIGURE K - TUBE SUPPORT FIXTURE ASSEMBLY
PARTS LIST COVERING FIGURE "K"

ITEM NO.	ORDER BY PART NUMBER	QTY.	DESCRIPTION
-	STH-2910	Ref.	....Tube Support Fixture Assembly includes
-	HL-3270	1	.....Support Fixture includes
1	HL-3271	1	.....Tube Support Fixture
2	HL-3281	1	.....Roller
3	PHP-606	1	.....Pin (.375x3 HGPD)
4	HL-613	2	.....Lock
5	PHSM-548	2	.....Setscrew (M8x16 FPSS)
6	HL-3272	4	.....Clamp
7	PHSM-581	4	.....Screw (M16x45 HHCS)
8	HL-625	1	.....Chain Screw
9	HL-3277	1	.....Clamp Screw Block
10	HL-3380	1	.....Chain
11	PHP-409	1	.....Roll Pin, Spring (1/4x1-3/8)
12	PHSM-605	2	.....Screw (M8x80 SCHS)
13	PHSM-606	4	.....Screw (M10x25 SHCS)
14	PHSM-455	1	.....Screw (M12x90 SHCS)
15	STH-2912	1	.....Spacer, Bolt
16	STH-2935	1	.....Screw Assembly
17	STH-2955	1	.....Fixture Nut Assembly
18	STH-2905	1	.....Fixture Support
19	STH-2911	2	.....Fixture Clamp
20	PHSM-453	4	.....Screw (M12x45 SHCS)

N/S indicates Not Shown

SECTION II
WORK AREA BASE

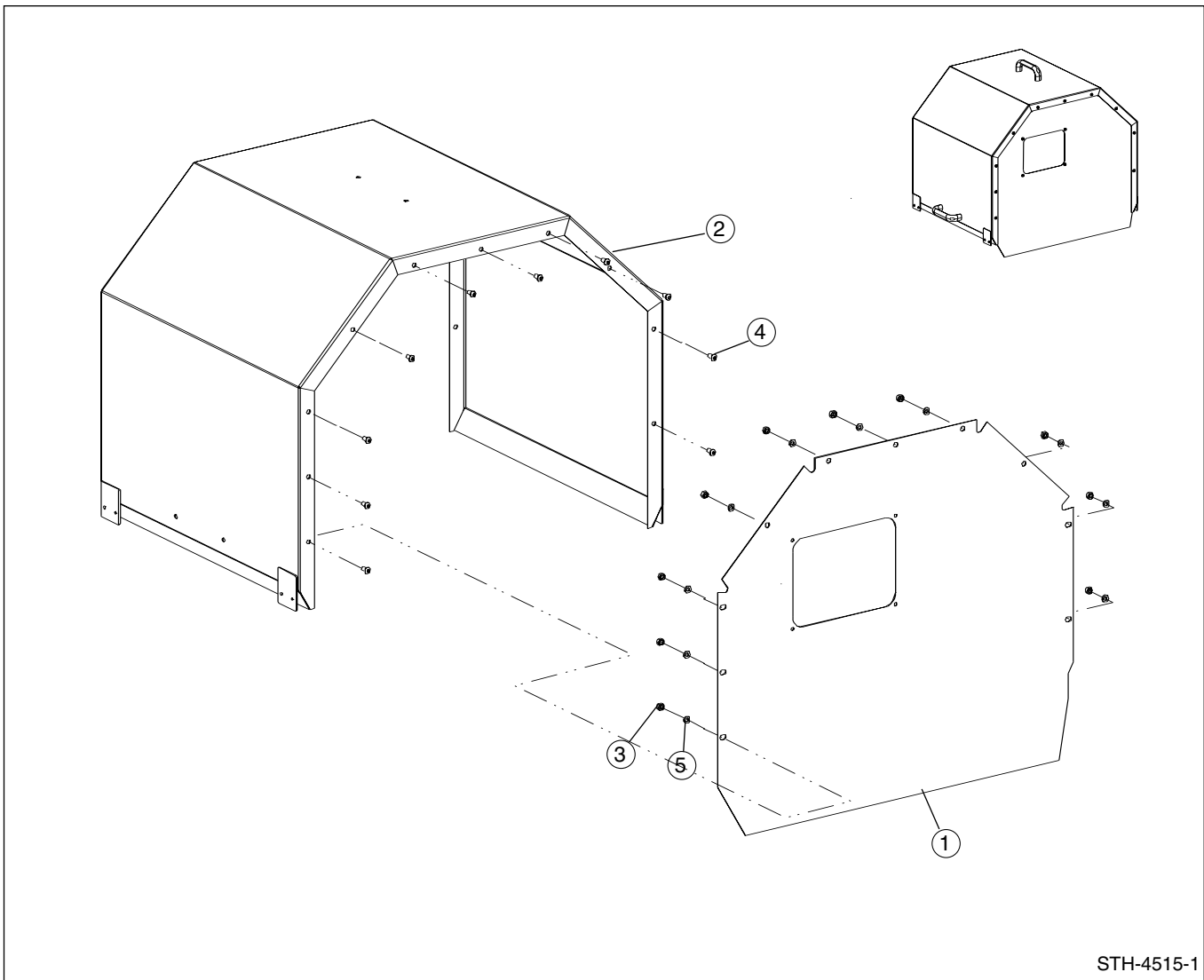


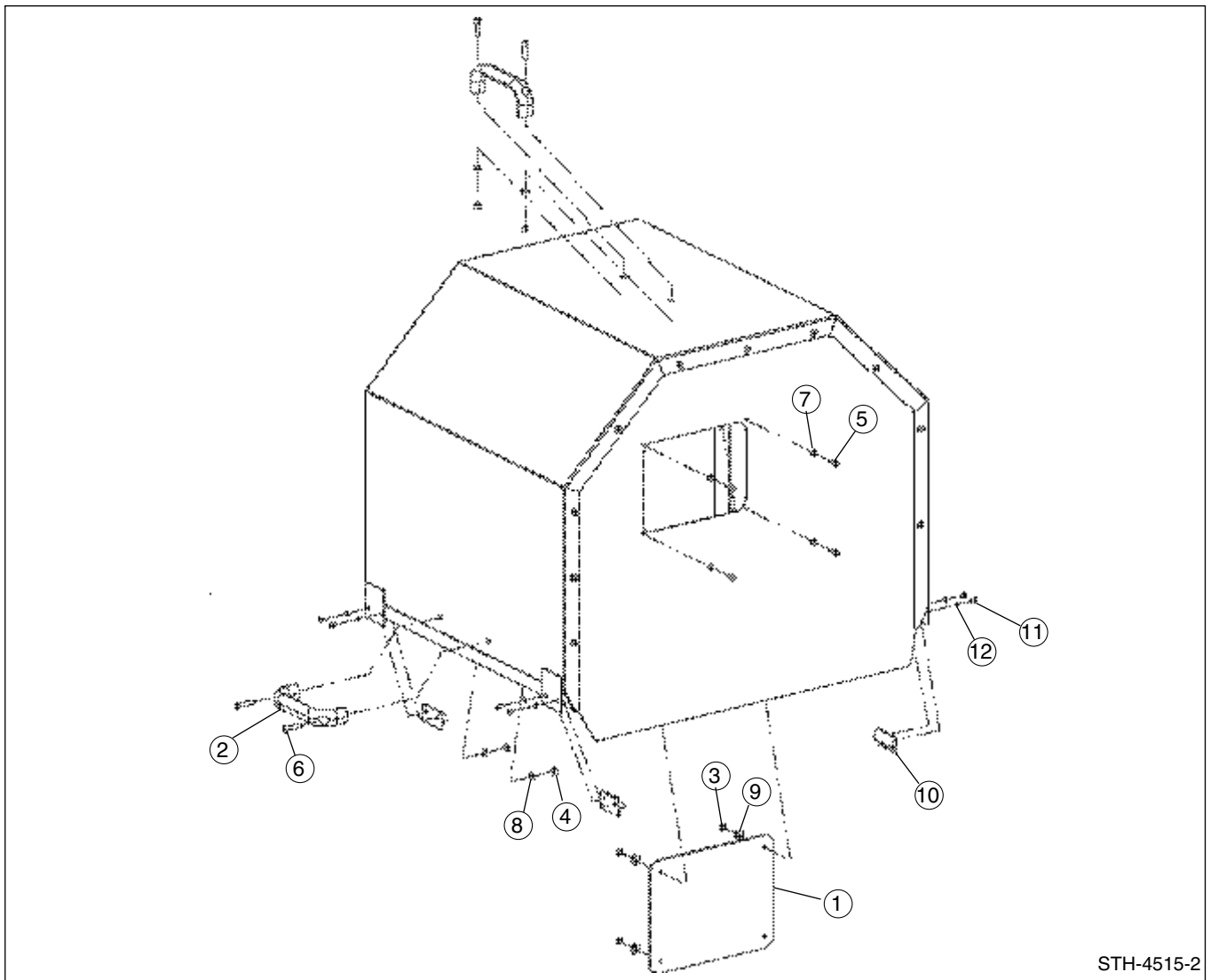
FIGURE L – REMOVABLE SPLASH GUARD ASSEMBLY, REAR (1 of 2)

PARTS LIST COVERING FIGURE “L” (1 of 2)

ITEM NO.	ORDER BY PART NUMBER	QTY.	DESCRIPTION
-	STH-4515	Ref.	....Removable Splash Guard Assembly, Rear (1 of 2) includes
1	STH-2034	1	.....Splash Guard, Rear
2	STH-4530	1	.....Hood
3	PHNM-407	10	.....Nut, Hex (M6)
4	PHSM-510	10	.....Screw (M6x12 BHCS)
5	PHWM-509	10	.....Lockwasher (M6)

N/S indicates Not Shown

(Parts continued on next page)



STH-4515-2

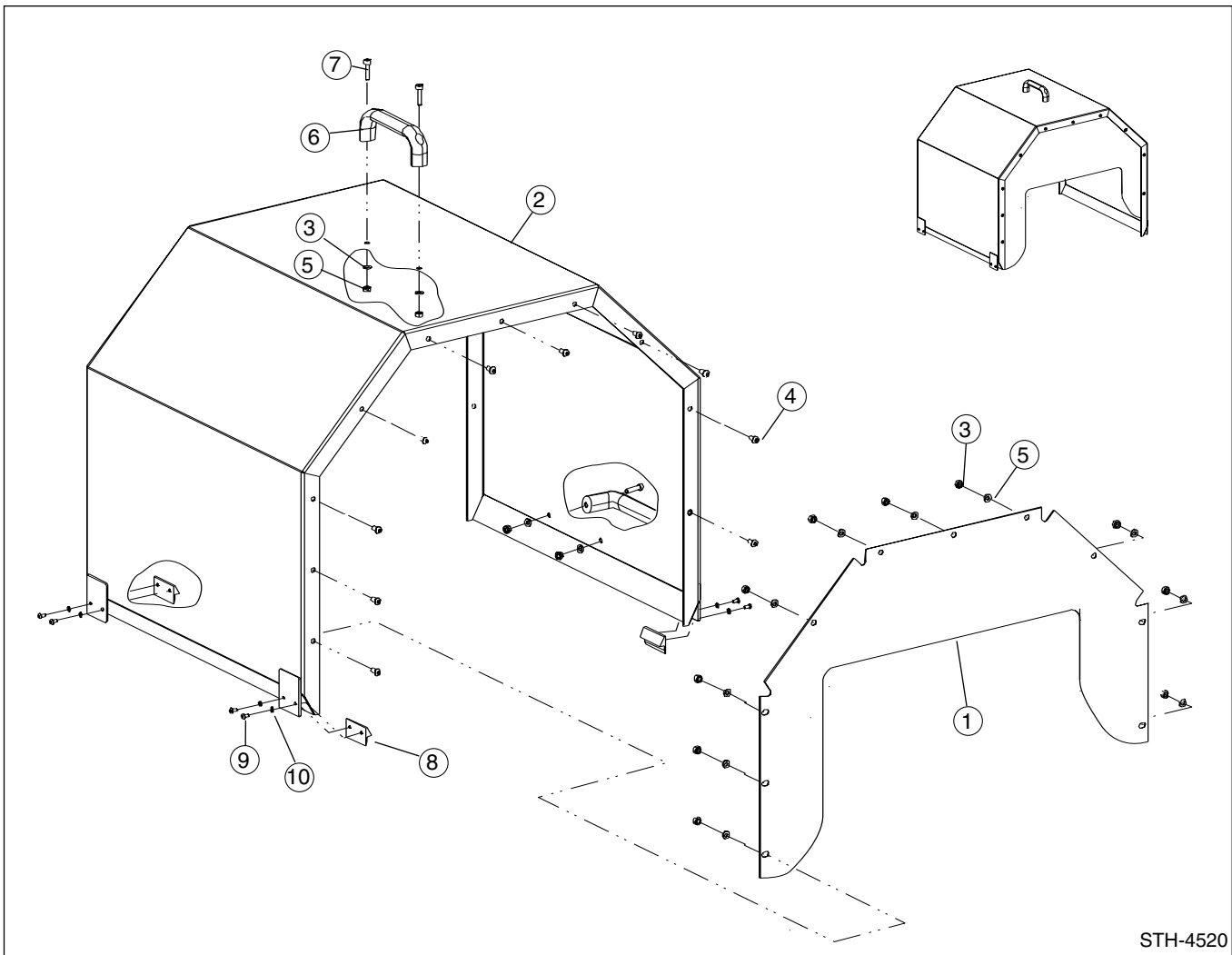
FIGURE L – REMOVABLE SPLASH GUARD ASSEMBLY, REAR (2 of 2)

PARTS LIST COVERING FIGURE "L" (2 OF 2)

ITEM NO.	ORDER BY PART NUMBER	QTY.	DESCRIPTION
-	STH-4515	Ref.	....Removable Splash Guard Assembly, Rear (2 of 2) includes
1	STH-2027	1	.....Pane
2	F551-1	2	.....Handle
3	PHNM-405	4	.....Nut (M5)
4	PHNM-407	4	.....Nut (M6)
5	PHSM-434	4	.....Screw (M5x16 SHCS)
6	PHSM-966	4	.....Screw (M6x25 SHCS)
7	PHWM-406	4	.....Washer (M5)
8	PHWM-509	4	.....Lockwasher (M6)
9	PHWM-529	4	.....Washer, Flat (M5)
10	STH-2026	4	.....Splash Guard Stop
11	PHSM-623	8	.....Screw (M4x8 BHCS)
12	PHWM-528	8	.....Lockwasher (M4)

N/S indicates Not Shown

SECTION II
WORK AREA BASE



STH-4520

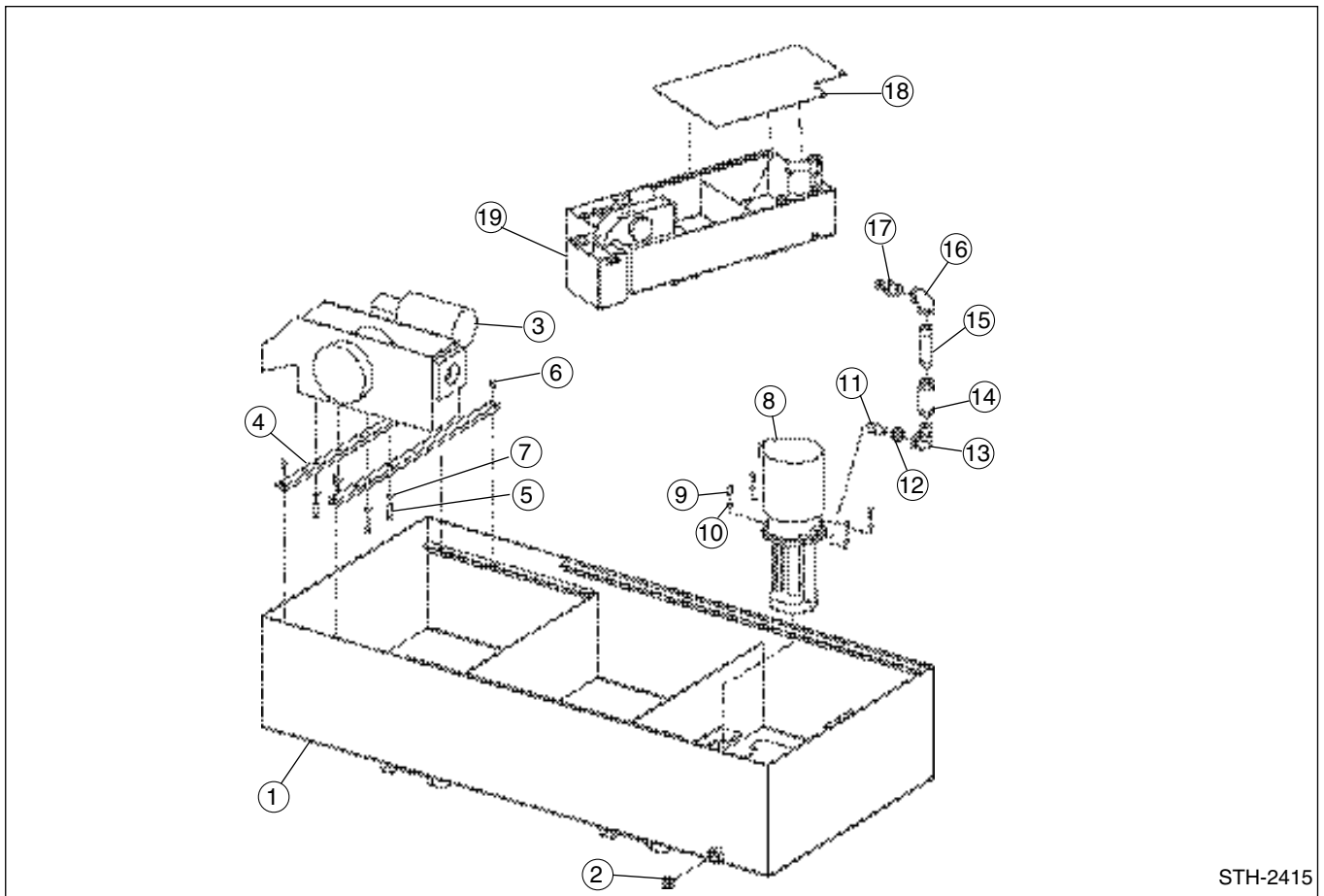
FIGURE M - REMOVABLE SPLASH GUARD ASSEMBLY, FRONT

PARTS LIST COVERING FIGURE "M"

ITEM NO.	ORDER BY PART NUMBER	QTY.	DESCRIPTION
-	STH-4520	Ref.	....Removable Splash Guard Assembly, Front <i>includes</i>
1	STH-2033	1	.....Splash Guard, Front
2	STH-4530	1	.....Hood
3	PHWM-509	14	.....Lockwasher (M6)
4	PHSM-510	10	.....Screw (M6x12 BHCS)
5	PHNM-407	14	.....Nut, Hex (M6)
6	F551-1	2	.....Handle
7	PHSM-966	4	.....Screw (M6x25 SHCS)
8	STH-2026	4	.....Splash Guard Stop
9	PHSM-623	8	.....Screw M4x8 BHCS)
10	PHWM-528	8	.....Lockwasher (M4)

N/S indicates Not Shown

SECTION III - COOLANT TANK



STH-2415

FIGURE N - COOLANT TANK ASSEMBLY, 235L SKID TYPE
PARTS LIST COVERING FIGURE "N"

ITEM NO.	ORDER BY PART NUMBER	QTY.	DESCRIPTION
-	STH-2415	Ref.	....Coolant Tank Assembly, 235L Skid Type <i>includes</i>
1	STH-2420	1	.....Base
2	---	1	.....Plug (3/4 NPT)
-	---	Ref.	.....Magnetic Separator Assembly <i>includes</i>
3	KGM-7095	1	.....Magnetic Separator
4	STH-2411	2	.....Support Bar
5	PHSM-498	4	.....Screw (M8x1,25x30 HHCS)
6	PHSM-535	4	.....Screw (M6x12 SHCS)
7	PHWM-407	4	.....Washer (M8)
-	---	Ref.	.....Coolant Pump Assembly <i>includes</i>
8	F412-2	1	.....Pump
9	PHSM-424	4	.....Screw (M6x20 SHCS)
10	PHWM-509	4	.....Washer (M6)
11	PPP-621	1	.....Nipple, Close (1/2 NPT)
12	CK-1328	1	.....Reducer (3/4 - 1/2 NPT)
13	CK-1279	1	.....Elbow, Street (3/4 NPT)
14	F457-3	1	.....Check Valve (3/4 NPT)
15	PPP-195	1	.....Threaded Pipe (3/4 NPT - 4" Long)
16	MAN-1079	1	.....Elbow (3/4 NPT)
17	F469-59	1	.....Hose Barb (3/4 NPT)
18	STH-2412	1	.....Cover
19	STH-2445	1	.....Waste Container

N/S indicates Not Shown

SECTION III
COOLANT TANK

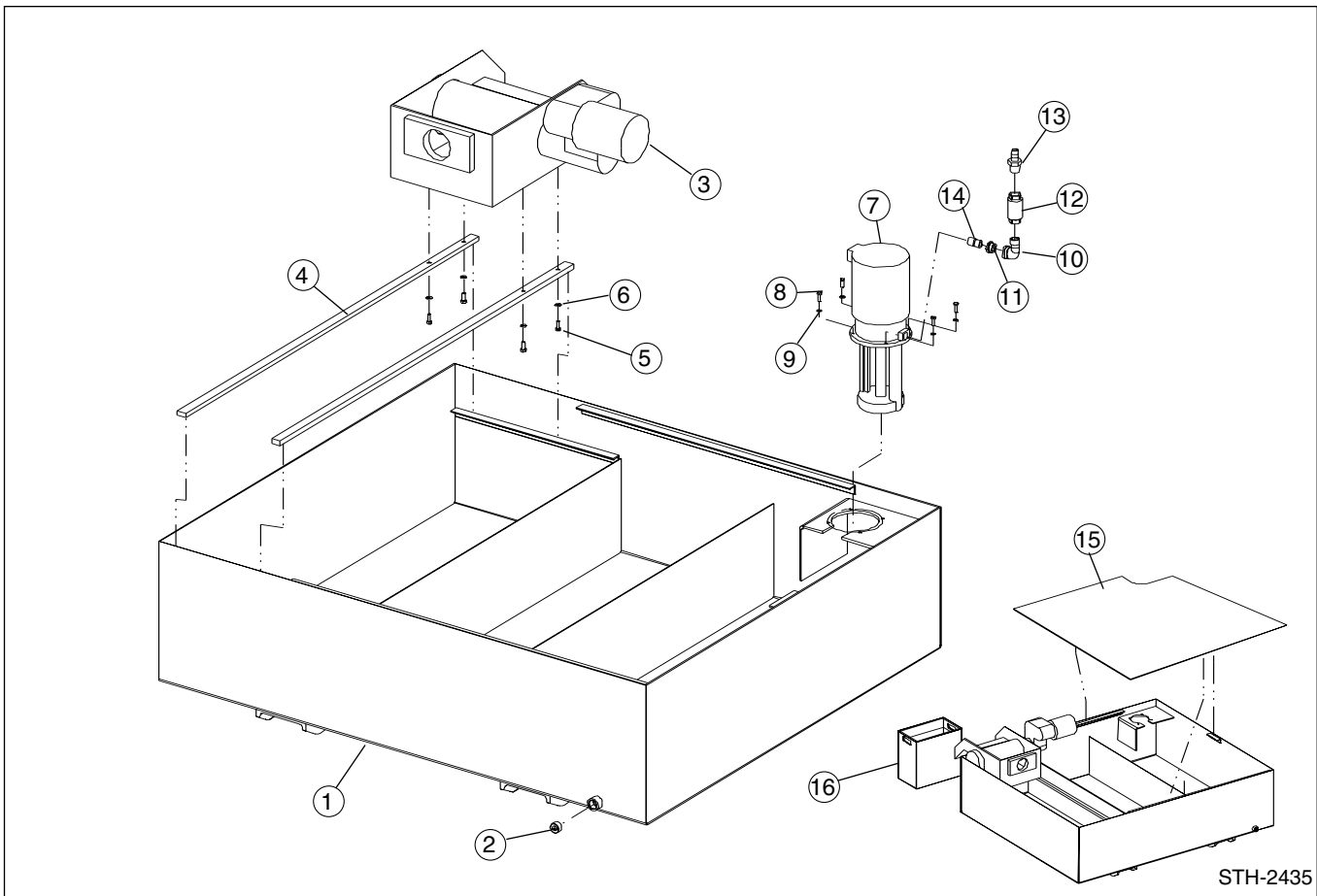


FIGURE O - COOLANT TANK ASSEMBLY, 500L SKID TYPE

PARTS LIST COVERING FIGURE "O"

ITEM NO.	ORDER BY PART NUMBER	QTY.	DESCRIPTION
	STH-2435	Ref.	....Coolant Tank Assembly, 500L Skid Type <i>includes</i>
1	STH-2430	1	.....Base
2	---	1	.....Plug (3/4 NPT)
-	---	Ref.	.....Magnetic Separator Assembly <i>includes</i>
3	---	1	.....Magnetic Separator
4	STH-2424	2	.....Support Bar
5	PHSM-495	4	.....Screw (M8x20 SHCS)
6	PHWM-407	4	.....Washer
-	---	Ref.	.....Coolant Pump Assembly <i>includes</i>
7	F205-36	1	.....Pump
8	PHSM-424	4	.....Screw (M6x20 SHCS)
9	PHWM-509	4	.....Washer (M6)
10	CK-1279	1	.....Elbow, Street (3/4 NPT)
11	CK-1328	1	.....Reducer (3/4 - 1/2 NPT)
12	F457-3	1	.....Check Valve (3/4 NPT)
13	F469-59	1	.....Hose Barb (3/4 NPT)
14	PPP-621	1	.....Nipple, Close (1/2 NPT)
15	STH-2431	1	.....Cover
16	STH-2445	1	.....Waste Container

N/S indicates Not Shown

SECTION IV - ELECTRICAL

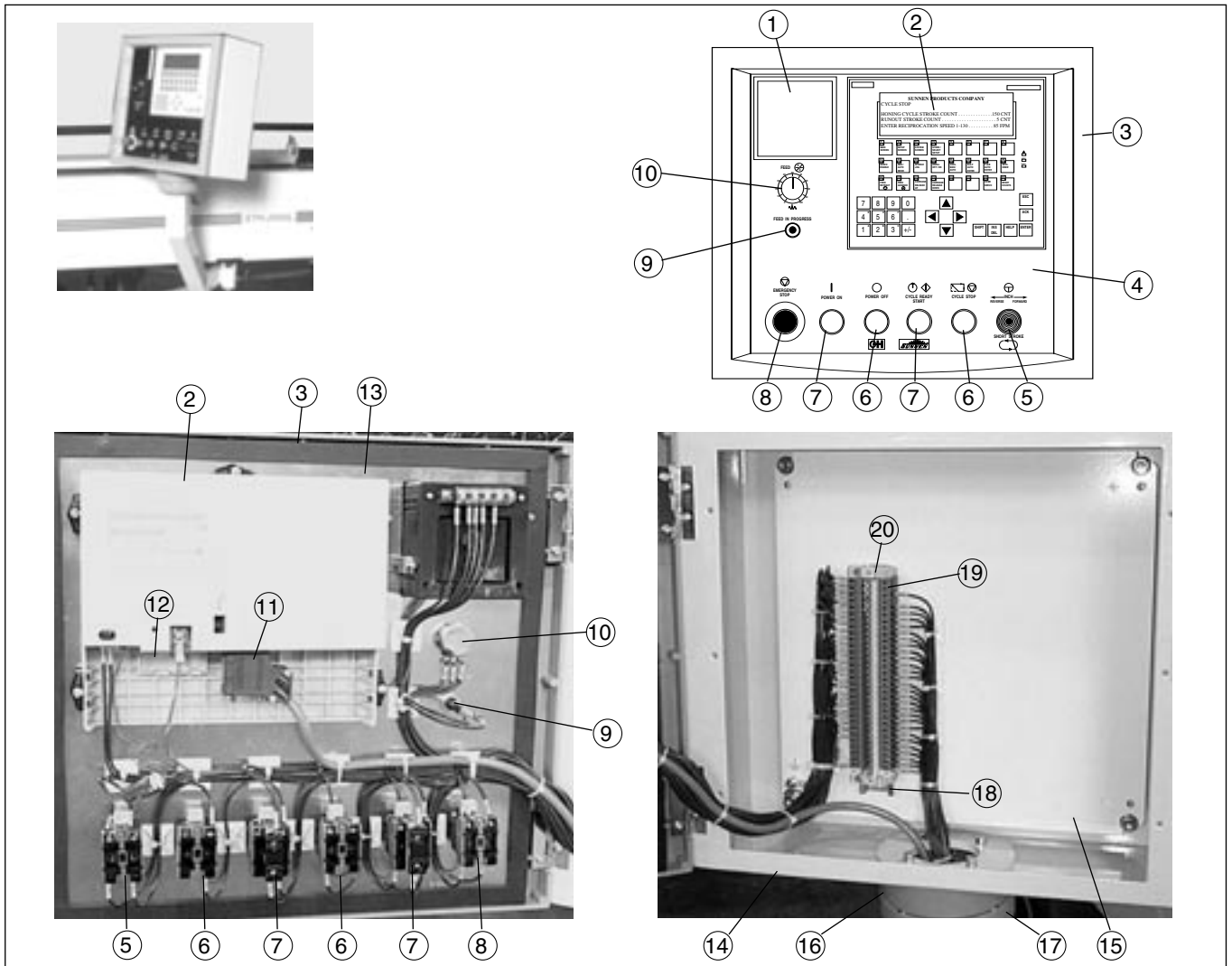


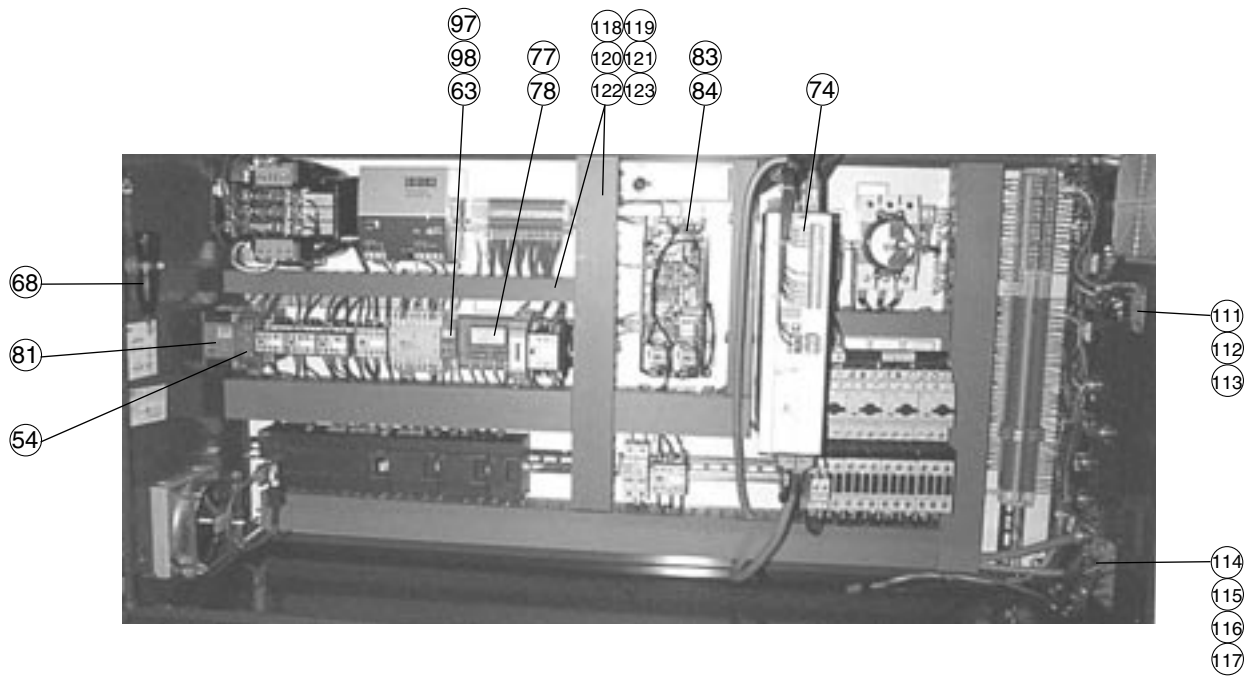
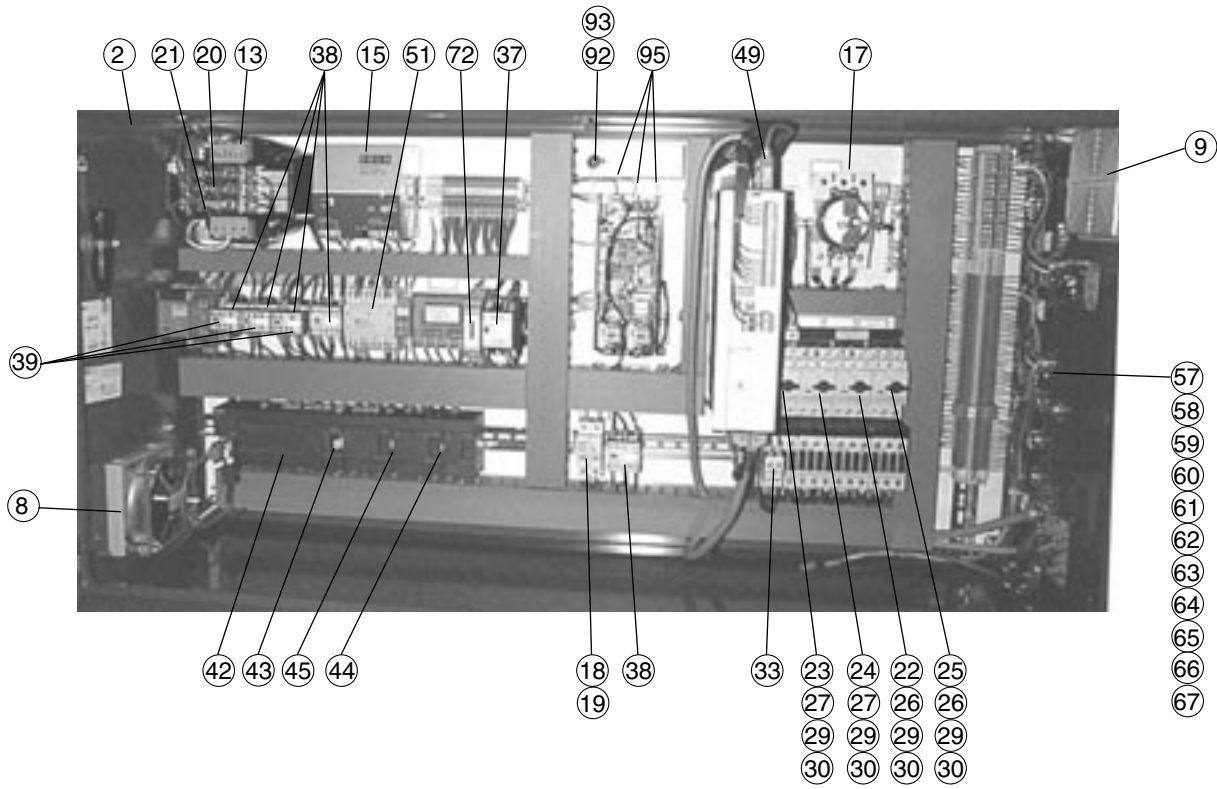
FIGURE P – OPERATOR STATION

PARTS LIST COVERING FIGURE “P”

ITEM NO.	ORDER BY PART NUMBER	QTY.	DESCRIPTION
1	PED-1035A	1	.....Load Meter
N/S	PED-1035-1A	1	.....Bulb
2	6AV3617-1JC20-0AX1	1	.....HMI (OP17)
3	C-BH4045	1	.....Bezel
4	G180D428	1	.....Legend Plate
5	HW1M-F0202-20	1	.....Joystick
6	HW1B-M2F11-R	1	.....Red Pushbutton
7	HW1L-MF20Q-G24	1	.....Green Illuminated Pushbutton
8	HW1B-V3F02-R	1	.....E-Stop Button
9	16F776	1	.....Indicator Light
10	91F2248	1	.....Potentiometer Knob
11	6ES7972-0BA40-OXA0	1	.....Network Connector
12	W79084E1001B2	1	.....Battery (OP17)
13	C-FP4045	1	.....Front Panel
14	C-CB404515	1	.....Operator Console
15	C-P1616	1	.....Back Panel
16	CP-6527.000	1	.....Tilt Adapter, 10 deg.
17	CP-6525.000	1	.....Operator Console Coupling
18	199 408.02	8	.....End Bracket
19	199 053.20	90	.....Terminal Block
20	101 598.26	2	.....Din Rail

N/S indicates Not Shown

SECTION IV
ELECTRICAL



2081ELE

FIGURE Q - ELECTRICAL ENCLOSURES (L-SERIES)

PARTS LIST COVERING FIGURE "Q"

ITEM NO.	ORDER BY PART NUMBER	QTY.	DESCRIPTION
-	---	Ref.	....Electrical Enclosures (Machines S/N1010, 1011, 1015 & up) <i>includes</i>
1	---	-	.....<i>NOT USED</i>
2	G180D450	1	.....Main Electrical Enclosure (Hoffman, 266MN-24x48x12CTD)
N/S	C-P4824	1	.....Back Panel (Hoffman)
N/S	STH-2606	1	.....Operator Console (Hoffman, C-CB404515)
N/S	C-BH4045	1	.....Bezel (Hoffman)
N/S	C-FP4045	1	.....Front Panel Per G180D436 (Hoffman)
N/S	C-P1616	1	.....Backpanel (Hoffman)
8	SF0516-002	1	.....Cabinet Fan (Hoffman)
9	SG0500-002	1	.....Exhaust Grille Kit (Hoffman)
N/S	FG-05	2	.....Gaskets (Hoffman)
N/S	C-WHK	1	.....Door Handle (Hoffman)
N/S	---	-	.....<i>NOT USED</i>
13	FS-3-750	1	.....Transformer (Acme)
N/S	PL-79906	1	.....Fuse Kit (Acme)
15	SDN10-24-100	1	.....24 VDC Power,Supply (Sola)
N/S	HRGCV34L	1	.....Main Disconnect Mechanism (Cutler Hammer)
17	GWF3032	1	.....Main Breaker (Cutler Hammer)
18	USCC21	1	.....Fuse Holder (Brake Release)(Gould)
19	ATDR2	2	.....Fuses (Brake Release)(Gould)
20	ATQR6	2	.....Fuses (Primary)(Gould)
21	TRM8	1	.....Fuse (Secondary)(Gould)
22	3RV1021-0FA10	1	.....Motor Starter Protector (Coolant Pump)(Siemens)
23	3RV1021-1JA10	1	.....Motor Starter Protector (Servo Amp)(Siemens)
24	3RV1021-1GA10	1	.....Motor Starter protector (Spindle)(Siemens)
25	3RV1021-OHA10	1	.....Motor Starter Protector (Filter - If Used)(Siemens)
26	3RT1023-1BB40	1	.....Contactor (Coolant & mag Filter - If Used)(Siemens)
27	3RT1025-1BB40	2	.....Contactor (Servo Amp, Spindle)(Siemens)
N/S	3RV1 901 -1 D	4	.....MSP Auxiliary Contact (Siemens)
29	3RA1921-1B	4	.....Connector Module (Siemens)
30	3RA1922-11A	4	.....Adaptor Plate (Siemens)
N/S	3RV1915-IB	1	.....Line Feeder (Siemens)
N/S	3RV1915-5A	1	.....FeederLug (Siemens)
33	3RH1921-ICA10	2	.....Aux. Contact (Servo MSP)(Siemens)
N/S	3SE3180-1 D	1	.....Limit Switch (Base Safety)(Siemens)
N/S	3SE3180-1C	1	.....Limit Switch (Carriage Shot Pin)(Siemens)
N/S	3SE3180-1G	2	.....Limit Switch (Overtravel)(Siemens)
37	3TH4040-OBB4	1	.....Relay (MCR)(Siemens)
38	3TH2040-OBB4	5	.....Control Relays (Siemens)
39	3TX4404-OA	3	.....Relay Auxiliary Contacts (Siemens)
N/S	6AV3 617-IJC20-OAX1	1	.....OP17 HMI (Siemens)
N/S	W79084E1 001 B2	1	.....OP17 Battery (Siemens)
42	6ES7 216-2BF21-OXB0	1	.....PLC (Siemens)
43	6ES7 223-1BH20-OXA0	1	.....In/Out Expansion Module (Siemens)
44	6ES7 232-0HB20-OXA0	1	.....Analog Output Expansion Module (Siemens)
45	6ES7 235-0KD20-OXA0	1	.....Analog In/Out Expansion Module (Siemens)
N/S	6ES7 972-0BB1 I-OXA0	1	.....Battery (Siemens)
N/S	6ES7 972-0BA40-OXA0	1	.....Network Connector (Siemens)
N/S	6ES7 901-3BF20-OXA0	1	.....Network Connector (Siemens)
49	6XV1 830 OEH10	1	.....RS2321RS485 Converter Cable (Servo Ctrl to PLC)(Siemens)
N/S	---	1	.....Profibus Cable (PLC to OP 17)(Siemens)

N/S indicates Not Shown

(Parts continued on next page)

SECTION IV
ELECTRICAL

PARTS LIST COVERING FIGURE "Q" (Cont'd)

ITEM NO.	ORDER BY PART NUMBER	QTY.	DESCRIPTION
51	BS3-C	1	.....Safety Beam Controller (STI)
N/S	BS3-XC	1	.....Safety Beam Transmitter (2nd Needed for CE Ver)(STI)
N/S	BS3-RC	1	.....Safety Beam Receiver (2nd Needed for CE Ver)(STI)
54	SR05A24	1	.....Safety Relay (STI)
N/S	RST4-RKT 4-679/2M	2	.....PE Cables (Tool Drop and CE Mach Guard if Used)(Lumberg)
N/S	ASBV 4 5-66/5M	1	.....PE Distribution Block (Lumberg)
57	115 118.11	18	.....Terminal Blocks (Large Gray-Screw Terminal)(Enterlec)
58	165 113.16	3	.....Terminal Blocks (GreenNellow-Screw Terminal)(Enterlec)
59	199 053.20	90	.....Terminal Blocks (Blue-Push On)(Enterlec)
60	199 051.26	9	.....Terminal Blocks (White-Push On)(Enterlec)
61	199 054.21	10	.....Terminal Blocks (GreenNellow-Push on)(Enterlec)
62	199 408.02	8	.....End Brackets (Enterlec)
63	115 657.25	4	.....Terminal Fuse Block (Enterlec)
64	101 598.26	2	.....Din Rail (Enterlec)
65	168 973.07	2	.....Jumper Bar (Enterlec)
66	233 000.01	3	.....Label Card (6mm)(Enterlec)
67	234 000.02	1	.....Label Card (8mm)(Enterlec)
68	179 466.06	1	.....Manual Insertion Tool (Enterlec)
N/S	- - -	-	.....<i>NOT USED</i>
N/S	CP-6525.000	1	.....Operator Console Coupling (Rittal)
N/S	CP-6527.000	1	.....10 Degree Tilt Adaptor (Rittal)
N/S	924-60001-003	1	.....Encoder Interface Module (BEI)
N/S	BH-424-D-63	1	.....Servo Motor (Kollmorgen)
74	S60601-EI	1	.....Servo Amplifier (Kollmorgen)
N/S	CS-SS-RHGIHE-03	1	.....Cable Set (Kollmorgen)
76	- - -	-	.....<i>NOT USED</i>
77	ASD05-12D5	1	.....Power Supply (Astrodyne)
78	ADP-10	1	.....Din Mount Adaptor (Astrodyne)
N/S	- - -	-	.....<i>NOT USED</i>
N/S	NB-350-12	1	.....Ground Bar (IlSCO)
81	ES-FL-2A	1	.....Emergency Stoop Relay (Banner)
N/S	BI 2-EG08-AP6X	1	.....Proximity Switch (Turck)
83	P1817-0100	1	.....DC Drive Board (Extron)
84	P1817-0200	1	.....Reversing Board (Extron)
N/S	44N8887	1	.....D-Sub Backshell (Servo X5 to BEI Enc Inter)(Newark)
N/S	87N488	1	.....9 Pin D-Sub Receptacle (Servo X5 to BEI Enc Int)(Newark)
N/S	46F315	1	.....Receptacle (MPS Motor, STH 4M&6M Remote E-St)(Newark)
N/S	46F316	1	.....Plug (STH 4M&6M Remote E-Stop Cable if Used)(Newark)
N/S	44F8394	1	.....Cable Clamp (MPS Motor)(Newark)
N/S	46F335	1	.....Cable Clamp (STH 4M&6M Remote E-Stop If Used)(Newark)
N/S	16F776	1	.....Indicator Light (Newark)
92	01F3550	1	.....10K Ten Turn Potentiometer (Newark)
93	89F2532	1	.....Counting Dial (Newark)
N/S	01F2644	1	.....10K Potentiometer (Newark)
95	01F2660	3	.....25K Locking Potentiometer (Newark)
N/S	91F2248	1	.....Potentiometer Knob (Newark)
97	46F051	1	.....GMA 10A Fuse (Newark)
98	46F034	1	.....GMA 500MA Fuse (Newark)
N/S	87F1598	2	.....GMC 1.6A Fuse (Newark)
N/S	06WX6613	2	.....1K OHM Resistor (Comes in Min Lots of 50)(Newark)
N/S	- - -	-	.....<i>NOT USED</i>

N/S indicates Not Shown

(Parts continued on next page)

PARTS LIST COVERING FIGURE "Q" (Cont'd)

ITEM NO.	ORDER BY PART NUMBER	QTY.	DESCRIPTION
N/S	- - -	-	.....<i>NOT USED</i>
N/S	P9EPEG1	1	.....Enclosure (STH 4000-6000 Remote e-Stop Only)(GE)
N/S	P9B01BN	1	.....NC contacts (STH 400-6000 Remote E-Stop Only)(GE)
N/S	P9XER4RA	1	.....E-Stop Pushbutton (STH 4000-6000 Remote E-Only)(GE)
N/S	HW1M-F0202-20	1	.....Joystick (Idec)
N/S	HW1B-V3FO2-R	1	.....E-Stop Button (Idec)
N/S	HW1B-M2F11-R	2	.....Red Pushbutton (Idec)
N/S	HW1L-MF2F20Q-G-24	2	.....Green Illuminated Pushbutton (Idec)
N/S	- - -	-	.....<i>NOT USED</i>
111	09 33 010 2716	1	.....Receptacle (Coolant Pump, Mag. Separator)(Harting)
112	09 33 010 2616	1	.....Plug (Coolant Pump, Mag. Separator (Harting)
113	09 30 010 0302	1	.....Base (Coolant Pump, Mag. Separator)(Harting)
114	09 30 510 1431	1	.....Hood (Coolant Pump, Mag. Separator)(Harting)
115	09 33 016 2716	2	.....Receptacle (Operator Console)(Harting)
116	09 33 016 2616	2	.....Plug (Operator Console)(Harting)
117	09 30 032 0301	1	.....Base (Operator Console)(Harting)
118	09 30 532 0421	1	.....Hood (Operator Console)(Harting)
119	G2X2LG6	2	.....Wireway (6 it)(Panduit)
120	G1X2LG6	1	.....Wireway (6 it)(Panduit)
121	C21-G6	2	.....Wireway Cover (6 ft)(Panduit)
122	C1LG6	1	.....Wireway Cover (6 ft)(Panduit)
123	SNS2F-C	22	.....Wireway Bracket (Panduit)
N/S	SNS1F-C	7	.....Wireway Bracket (Panduit)
N/S	CG90-5075	2	.....90 Deg. Cord Grip (Servo, Spindle Power Cord)(Appleton)
N/S	CG90-3775	2	.....90 Deg. Cord Grip (Resolver & Spin DC Con Cable)(Appleton)
N/S	CG-1850	3	.....Cord Grip (Air Solenoids & Air Pressure Sw)(Appleton)
N/S	CG-3150	1	.....Cord Grip (Photo Eye Distribution Box)(Appleton)
N/S	E978DC	4	.....Conduit Support Straps (Coolant Tank)(Carlton)
N/S	FS4X2LG6	1	.....6' Length Wireway (4mm Machine Only)(Panduit)
N/S	C41-G6	1	.....6' Wireway Cover (4m Machine Only)(Panduit)
N/S	- - -	-	.....<i>NOT USED</i>
N/S	G180D436	1	.....Front Plate Machining Drawing
N/S	STH-2601	1	.....Pot Mount
N/S	G180A136	1	.....Bracket, Potentiometer Mounting

N/S indicates Not Shown

GENERAL INFORMATION

The Sunnen equipment has been designed and engineered for a wide variety of parts within the capacity and limitation of the equipment. With proper care and maintenance this equipment will give years of service.

READ THE FOLLOWING INSTRUCTIONS CAREFULLY AND THOROUGHLY BEFORE UNPACKING, INSPECTING, OR INSTALLING THIS EQUIPMENT.

IMPORTANT: Read any supplemental instructions BEFORE installing this equipment. These supplemental instructions give you important information to assist you with the planning and installation of your Sunnen equipment.

Sunnen Technical Service Department is available to provide telephone assistance for installation, programming, & troubleshooting of your Sunnen equipment. All support is available during normal business hours, 8:00 AM to 4:30 PM Central Time.

Review all literature provided with your Sunnen equipment. This literature provides valuable information for proper installation, operation, and maintenance of your equipment. Troubleshooting information can also be found within the Instructions. If you cannot find what you need, call for technical support.

Where applicable, programming information for your Sunnen equipment is also included. Most answers can be found in the literature packaged with your equipment.

Help us help you. When ordering parts, requesting information, or technical assistance about your equipment, please have the following information available:

- Have ALL MANUALS on hand. The Customer Services Representative or Technician will refer to it.
- Have Model Number and Serial Number printed on your equipment Specification Nameplate.
- Where Applicable: Have Drive model and all nameplate data. Motor type, brand, and all nameplate data.

For Troubleshooting, additional information may be required:

- Power distribution information (type - delta, wye, power factor correction; other major switching devices used, voltage fluctuations)
- Installation Wiring (separation of power & control wire; wire type/class used, distance between drive and motor, grounding).
- Use of any optional devices/equipment between the Drive & motor (output chokes, etc.).

For fast service on your orders call:

Sunnen Automotive Customer Service toll free at: 1-800-772-2878

Sunnen Industrial Customer Service toll free at: 1-800-325-3670

Customers outside the USA, contact your local authorized Sunnen Distributor.

Additional information available at: <http://www.sunnen.com> or e-mail: sunnen@sunnen.com

NOTE: Sunnen reserves the right to change or revise specifications and product design in connection with any feature of our products contained herein. Such changes do not entitle the buyer to corresponding changes, improvements, additions, or replacements for equipment, supplies or accessories previously sold. Information contained herein is considered to be accurate based on available information at the time of printing. Should any discrepancy of information arise, Sunnen recommends that user verify the discrepancy with Sunnen before proceeding.

ESD PREVENTION REVIEW

Let's review the basics of a sound static control system and its effective implementation. First, in the three step plan:

1. Always ground yourself when handling sensitive components or assemblies.
2. Always use a conductive or shielded container during storage or transportation. These materials create a Faraday cage which will isolate the contents from static charges.
3. Open ESD safe containers only at a static safe work station.

At the static safe work station, follow these procedures before beginning any work:

- A. Put on your wrist strap or foot grounding devices.
- B. Check all grounding cords to make sure they are properly connected to ground, ensuring the effective dissipation of static charges.
- C. Make sure that your work surface is clean and clear of unnecessary materials, particularly common plastics.
- D. Anti-static bubble wrap has been included for use at the machine when an ESD safe workstation is not available.

You are now properly grounded and ready to begin work. Following these few simple rules and using a little common sense will go a long way toward helping you and your company in the battle against the hazards of static electricity. When you are working with ESD sensitive devices, make sure you:

**GROUND
ISOLATE
NEUTRALIZE**

SUNNEN LIMITED PRODUCT WARRANTY

Sunnen Products Company and its subsidiaries (SPC) warrant that all new SPC honing machines, gaging equipment, tooling, and related equipment will be free of defects in material and/or workmanship for a period of one year from the date of original shipment from SPC.

Upon prompt notification of a defect during the one-year period, SPC will repair, replace, or refund the purchase price, with respect to parts that prove to be defective (as defined above). Any equipment or tooling which is found to be defective from improper use will be returned at the customer's cost or repaired (if possible) at customer's request. Customer shall be charged current rates for all such repair.

Prior to returning any SPC product, an authorization (RMA#) and shipping instructions must be obtained from the Customer Service Department or items sent to SPC will be returned to the customer.

Warranty Limitations and Exclusions This Warranty does not apply to the following:

- Normal maintenance items subject to wear and tear: (belts, fuses, filters, etc).
- Damages resulting from but not limited to:
 - › Shipment to the customer (for items delivered to customer or customer's agent F.O.B., Shipping Point)
 - › Incorrect installation including improper lifting, dropping and/or placement
 - › Incorrect electric power (beyond +/- 10% of rated voltage) including intermittent or random voltage spikes or drops
 - › Incorrect air supply volume and/or pressure and/or contaminated air supply
 - › Electromagnetic or radio frequency interference from surrounding equipment (EMI, RFI)
 - › Storm, lightning, flood or fire damage
 - › Failure to perform regular maintenance as outlined in SPC manuals
 - › Improper machine setup or operation causing a crash to occur
 - › Misapplication of the equipment
 - › Use of non-SPC machines, tooling, abrasive, fixturing, coolant, repair parts, or filtration
 - › Incorrect software installation and/or misuse
 - › Non-authorized customer installed electronics and/or software
 - › Customer modifications to SPC software

THE LIMITED WARRANTY DESCRIBED HEREIN IS EXPRESSLY IN LIEU OF ALL ANY OTHER WARRANTIES. SPC MAKES NO REPRESENTATION OR WARRANTY OF ANY OTHER KIND, EXPRESS OR IMPLIED, WHETHER AS TO MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR ANY OTHER MATTER. SPC IS NOT RESPONSIBLE FOR THE IMPROPER USE OF ANY OF ITS PRODUCTS. SPC SHALL NOT BE LIABLE FOR DIRECT, INDIRECT, INCIDENTAL, OR CONSEQUENTIAL DAMAGES INCLUDING BUT NOT LIMITED TO: LOSS OF USE, REVENUE, OR PROFIT. SPC ASSUMES NO LIABILITY FOR PURCHASED ITEMS PRODUCED BY OTHER MANUFACTURERS WHO EXTEND SEPARATE WARRANTIES. REGARDLESS OF ANY RIGHTS AFFORDED BY LAW TO BUYER, SPC'S LIABILITY, IF ANY, FOR ANY AND ALL CLAIMS FOR LOSS OR DAMAGES WITH RESPECT TO THE PRODUCTS, AND BUYER'S SOLE AND EXCLUSIVE REMEDY THEREFOR, SHALL IN ALL EVENTS BE LIMITED IN AMOUNT TO THE PURCHASE PRICE OF THAT PORTION OF THE PRODUCTS WITH RESPECT TO WHICH A VALID CLAIM IS MADE.

Shipping Damages

Except in the case of F.O.B., Buyer's destination shipments, SPC will not be liable for any settlement claims for obvious and/or concealed shipping damages. The customer bears the responsibility to unpack all shipments immediately and inspect for damage. When obvious and/or concealed damage is found, the customer must immediately notify the carrier's agent to make an inspection and file a claim. The customer should retain the shipping container and packing material.

SUNNEN SOFTWARE LICENSE AGREEMENT

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Any alteration or reverse engineering of the software is expressly forbidden and is in violation of this agreement.

SPC reserves the right to update the software covered by this agreement at any time without prior notice and any such updates are covered by this agreement.

GENERAL SAFETY INSTRUCTIONS

READ FIRST

This equipment, like any machine tool, may be dangerous if used improperly. As a result of our commitment to continual safety improvement, many new safety features have been incorporated into this machine. However, these features cannot protect the operator from all hazards of misuse or abuse of the product. Please read all warnings and instructions before attempting to use this equipment.

DO NOT turn power on until all guards and covers are securely in place.

DO NOT remove or defeat any safety device.

Depressing foot pedal with power "ON" can start spindle and stroker motion. Use foot pedal ONLY to start a honing cycle after workpiece is securely fixtured and located on honing tool.

Begin each new setup by depressing Emergency Stop button to clear all previous spindle and stroker speed settings.

NEVER open or remove any machine cover or protective guard with power "ON." Always disconnect power at main enclosure before servicing this equipment.¹

Always wear eye protection when operating this equipment.

DO NOT attempt any repair or maintenance procedure beyond those described in these instructions. Contact your Sunnen Service Representative for repairs not covered in these instructions.

Manual stroked honing and truing should only be performed by operators trained to use safe manual honing practices. The key for switch to disable stroker and allow manual honing should be kept by a supervisor or skilled honing operator to prevent unauthorized manual honing.

Much of the safety of the honing operation is dependent on how workpiece is fixtured. Several standard fixturing components are available but each is limited to certain types of applications. "Homemade" fixtures are also not uncommon and can be quite effective if designed and used properly. Sometimes it is necessary to clamp workpieces lightly when honing with special fixtures to minimize bore distortion. Likewise, tooling for small diameter honing is inherently fragile. Therefore, Always start a new setup with speeds and feed forces that are much lower than recommended to test stability of tooling and fixturing. After that, speeds and feed forces may be increased slowly to recommended values.

If specially built automation components are added to this system, be sure that safety is not compromised. If necessary, obtain special enlarged work area safety system from Sunnen Products Co.

 Indicates CE version ONLY.

¹ DO NOT touch electrical components until main input power has been turned off and CHARGE lamps are extinguished. WARNING: The capacitors are still charged and can be quite dangerous.

Like any machinery, this equipment may be dangerous if used improperly. Be sure to read and follow instructions for operation of equipment.

FRACTION / DECIMAL / MILLIMETER EQUIVALENTS CHART

INCH			INCH			INCH		
FRACTION	DECIMAL	MILLIMETER	FRACTION	DECIMAL	MILLIMETER	FRACTION	DECIMAL	MILLIMETER
. . . .	.003937	0,1000	9/32	.281250	7,1438	21/32	.656250	16,6688
. . . .	.007874	0,2000	19/64	.296875	7,5406	. . . .	.669291	17,0000
. . . .	.011811	0,3000	5/16	.312500	7,9375	43/64	.671875	17,0656
1/64	.015625	0,3969	. . . .	.314961	8,0000	11/16	.687500	17,4625
. . . .	.015748	0,4000	21/64	.328125	8,3344	45/64	.703125	17,8594
. . . .	.019685	0,5000	11/32	.343750	8,7313	. . . .	.708661	18,0000
. . . .	.023622	0,6000	. . . .	.354331	9,0000	23/32	.718750	18,2563
. . . .	.027559	0,7000	23/64	.359375	9,1281	47/64	.734375	18,6531
1/32	.031250	0,7938	3/8	.375000	9,5250	. . . .	.748031	19,0000
. . . .	.031496	0,8000	25/64	.390625	9,9219	3/4	.750000	19,0500
. . . .	.035433	0,9000	. . . .	.393701	10,0000	49/64	.765625	19,4469
. . . .	.039370	1,0000	13/32	.406250	10,3188	25/32	.781250	19,8438
3/64	.046875	1,1906	27/64	.421875	10,7156	. . . .	.787402	20,0000
1/16	.062500	1,5875	. . . .	.433071	11,0000	51/64	.796875	20,2406
5/64	.078125	1,9844	7/16	.437500	11,1125	13/16	.812500	20,6375
. . . .	.078740	2,0000	29/64	.453125	11,5094	. . . .	.826772	21,0000
3/32	.093750	2,3813	15/32	.468750	11,9063	53/64	.828125	21,0344
7/64	.109375	2,7781	. . . .	.472441	12,0000	27/32	.843750	21,4313
. . . .	.118110	3,0000	31/64	.484375	12,3031	55/64	.859375	21,8281
1/8	.125000	3,1750	1/2	.500000	12,7000	. . . .	.866142	22,0000
9/64	.140625	3,5719	. . . .	.511811	13,0000	7/8	.875000	22,2250
5/32	.156250	3,9688	33/64	.515625	13,0969	57/64	.890625	22,6219
. . . .	.157480	4,0000	17/32	.531250	13,4938	. . . .	.905512	23,0000
11/64	.171875	4,3656	35/64	.546875	13,8906	29/32	.906250	23,0188
3/16	.187500	4,7625	. . . .	.551181	14,0000	59/64	.921875	23,4156
. . . .	.196850	5,0000	9/16	.562500	14,2875	15/16	.937500	23,8125
13/64	.203125	5,1594	37/64	.578125	14,6844	. . . .	.944882	24,0000
7/32	.218750	5,5563	. . . .	.590551	15,0000	61/64	.953125	24,2094
15/64	.234375	5,9531	19/32	.593750	15,0813	31/32	.968750	24,6063
. . . .	.236220	6,0000	39/64	.609375	15,4781	. . . .	.984252	25,0000
1/4	.250000	6,3500	5/8	.625000	15,8750	63/64	.984375	25,0031
17/64	.265625	6,7469	. . . .	.629921	16,0000	1	1.000000	25,4000
. . . .	.275591	7,0000	41/64	.640625	16,2719	1-1/16	1.062500	26,9880

FORMULAS:

MULTIPLY BY TO GET
 INCHES (in) x 25.4 = MILLIMETERS (mm)
 FEET (ft) x 0.3048 = METERS (m)

MULTIPLY BY TO GET
 MILLIMETERS (mm) x 0.03937 = INCHES (in)
 METERS (m) x 3.281 = FEET (ft)

Sunnan reserves the right to change or revise specifications and product design in connection with any feature of our products contained herein. Such changes do not entitle the buyer to corresponding changes, improvements, additions, or replacements for equipment, supplies or accessories previously sold. Information contained herein is considered to be accurate based on available information at the time of printing. Should any discrepancy of information arise, Sunnen recommends that user verify the discrepancy with Sunnen before proceeding.



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