

TRUE-SURFACE[®] VIBRATORY GREENS ROLLING SYSTEM OWNER'S MANUAL



TURFLINE, INC.

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**INFORMATION ABOUT YOUR TRUE-SURFACE®
VIBRATORY GREENS ROLLING SYSTEM:**

DATE PURCHASED: _____

SERIAL NUMBER: _____

OPERATION NOTES: _____

To activate the warranty on your new rollers, please fill out and fax the warranty page in this handbook; it is the loose page in the center of the manual.

For parts or service, please call 800-443-8506.

Orders placed before Noon CST can be shipped UPS same day.

UNIVERSAL ROLLER INTRODUCTION

Congratulations on the purchase of your **NEW** True-Surface® Universal Vibratory Greens Rolling System from Turflite, Inc.

Please review this owner's manual before unpacking the rollers.

It is imperative that you fill out and fax or mail back the warranty form to Turflite, Inc. This will activate your product's two year warranty.

Maintenance of these rollers is very minimal. There are two lubrication points on each roller. They are located on each end of the roller. We recommend that you fill the bearing cavity before using with a ***food grade, non-petroleum based grease*** to prevent any turf damage due to grease dripping off the unit, although any type of lithium-based grease is acceptable. Pump until grease is visible between the bearing and hub surfaces. When using the rollers for dispersion of topdressing materials, there may be a need to purge the bearings to remove sand and grit. Wipe off all excess grease from around the bearing.

The proper belt tension is 1/4" deflection. This is preset at the factory. If you need to adjust the belt tension...loosen the three nuts that secure the roller bearing to ***EACH*** end plate and adjust accordingly in the slotted holes. Retighten all of the six nuts, and replace the belt guard.

In the enclosed manual you will find the following:

- *Installation Instructions*
- *Parts drawings and numbers*
- *Mounting Kit Conversions*
- *Adaptation Kits*
- *Warranty and safety information*

If you have any technical questions or if you need to order parts, please call Turflite, Inc. at 1-800-443-8506

Orders received by Noon CST will be shipped the same day via U.P.S. ground to anywhere in the continental United States.

Thank you for choosing the best set of American-made rollers available!

WARRANTY INFORMATION

To maintain superior warranty service, please call Turfline, Inc. before having work done on alleged defective equipment. We strive to maintain excellent customer service and quality products; keeping us informed of situations allows us to do so.

Within the industry, including the chat rooms of Turfnet and GCSAA., our company is known to be expedient in servicing our warranted products. Turfline, Inc.'s warranty policy is as follows:

Turfline, Inc. will either repair or replace any *non-wear* part of the True-Surface® Vibratory Greens Rolling System which is defective in workmanship or material for a period of twenty four (24) months from the date of delivery of the new product to the original end user determined by the **warranty registration**. These items will be repaired or replaced free of charge and freight free. *Warranties on used or ex-demo equipment are limited to 90 days from date of purchase.*

Turfline, Inc. will cover parts subject to normal maintenance routines as specified in the product's Owner Manual and parts subject to wear and tear during the correct operation of the product. These parts include, but are not limited to, shafts, bearings, belts, and rubber shock mounts (RSM's) for a limited 90 days. *The 90-day warranty on wear items specifically excludes used or ex-demo units.*

Turfline, Inc. will not issue warranty credit for:

- any item that has been damaged by accident, lack of reasonable care and protection, or lack of suitable storage.
- parts that have been altered or modified by anyone other than Turfline, Inc.
- used parts that have been installed in place of failed parts.
- parts that have been installed incorrectly by the end user or its agents.
- parts that have not been maintained as per the Owner's Manual.
- service calls and overtime labor rates as Turfline, Inc. shall be contacted immediately upon encountering any problems.
- any consequential loss, damage, or costs to the equipment caused by (or incidental to) failure of any new part supplied with the original purchase or any new part supplied as a replacement for any failed part.

Warranty Claims:

The final purchaser of the True-Surface® Vibratory Greens Rolling System must file a warranty claim with Turfline, Inc. The final purchaser must provide written evidence detailing the product's delivery date to that purchaser and the reasons why the purchaser believes the product or part is defective in the categories of faulty material or workmanship. The purchaser is to deliver the faulty product or part to Turfline, Inc. at the purchaser's expense to be reimbursed by Turfline, Inc. if found to be the responsible party. Acceptance or rejection of the warranty claim is entirely at the discretion of Turfline, Inc.

Turfline, Inc.

**712 Jefferson St., Ste. A
Moscow Mills, Mo 63362**

1-800-443-8506 or +1-636-356-1210 ~ Please ask for the warranty department.

TURFLINE, INC. reserves the right to make improvements in design or changes in specifications without prior notice and without prejudice or obligation to original design purchasers.

No person or organization has the authority to modify the terms, conditions, or limitations of this warranty without the written consent of Turfline, Inc.

UNIVERSAL ROLLER-FACT SHEET

Patented: US Patent No. 5,261,213

Specifications:

Weight: Average of 80 lbs per unit
Frame: One piece welded assembly, formed steel frame
Roller Tube: 5.5" O.D. tube, 3/16" wall, 22.5" roller length 1018 mild steel
Roller Hub: (2) Relubricatable flange mounted bushings 1.5" I.D.
Roller Shaft: 1" diameter 1045 mild steel, drilled and tapped for eccentric wts
Shaft bearings: Shielded type, anti-friction, maintenance free ball bearings.
Shaft Eccentric Speed: 3500 to 6000 RPMs

Easy installation:

Roller can be attached to Toro, Jacobsen, John Deere and Ransomes triplex mowers within minutes.

Management Tool:

When incorporated into the general maintenance program, the system creates healthy greens quicker; enables superintendents to dial-in specific speeds or stimp requirements; can be used on contoured greens; adaptable to triplex greens mowers; does not need specific training to operate; provides consistency to all greens.

Controllable Results:

Vibration allows you to stimp all greens within 2 to 4 inches by varying ground speed.

Customer Satisfaction: Two-year limited warranty

Distributors: Worldwide distribution

Shipment: Approximately 85 lbs each via UPS

Company Contacts:

John Humphrey – President/Owner
Terry Plemons – Director of Worldwide Sales
Ryan Jerome – Sales Account Executive
Michael Sprick – Sales Account Executive
Brad Everett – Production Manager
Randy Leitman – Product Engineer/Technical Support

For sales and service:

PHONE: 800-443-8506

FAX: 636-356-1218

www.true-surface.com

Troubleshooting Hydraulics and the True-Surface[®] Vibratory Rollers

We have found that when the hydraulic motor is spinning at less RPMs than the standard factory specifications, there can be noise and/or excessive vibration issues with the True-Surface Rollers. Please note that these rollers require a minimum of 1800 RPMs out of your hydraulic motor to operate properly. A tachometer can be purchased from your equipment dealer to determine what your RPMs are.

Troubleshooting this situation has shown that low hydraulic RPMs will cause excessively loud operation and vibration. In addition, below-factory RPMs can place undue stress on parts such as the rubber shock mounts (RSMs) and the bearings. If you find yourself replacing these parts more than you would expect, or if the rollers appear to be violently vibrating, this is probably due to inadequate RPMs.

This failure would not necessarily be noticeable while mowing the greens. It is a fact that you can mow with much less RPMs and still provide a quality cut. The rollers are designed to work at the factory output of 1800/2100 RPMs. This range covers all greens mowers with hydraulic power sources. Loss of RPMs needs to be checked for on any greensmower that appears to be having the aforementioned difficulties.

An alternative solution would be to install the greens rollers on a triplex that meets the 1800/2100 factory design criteria and leave the 'weak' unit to handling regular mowings or to serve as a backup mower.

Please feel free to contact us at the Turfline Manufacturing Facility if you have any further questions regarding this issue.

Brad Everett
Ph # (636) 356-1210
Manufacturing Supervisor

USES FOR YOUR TRUE-SURFACE® VIBRATORY GREENS ROLLERS

True Putting Surfaces:

Vibratory action trues the greens' surface without damaging grass, eliminates footprints, spike marks and ball marks, and energizes sand to conform to surface contour.

Grow-In:

Vibratory action does not damage or pull-up new plants. It energizes the surface, reduces the need for mowing, and makes greens playable earlier.

Sand Topdressing:

Vibration following dragging or brushing virtually eliminates dry sand from the turf canopy. Sand falls through the canopy just before the roller gets to it, thus minimizing bruising and saving your reels and bed knives.

Dew Removal:

The vibratory roller removes dew and trues the surface at the same time.

Aerification:

Vibration enables dry topdressing to work itself into aerification holes and trues the surface to allow acceptable ball play.

Integrated Pest Management:

By rolling more and mowing less, plants are healthier. Raising the height of cut 20% from .125" to .156" will increase the health of grass considerably and reduce potential infiltration from various pests and diseases. Decreased use of fertilizers, fungicides, pesticides and watering will generate savings. By alternating mowing and rolling, turf becomes more resilient and can withstand more play which equals more dollars for your course.

BE A SAFE OPERATOR

- Think
- Maintain Your Equipment
- Use Your Equipment Only For Applications For Which It Was Created

The True-Surface® Vibratory Greens Rolling System was created to be used exclusively on triplex mowers as a greens maintenance tool. Use of the rollers in an application other than the one intended will void its warranty and could possibly cause equipment damage and personal injury.

AVOID ACCIDENTS

Most accidents, whether they occur in the industry, on the farm, at home, or on the highway are caused by human mistakes. Most accidents can be prevented by careful operation and prevention.

TIPS FOR CONSISTENT GREENS

Golfers demand consistent greens. They want to make sure they have the same putting conditions from green to green. Only the ***True-Surface® Vibratory Greens Rolling System*** will provide consistent ball roll distance on all greens.

To obtain consistency with the vibratory greens rollers follow this EXAMPLE:

Rolling at the same speed you mow equals 12 inches of Ball Roll Distance (BRD), then in order to achieve:

- 24 inches of BRD; roll at 1/2 the speed you mow;
- 18 inches of BRD; roll at 3/4 the speed you mow;
- 6 inches of BRD; roll at twice the speed you mow.

The variance of your greensmower's RPM and ground speed will allow you to obtain ANY desired results you require. This variable feature can ONLY be obtained with the ***TRUE-SURFACE® Vibratory Greens Rolling System***.

This diagram is an exploded view of a mechanical assembly, likely a pump or motor unit. It shows the following components and their assembly relationships:

- Top Section:** Includes a motor or actuator assembly (7571, 7156, 7006) connected to a drive shaft (7009) and a coupling (1433). This is linked to a central shaft assembly (7004, 7003, 7007) which includes a bearing (1016-2) and a seal (1016-1).
- Central Section:** Features a main housing (7000) with internal components like a rotor (7011) and stator (7010) assembly, and a pump head (7012) with a piston (7013) and connecting rod (7014).
- Bottom Section:** Shows a base plate (7001) with mounting feet (7002, 7003) and a control valve (7005) with a handle (7006).
- Other Components:** Various fasteners, seals, and sub-assemblies are labeled with part numbers such as 1010, 1011, 1012, 1013, 1014, 1015, 1016, 1017, 1018, 1019, 1020, 1021, 1022, 1023, 1024, 1025, 1026, 1027, 1028, 1029, 1030, 1031, 1032, 1033, 1034, 1035, 1036, 1037, 1038, 1039, 1040, 1041, 1042, 1043, 1044, 1045, 1046, 1047, 1048, 1049, 1050, 1051, 1052, 1053, 1054, 1055, 1056, 1057, 1058, 1059, 1060, 1061, 1062, 1063, 1064, 1065, 1066, 1067, 1068, 1069, 1070, 1071, 1072, 1073, 1074, 1075, 1076, 1077, 1078, 1079, 1080, 1081, 1082, 1083, 1084, 1085, 1086, 1087, 1088, 1089, 1090, 1091, 1092, 1093, 1094, 1095, 1096, 1097, 1098, 1099, 1100, 1101, 1102, 1103, 1104, 1105, 1106, 1107, 1108, 1109, 1110, 1111, 1112, 1113, 1114, 1115, 1116, 1117, 1118, 1119, 1120, 1121, 1122, 1123, 1124, 1125, 1126, 1127, 1128, 1129, 1130, 1131, 1132, 1133, 1134, 1135, 1136, 1137, 1138, 1139, 1140, 1141, 1142, 1143, 1144, 1145, 1146, 1147, 1148, 1149, 1150, 1151, 1152, 1153, 1154, 1155, 1156, 1157, 1158, 1159, 1160, 1161, 1162, 1163, 1164, 1165, 1166, 1167, 1168, 1169, 1170, 1171, 1172, 1173, 1174, 1175, 1176, 1177, 1178, 1179, 1180, 1181, 1182, 1183, 1184, 1185, 1186, 1187, 1188, 1189, 1190, 1191, 1192, 1193, 1194, 1195, 1196, 1197, 1198, 1199, 1200, 1201, 1202, 1203, 1204, 1205, 1206, 1207, 1208, 1209, 1210, 1211, 1212, 1213, 1214, 1215, 1216, 1217, 1218, 1219, 1220, 1221, 1222, 1223, 1224, 1225, 1226, 1227, 1228, 1229, 1230, 1231, 1232, 1233, 1234, 1235, 1236, 1237, 1238, 1239, 1240, 1241, 1242, 1243, 1244, 1245, 1246, 1247, 1248, 1249, 1250, 1251, 1252, 1253, 1254, 1255, 1256, 1257, 1258, 1259, 1260, 1261, 1262, 1263, 1264, 1265, 1266, 1267, 1268, 1269, 1270, 1271, 1272, 1273, 1274, 1275, 1276, 1277, 1278, 1279, 1280, 1281, 1282, 1283, 1284, 1285, 1286, 1287, 1288, 1289, 1290, 1291, 1292, 1293, 1294, 1295, 1296, 1297, 1298, 1299, 1300, 1301, 1302, 1303, 1304, 1305, 1306, 1307, 1308, 1309, 1310, 1311, 1312, 1313, 1314, 1315, 1316, 1317, 1318, 1319, 1320, 1321, 1322, 1323, 1324, 1325, 1326, 1327, 1328, 1329, 1330, 1331, 1332, 1333, 1334, 1335, 1336, 1337, 1338, 1339, 1340, 1341, 1342, 1343, 1344, 1345, 1346, 1347, 1348, 1349, 1350, 1351, 1352, 1353, 1354, 1355, 1356, 1357, 1358, 1359, 1360, 1361, 1362, 1363, 1364, 1365, 1366, 1367, 1368, 1369, 1370, 1371, 1372, 1373, 1374, 1375, 1376, 1377, 1378, 1379, 1380, 1381, 1382, 1383, 1384, 1385, 1386, 1387, 1388, 1389, 1390, 1391, 1392, 1393, 1394, 1395, 1396, 1397, 1398, 1399, 1400, 1401, 1402, 1403, 1404, 1405, 1406, 1407, 1408, 1409, 1410, 1411, 1412, 1413, 1414, 1415, 1416, 1417, 1418, 1419, 1420, 1421, 1422, 1423, 1424, 1425, 1426, 1427, 1428, 1429, 1430, 1431, 1432, 1433, 1434, 1435, 1436, 1437, 1438, 1439, 1440, 1441, 1442, 1443, 1444, 1445, 1446, 1447, 1448, 1449, 1450, 1451, 1452, 1453, 1454, 1455, 1456, 1457, 1458, 1459, 1460, 1461, 1462, 1463, 1464, 1465, 1466, 1467, 1468, 1469, 1470, 1471, 1472, 1473, 1474, 1475, 1476, 1477, 1478, 1479, 1480, 1481, 1482, 1483, 1484, 1485, 1486, 1487, 1488, 1489, 1490, 1491, 1492, 1493, 1494, 1495, 1496, 1497, 1498, 1499, 1500, 1501, 1502, 1503, 1504, 1505, 1506, 1507, 1508, 1509, 1510, 1511, 1512, 1513, 1514, 1515, 1516, 1517, 1518, 1519, 1520, 1521, 1522, 1523, 1524, 1525, 1526, 1527, 1528, 1529, 1530, 1531, 1532, 1533, 1534, 1535, 1536, 1537, 1538, 1539, 1540, 1541, 1542, 1543, 1544, 1545, 1546, 1547, 1548, 1549, 1550, 1551, 1552, 1553, 1554, 1555, 1556, 1557, 1558, 1559, 1560, 1561, 1562, 1563, 1564, 1565, 1566, 1567, 1568, 1569, 1570, 1571, 1572, 1573, 1574, 1575, 1576, 1577, 1578, 1579, 1580, 1581, 1582, 1583, 1584, 1585, 1586, 1587, 1588, 1589, 1590, 1591, 1592, 1593, 1594, 1595, 1596, 1597, 1598, 1599, 1600, 1601, 1602, 1603, 1604, 1605, 1606, 1607, 1608, 1609, 1610, 1611, 1612, 1613, 1614, 1615, 1616, 1617, 1618, 1619, 1620, 1621, 1622, 1623, 1624, 1625, 1626, 1627, 1628, 1629, 1630, 1631, 1632, 1633, 1634, 1635, 1636, 1637, 1638, 1639, 1

PARTS FOR ALL MODELS

DEPT.	ITEM #	DESCRIPTION	QTY/UNIT
30A	09-16	ROLLER TUBE	1
30H	1001	BOLT 5/16-18X3/4	4
37P	1016-2	FLANGED BEARING ASSEMBLY	2
+	+	<i>above includes flanges, nuts, bearings, RSMs</i>	+
30H	1003	BOLT 1/4-20X3/4	7
30H	1007	LOCKWASHER 1/4" SPLIT	6
30H	1013	LOCKWASHER 5/16" SPLIT	2
37P	1014	SHAFT SNAP RING	1
37P	1023	SHAFT BEARING	2
37P	1024	SHAFT PULLEY (2")	1
30H	1025	MACH KEY LONG	1
37P	1029	SNAP RING	1
30H	1010	LOCKWASHER 3/8" SPLIT	4
30H	1100	BOLT 3/8-16X1	4
37P	1127	BEARING SNAP RING	1
30H	1140	BOLT 5/16-18X3/4 FLAT HEAD	8
30H	1153	LOCKNUT 1/4" -20 NYLON	1
30H	1147	SERRATED FLANGED NUT 5/16"	14
30H	1505	1/4-20x3/4 SOCKET HEAD SCREW	2
+	+	<i>use after S/N UR21771</i>	+
30H	1506	SOCKET HEAD CAP SCREWS 1/4-20x1	2
+	+	<i>use before S/N UR21771</i>	+
30M	3026	HUB PLUG	1
30H	5087	MACH KEY SHORT	1
30H	6012	SCREWSET 5/16-18x3/8	1
30H	6014	SET SCREW 1/4-20 3/16	1
30H	6110	1/4" HIGH COLLAR LOCKWASHER	4
37P	7001	SPLINE SHAFT COUPLER	1
37P	7002G	GREEN BELT GUARD	1
37P	7002R	RED BELT GUARD	1
37P	7003G	GREEN HOOD	1
37P	7003R	RED HOOD	1
37P	7004	FRAME ASSEMBLY	1
37P	7006	WHEEL AXLE	1
37P	7007	SPLINE SHAFT	1
37P	7009	AXLE STABILIZER	1
37P	7011G	GREEN ENDPLATE	2
37P	7011R	RED ENDPLATE	2
37P	7100	PULLEY 5"	1
37P	7101	BEARING WITH SETSCREW	1
37P	7102	3/4" FLUSHMOUNT BEARING SELF-ALIGNING	1
+	+	<i>WITH ECC. LOCK COLLAR (6058)</i>	+
37P	7121	20" BELT	1
30H	7129	BOLT 5/16-18X 3"	4

PARTS FOR ALL MODELS (CONT.)

DEPT.	ITEM #	DESCRIPTION	QTY/UNIT
37P	7150	BEARING HOUSING	1
37P	7158	LOCK COLLAR	4
37P	7178	SPRING PIN 1/4 X 1 1/8	1
37P	7300	ECCENTRIC WEIGHT	1
37P	7410	SHAFT SEAL	1
37P	7571	CASTER ASSEMBLY	2
+	+	<i>above includes collar, casters, & endcaps</i>	+
30M	P001	HUB *Use part # 37P-09-001 or 37P-09-002N	1
30M	P003	SHAFT *Use part # 30A-09-18	1
37P	RSM	RUBBER SHOCK MOUNTS	6

AVAILABLE KITS

DEPT.	ITEM #	DESCRIPTION	QTY/UNIT
37P	09-001	HUB REPLACEMENT KIT-DRIVE END	1
+	+	<i>above includes hub, bolt, & bearing seal</i>	+
37P	09-002 N	HUB REPLACEMENT KIT-NON DRIVE END	1
+	+	<i>above includes hub, bolt, & plug</i>	+
37P	09-19	SHAFT REPLACEMENT KIT	1
+	+	<i>above includes set screw, shaft pulley, shaft,</i>	+
+	+	<i>snap ring, & shaft bearing, 5/16-18x3/4 FHSCS</i>	+
37P	7300K	ECCENTRIC WEIGHT REPLACEMENT KIT SQUARE	2
+	+	<i>above includes ecc. wt., bolt, & washer</i>	+
37P	7572	AXLE REPLACEMENT KIT	1
+	+	<i>includes caster assembly + wheel axle</i>	+
37P	7581	SPLINED SHAFT REPLACEMENT KIT	1
+	+	<i>above includes key, pin, coupler, & shaft</i>	+

RUBBER SHOCK MOUNT (RSM) INSTALLATION NOTICE

This notice is to help prevent premature failure of the rubber shock mounts (RSM) due to incorrect mounting. When mounting the RSM, always mount one side of the RSM to the endplate of the roller first, install the serrated flange nut then tighten. Then mount the bearing flanges on the opposite end and install the remaining serrated flange nuts, leaving the nuts loose until the roller and frame are assembled. With roller in position and all framework secure, tighten each of the RSM studs one-half round each. Repeat this procedure until all three are tight. This will draw the two flanges together on the bearing without misaligning the bearing with the roller hub.

VERY IMPORTANT: IF THREADED STUD ON THE RSM ROTATES WHILE TIGHTENING THE FLANGED BEARING, ALWAYS TURN BACK (COUNTER CLOCKWISE) TO RETURN THE RUBBER TO A RELAXED POSITION. IN SOME INSTANCES, IT MAY BE NECESSARY TO USE PLIERS TO GENTLY HOLD THE RUBBER AT THE BASE OF THE THREADED STUD TO PREVENT TWISTING OF THE RUBBER.

NOTE: EXCESSIVE TWISTING DURING INSTALLATION OR LEAVING THE RSM IN A TWISTED POSITION WILL CAUSE A PREMATURE RSM FAILURE.



TORO MODELS

UR3T

Universal Roller for Toro GM3 to 3100

The diagram shows three exploded views of the roller assembly from different angles. Key components labeled include:

- 7000 - Flanged Socket Screws
- 1146 - Nylon Locknuts
- 7802 - End Plates
- 7801 - Ball Stud Assembly
- 7003R - Hood Protectors
- 7011R - Hood Protection Plate
- 317B - Motor Studs
- 1026 - Serrated Flange Nut
- 1402 - Motor Studs

DEPT.	ITEM #	DESCRIPTION	QTY/SET
304I	1026	1/2-13 Serrated Flange Nut	12
304I	1139	3/8" Motor Studs	6
+	+	* prior to S/N U021771	+
304I	1146	Nylon Locknut	6
304I	1183	Flanged Socket Screw	6
+	+	* not shown	+
304I	1402	Motor Studs	6
+	+	* after S/N U021771	+
304I	317B	Nylon Locknut	6
37P	7003R	Hood Protector	3
37P	7011R	Hood End Plate	3
37P	7000	End Hook	3
+	+	Ball Stud Assembly	6
37P	7126-1	Hood Protectors	6
+	+	* includes hardware	+
37P	7801	Hood Protection Plate	6
37P	7802	Hood Protection Plate	3

* NOTE EACH TY IS FOR A FULL SET OF ROLLERS (3)

Motor Mount Placement

Sent

X

front of machine

DEPT.	ITEM #	DESCRIPTION	QTY/SET
3-01	1026	1-2-13 Serrated Flange Nut	1
3-01	1139	Motor Studs	6
+	+	* prior to 8/8 (192171)	
3-01	1146	Flathead Screw	6
3-01	1183	Smooth Flange Nuts	+
+	+	* not shown	
3-01	1402	Motor Studs	6
+	+	* after 8/8 (192171)	
3-01	3179	Nylon Lockwre	+
3-19	10028	Red Bolt O-ring	6
3-19	10038	Red Bolt O-ring	3
3-19	10038	Red Bolt O-ring	3
3-19	10118	Red Bolt O-ring	3
3-19	7050	Left Flange	3
3-19	7126-1	Ball Stud Assembly	6
+	+	* include hardware	
3-19	7801	Head Protection	6
3-19	7802	Head Protection Plate	3

* NOTE EACH QTY IS FOR A FULL SET OF ROLLERS (3 UNITS)

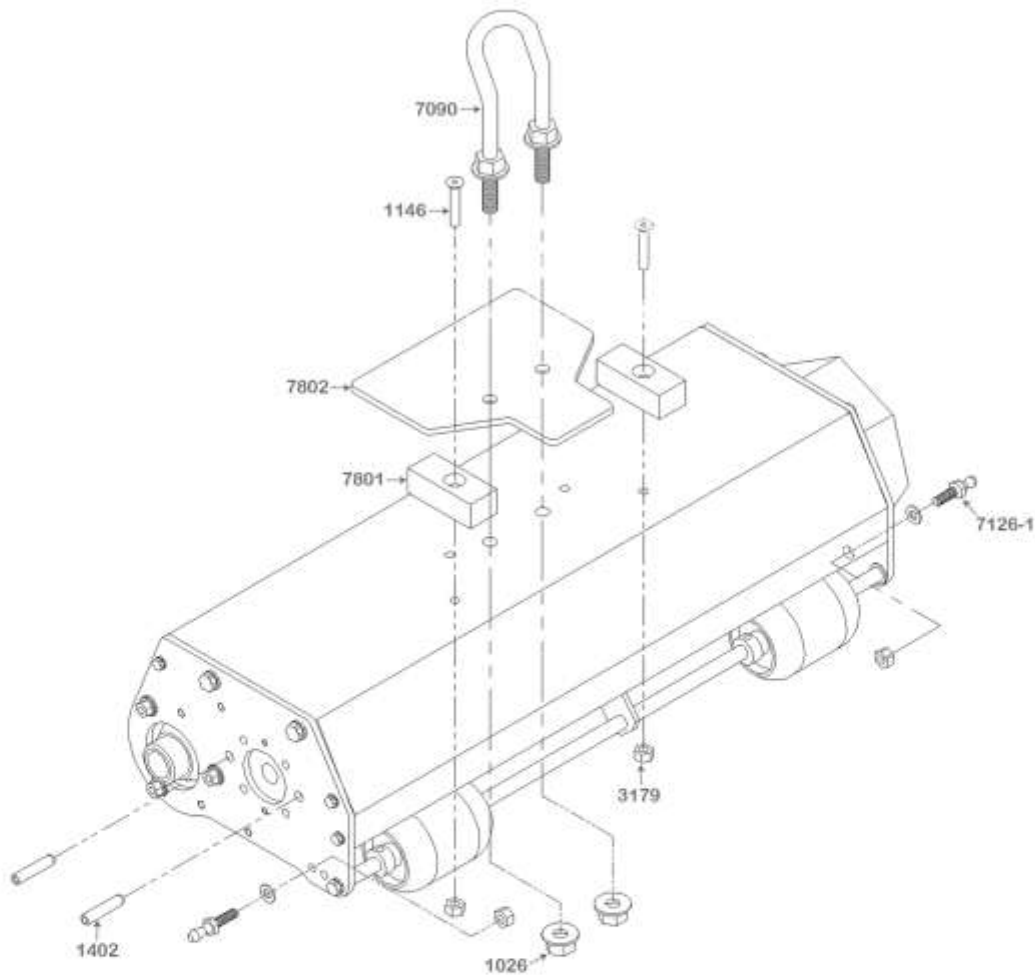
INSTALLATION OF UNIVERSAL ROLLER

TORO GM3, 3050, 3100, 3250

Tools required: *3/4" Combination wrench*
 9/16" Combination wrench

- 1) Read these instructions carefully and familiarize yourself with the parts and assembly drawings before starting.
- 2) Unpack your new rollers.
- 3) Install the lift hook (7090) to each roller unit by removing one nut from each side of the U-bolt and sliding the U-bolt through the hood protection plate and two 1/2" holes in the top of the roller.
- 4) Replace the nuts on the bottom and tighten. ***NOTE: Tighten evenly so that the lift hook is perpendicular when secured. This hook is also height adjustable by moving the nuts up or down on the hook to provide you the most desirable lift height for your needs.***
- 5) Remove the hydraulic motors from the cutting units.
- 6) Remove the cutting units from the machine.
- 7) Position the rollers under the machine with the small castor wheels of the roller unit forward and lift arm of the machine passing through the lift hook.
- 8) Reconnect the ball couplers to the ball studs on both sides of the roller frame.
- 9) Loosen or remove (if necessary) the flanged nuts from the hydraulic motor mounting studs on the drive side of the roller.
- 10) Wiggle the motor into place and secure with the flanged nuts.
- 11) Start the machine and check the lift height, ground clearance, and raised position clearance between the roller and machine.
- 12) Adjust the lift hooks as necessary.
- 13) Check operation of the rollers.

ADAPTION KIT 7500 TORO GM3 to 3100



KIT INCLUDES THE FOLLOWING:

- 12 - 1026 Serrated Flange Nuts
- 6 - 1139 Motor Studs (not shown)
- * prior to S/N UR21771
- 6 - 1146 Flathead Socket Screws
- 6 - 1183 Smooth Flanged Nut (not shown)
- 6 - 1402 Motor Studs (shown above)
- * after S/N UR21771
- 6 - 3179 Nylon Locknut
- 3 - 7090 Lift Hooks
- 6 - 7126-1 Ball Stud Assemblies
- Each Assembly Includes:*
- 1 - 7126 Ball Studs
- 1 - 3179 Nylon Locknuts
- 2 - 1008 Flat Washers
- 6 - 7801 Hood Protectors
- 3 - 7802 Hood Protection Plates

ADAPTATIONS FROM TORO GM 3-3100 TO...

TORO GM 3200A: Uses Adaptation Kit 7551 (see page 22).

One Unit will require a drive-end reversal. This procedure is on page 84. This unit will then fit the right front location. Refer to motor mounting instructions on page 33-34, then refer to page 20 to attach necessary hardware. No shaft or motor mount change is necessary. Remove the four belt guard mounting bolts and install one counterweight to each unit with the new 5/16" x 3-1/4" bolts provided and tighten.

TORO GM 3200B: Uses Adaptation Kit 7552 (see page 26).

One unit requires a drive-end reversal. This procedure is located on page 84. This unit will then fit the front right location. Refer to page 33-34 for motor mounting instructions and then to page 23 for attaching necessary hardware. No shaft or motor mount change is necessary. Remove the four belt guard mounting bolts and install one counterweight to each unit with the new 5/16" x 3-1/4" bolts provided and tighten.

TORO 3250: Uses Adaptation Kit 7506 (see page 30).

One unit requires a drive-end reversal. This procedure is on page 84. This unit will fit the right front unit. Refer to page 33-34 for motor mounting instructions and then to page 28 for attaching necessary hardware. No shaft or motor mount change is necessary. Remove the four belt guard mounting bolts and install one counterweight to each unit with the new 5/16" x 3-1/4" bolts provided and tighten.

JOHN DEERE 2243: Uses Adaptation Kit 7507 (see page 65).

Two of the three units require Drive-End Reversal found on page 84. The remaining unit will then fit the left front location on the JD 2243 mower. Refer to page 68-69 for motor mounting procedures, and to page 67 for drive shaft placement and adjustment. Finally, refer to unit mounting instructions and illustrations for final attachments and hook-up (see page 62).

JOHN DEERE 2500: Uses Adaptation Kit 7502 (see page 57).

One of the three units requires Drive-End Reversal found on page 84. This unit will then fit the right front location on the JD 2500 mower. Refer to page 60 for motor mounting procedures, and to page 59 for drive shaft placement and adjustment. Finally, refer to unit mounting instructions and illustrations for final attachments and hook-up (see page 54). Remove the four belt guard mounting bolts and install one counterweight to each unit with the new 5/16" x 3-1/4" bolts provided and tighten.

JOHN DEERE 2500E: Uses Adaptation Kit 7502 plus Kit 7001-3MS (see page 57 & 61)

Use all the same procedures as for the Standard John Deere 2500 except for drive shaft placement. Refer to page 61 for shaft placement and spline installation instructions.

JACOBSEN GK III & IV: Uses Adaptation Kit 7504 (see page 39).

Two of the three units require drive end reversal found on page 84. These will then fit the right and/or center position on the machine. Refer to page 43-44 for motor mounting procedures, and refer to page 42 for drive shaft placement and adjustment, then refer to the unit mounting instructions and illustrations for final attachments and hook-up (see page 36).

JACOBSEN GK V & VI: Uses Adaptation Kit 7503 (see page 48).

All three units require drive end reversal found on page 84. Refer then to page 51 for drive shaft placement and adjustment. Refer to page 52, for motor mounting procedures, and then to Unit Mounting instructions and illustrations for final attachments and hook-up (see page 45). Remove the four belt guard mounting bolts and install one counterweight to each unit with the new 5/16" x 3-1/4" bolts provided and tighten.

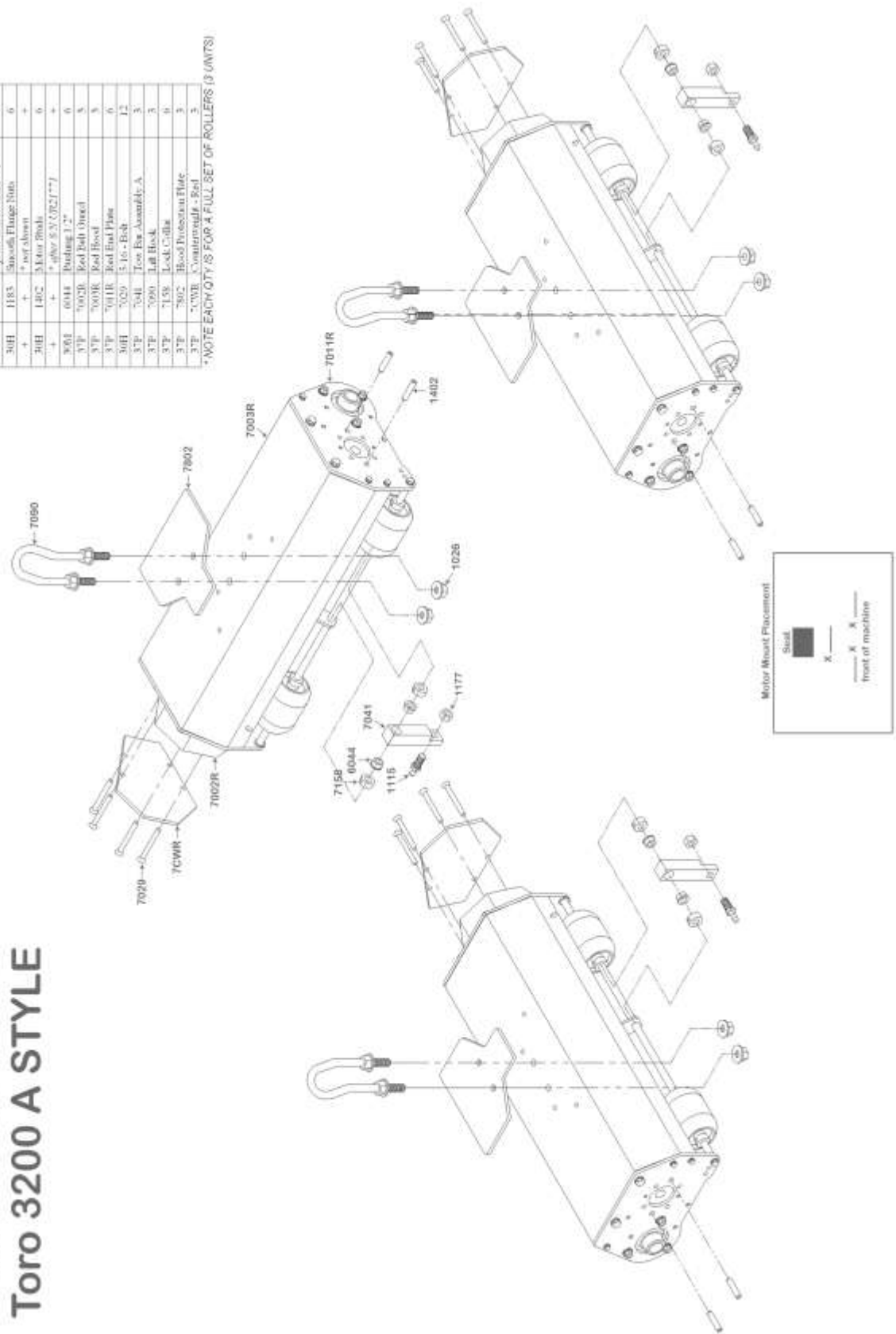
RANSOMES: Uses Adaptation Kit 7505 (see page 75).

Drive end remains the same. Refer to page 80-81 for motor mounting procedure, then to page 79 for drive shaft placement and adjustment. Refer then to Unit Mounting instructions and illustrations for final attachments and hook-up (see page 72).

UR3T32A Universal Roller for Toro 3200 A STYLE

DEPT.	ITEM #	DISCRIPTION	QTY/SET
30H	1026	1/2-13 Serrated Flange Nut	12
30H	1114	Roll Stud	3
30H	1139	3/8" Motor Stud	6
30H	1177	1/2" Nylon Locknut	3
+	+	* prior to 8/1/02 (**)	+
30H	1183	Smooth Flange Nut	6
+	+	* not shown	+
30H	1402	5/16" Stud	6
+	+	* after 8/1/02 (**)	+
30H	6044	Rolling 1/2"	6
37P	7002R	Red Roll Ornel	3
37P	7003R	Red Roll	3
37P	7011R	Red End Plate	6
30H	7029	5/16" Bolt	12
37P	7041	Top Box Assembly A	3
37P	7090	Left Block	3
37P	7159	Lock Collar	6
37P	7802	Roll Protection Flare	3
37P	7803	Counterweight - Red	3

*NOTE EACH QTY IS FOR A FULL SET OF ROLLERS (3 UNITS)



INSTALLATION OF UNIVERSAL ROLLER TORO 3200A

Tools required: *9/16" Combination wrench*
 3/4" Combination wrench
 1/8" Allen wrench-lock collars

1. Read these instructions carefully and familiarize yourself with the parts and assembly drawings before starting.
2. Remove hydraulic motors from cutting units.
3. Detach single point ball coupler and slide units out from under the machine and set aside. Unpack new rollers.
4. Install lift hook (7090) to each one by removing one nut from each side of the U-bolt and sliding the U-bolt through the protection plate, then through the two 1/2" holes in the top of the roller.
5. Replace the nuts on the bottom and tighten. ***NOTE: Tighten evenly so that lift hook is perpendicular when secured. This hook is also adjustable by moving the nuts up or down on the hook to adapt to your needs.***
6. Tilt unit back and cut zip tie from the tow bar assembly (7541) and swing forward.
7. Set the rollers under the machine in their respective positions as marked, as if you were in the operator's seat, facing forward. Castor wheels (7571) will be forward when installed.
8. Pass the lift arm through the lift hook (7090) on the roller.
9. Attach tow bar (7541) and ball stud (1115).
10. If the roller unit is not centered with the basket frame after the unit is coupled, loosen the lock collars on either side of the tow bar and slide to the necessary position. Retighten collars.
11. Remove the flanged nuts from the motor mounting studs and twist the motors into place.
12. Install the nuts and tighten.
13. Repeat for the other two rollers. Check operation of rollers.

This diagram shows an exploded view of a vehicle chassis component, likely a rear axle housing or suspension bracket. The main component is a large, rectangular metal housing with a cylindrical section on the left side. Various parts are shown being assembled onto it, with callouts indicating their part numbers:

- 7029**: A bolt or screw used to secure the top plate.
- 7CWR**: A top plate or cover that fits over the main housing.
- 7090**: A U-bolts assembly used to secure the top plate.
- 7802**: A bracket or plate that fits onto the side of the housing.
- 7158**, **6044**, **7041**, **1115**, **1177**: Various small components, including washers, spacers, and nuts, used in the assembly of the lower bracket.
- 1026**: A small cylindrical component, possibly a bush or spacer, located near the bottom of the housing.
- 1402**: A pin or bolt used to secure the bottom of the housing.

- 12 - 1026 Serrated Flanged Nuts
- 3 - 1115 Ball Stud
- 6 - 1139 Motor Studs (not shown)
 - * prior to S/N UR21771
- 3 - 1177 Nylon Locknuts
- 6 - 1183 Smooth Flanged Nuts (not shown)
- 6 - 1402 Motor Studs (shown above)
 - * after S/N UR21771
- 6 - 6044 Bushing
- 12 - 7029 Bolts
- 3 - 7041 Tow Bar A
- 3 - 7090 Lift Hook
- 6 - 7158 Lock Collar
- 3 - 7802 Hood Protection Plates
- 3 - 7CWR Counterweights

Universal Roller for Toro 3200 B STYLE

Mold Mount Placement

Sand

X

X

front of machine

3" P	5" CWR	Count/roll - Red	3
* NOTE EACH QTY IS FOR A FULL SET OF ROLLERS (3 UNITS)			

INSTALLATION OF UNIVERSAL ROLLER TORO 3200B

Tools required: *9/16" Combination wrench*
 3/4" Combination wrench
 1/8" Allen wrench-lock collars

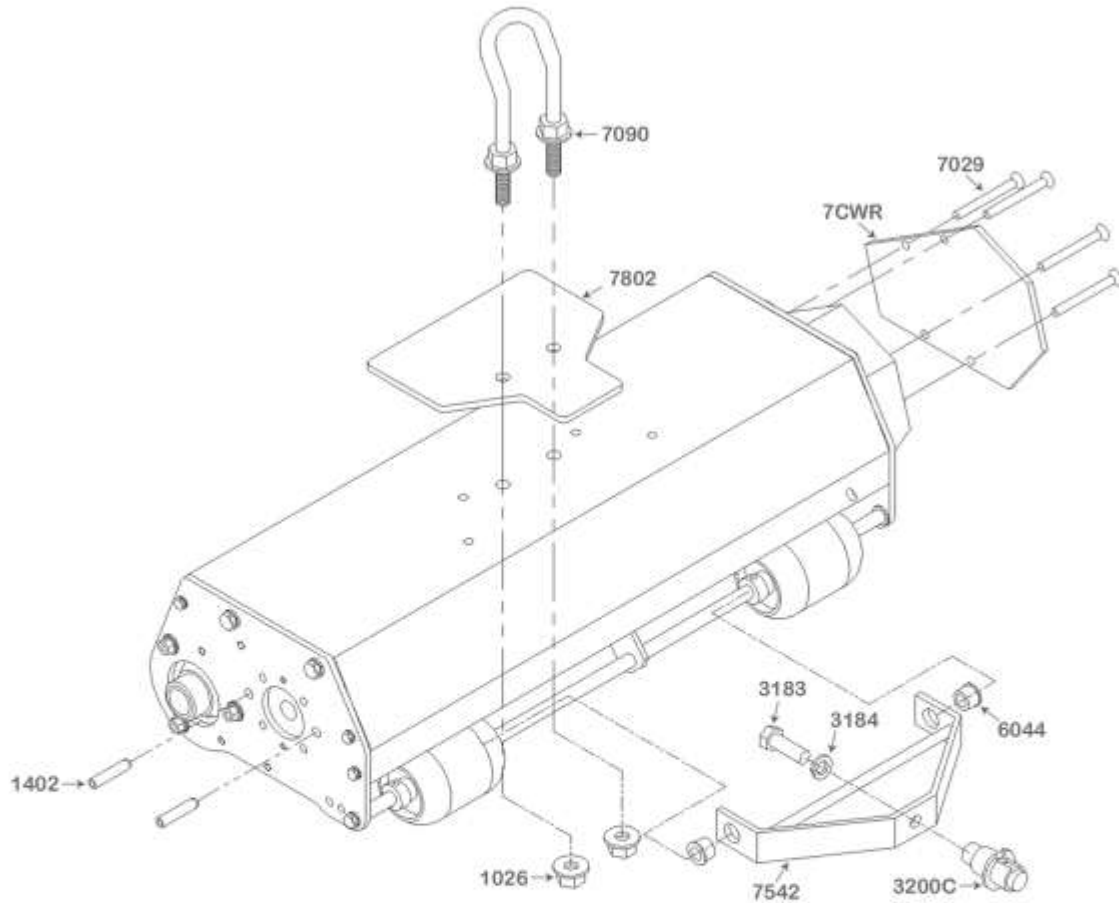
1. Read these instructions carefully and familiarize yourself with the parts and assembly drawings before starting.
2. Remove hydraulic motors from cutting units.
3. Detach single point ball coupler and slide units out from under the machine and set aside.
4. Unpack new rollers.
5. Install lift hook (7090) to each one by removing one nut from each side of the U-bolt and sliding the U-bolt through the protection plate, then through the two ½" holes in the top of the roller.
6. Replace the nuts on the bottom and tighten. ***NOTE: Tighten evenly so that lift hook is perpendicular when secured. This hook is also height adjustable by moving the nuts up or down on the hook to adapt to your needs.***
7. Tilt unit back and cut zip tie from the tow bracket (7542).
8. Swing the bracket (7542) out from under the machine so that it points forward.
9. Remove the ball coupler (3200C) and bolt from Tow Bar and reattach with coupler facing forward.
10. Set the rollers under the machine in their respective positions as marked, as if you were in the operator's seat, facing forward. Castor wheels (7571) will be forward when installed.
11. Pass the lift arm through the lift hook (7090) on the roller.
12. Align ball coupler (3200C) so that the opening is facing toward the ball stud to which it will be coupled.
13. Tighten mounting bolt.
14. Attach coupler.

INSTALLATION OF UNIVERSAL ROLLER TORO 3200B (CONT.)

15. If the roller unit is not centered with the basket frame after the unit is coupled, loosen the four lock collars on either side of the front wheels and adjust the wheels, collars and tow bar to the necessary position. Retighten collars.
16. Remove the flanged nuts from the motor mounting studs and twist the motors into place.
17. Install the nuts and tighten.
18. Repeat for the other two rollers.
19. Check operation of rollers.

ADAPTION KIT 7552

TORO 3200 B



KIT INCLUDES THE FOLLOWING:

- 12 - 1026 Serrated Flanged Nuts
- 6 - 1139 Motor Studs (not shown)
* prior to S/N UR21771
- 6 - 1183 Smooth Flanged Nuts (not shown)
- 6 - 1402 Motor Studs (shown above)
* after S/N UR21771
- 3 - 3183 Bolt
- 3 - 3184 Lockwasher
- 3 - 3200C Quick Coupler
- 6 - 6044 Bushing
- 12 - 7029 Bolts
- 3 - 7090 Lift Hook
- 3 - 7542 Tow Bar B
- 3 - 7802 Hood Protection Plates
- 3 - 7CWR Counterweight

ADAPTATIONS FROM TORO 3200 TO...

TORO GM 3-3100: Uses Adaptation Kit 7500 (see page 18).

The unit which fits the right front unit will require drive end reversal on page 84. All three units will then be alike. Drive Shaft snap ring placement does not change on this model. See page 33-34 for motor mounting procedures. Refer next to page 16 for unit mounting instructions and illustrations for final attachments and hook-up. Do not reattach the tow bar or counterweight assemblies as these are not needed on this model.

JACOBSEN GK III & IV: Uses Adaptation Kit 7504 (see page 39).

Use the current "CENTER" unit and reverse the drive end on this unit, referring to page 84 for instructions. This will then fit the center unit on the GK III & IV. Drive shaft snap ring placement and alignment can be found on page 42. Refer to page 43-44 for motor mounting procedures, and then to page 35 for unit mounting instructions and illustrations for final attachment and hook-up. Do not reattach the tow bar or counterweight assemblies as these are not needed on this model.

JACOBSEN GK V & VI: Uses Adaptation Kit 7503 (see page 48).

The current left and center units will require drive-end reversal found on page 84. Drive shaft placement and adjustment is on page 51. Use page 52 for motor mounting procedures. Then refer to page 45 for unit mounting instructions and illustration for final attachments and hook-up. Reattach the counterweight assemblies. Do not reattach the tow bar assemblies as they are not needed on this model.

JOHN DEERE 2243: Uses Adaptation Kit 7507 (see page 65).

One of the three units requires Drive-End Reversal found on page 84. This unit will then fit the center location on the JD 2243 mower. Refer to page 68-69 for motor mounting procedures, and to page 67 for drive shaft placement and adjustment. Finally, refer to unit mounting instructions and illustrations for final attachments and hook-up, page 62. Do not reattach the tow bar assemblies as they are not needed on this model.

JOHN DEERE 2500: Uses Adaptation Kit 7502 (see page 57).

No drive end reversal is necessary. Refer then to page 59 for drive shaft snap ring placement and then to page 60 for motor mount placement. Illustrations for final attachments and hook-up are on page 54. Remove the four belt guard mounting bolts and install one counter weight to each unit with the new 5/16" x 3-1/4" bolts provided and tighten. Do not reattach the tow bar assemblies as they are not needed on this model.

JOHN DEERE 2500E: Uses Adaptation Kit 7502 plus Kit 7001-3MS (see page 57 & 61)

Use all the same procedures as for the Standard John Deere 2500 except for drive shaft placement. Refer to page 61 for shaft placement and spline installation instructions.

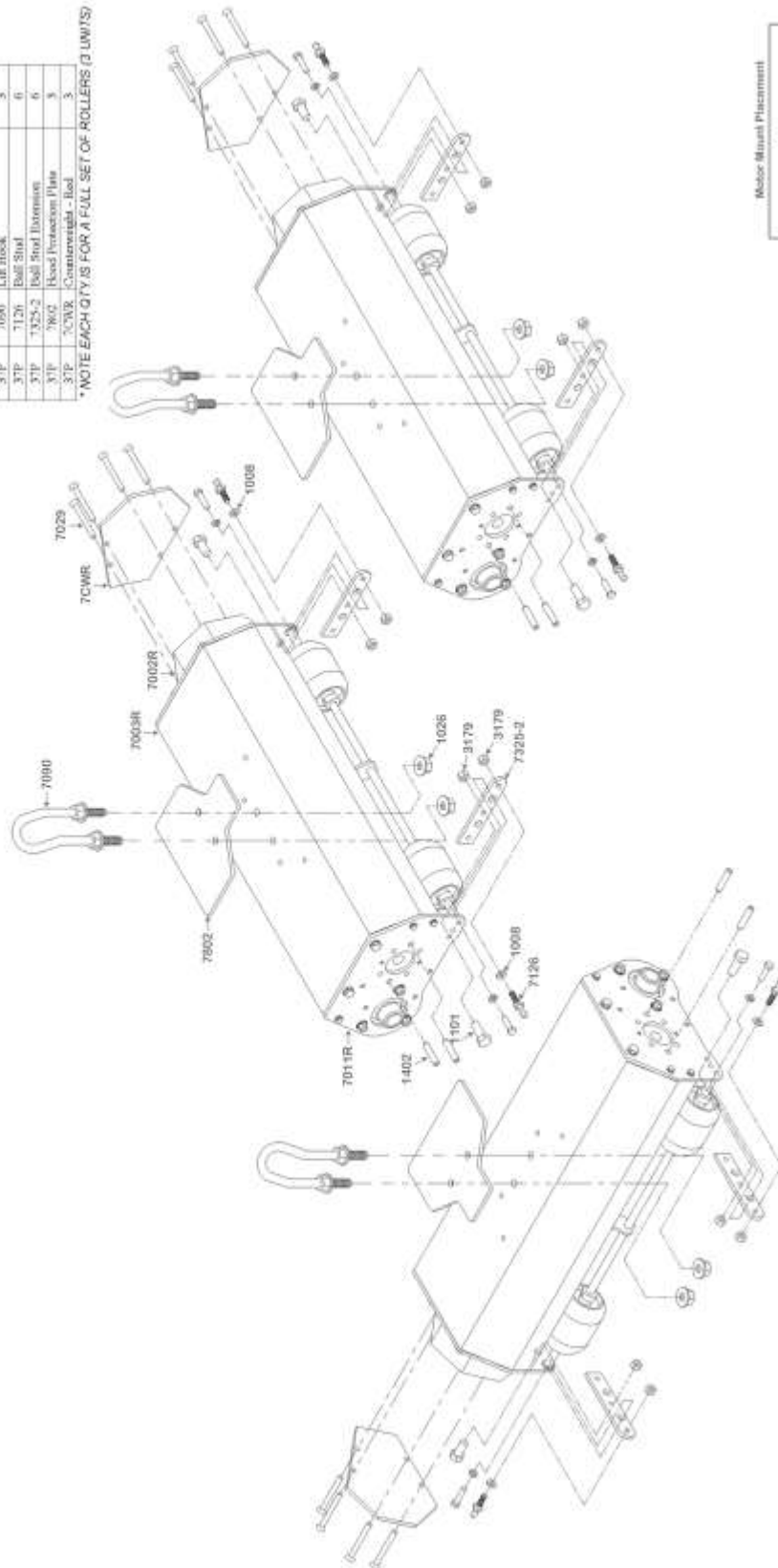
RANSOMES: Uses Adaptation Kit 7505 (see page 75).

The right unit will need drive end reversal procedure found on page 84. Drive shaft snap ring placement and adjustment is found on page 79. Now refer to page 80-81 for motor mounting procedure and finally, page 72 for unit mounting instructions and illustrations for final attachments and hook-up. Do not reinstall tow bar assemblies on new unit as they are not needed.

UR3T325 Universal Roller for Toro 3250 STYLE

DEPT.	ITEM #	DESCRIPTION	QTY/SET
30H	1068	Flat Washer	12
30H	1026	1/2-13 Serrated Flange Nut	12
30H	1101	Bolt	6
30H	1139	5/8" Nylon Studs	6
+	+	* prior to SN L3221771	+
30H	1183	Smooth Flange Nuts	6
+	+	* not shown	+
30H	1402	Mixer Shafts	6
+	+	* after SN L3221771	+
30H	3179	Nut	12
37P	7002R	Red Belt Guard	3
37P	7003R	Red Hood	3
37P	7011R	Red End Plate	6
30H	7029	S-16 - Bush	12
37P	7000	Lift Hook	3
37P	7126	Roll Stud	6
37P	7325-2	Roll End Idlerarm	6
37P	7602	Roll Protection Plate	3
37P	7CWR	Conversright - Red	3

* NOTE EACH QTY IS FOR A FULL SET OF ROLLERS (3 UNITS)



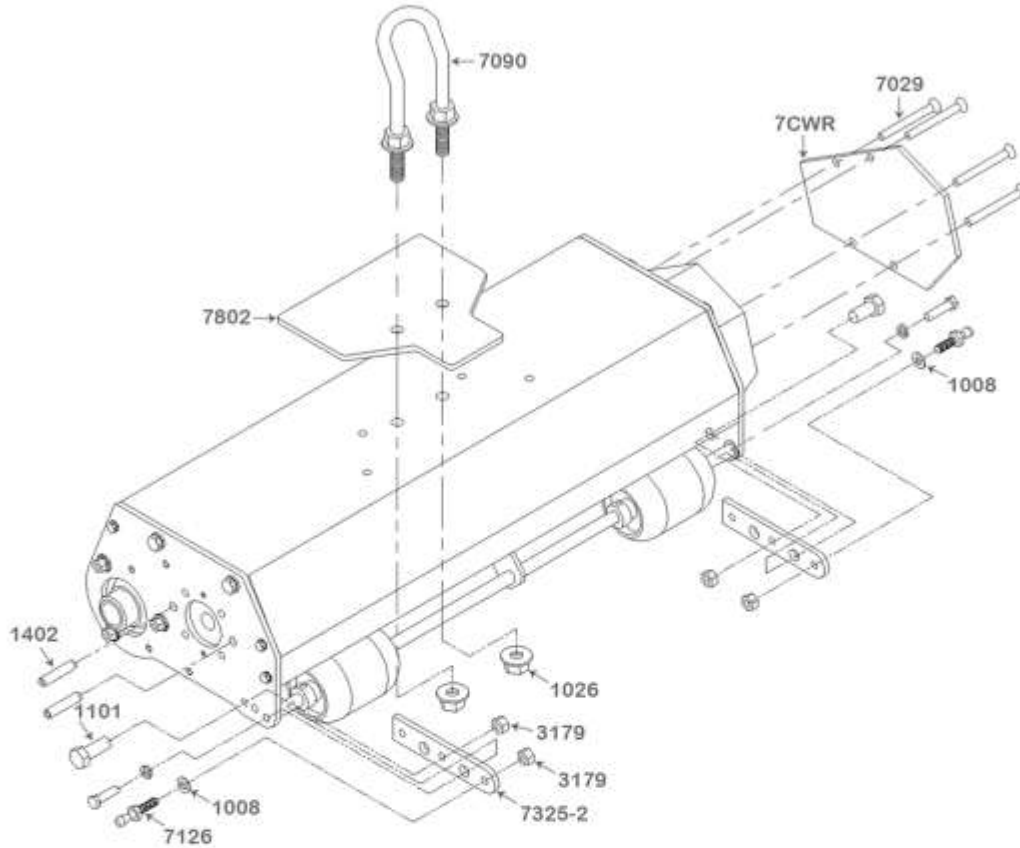
INSTALLATION OF UNIVERSAL ROLLER TORO 3250

Tools required: *9/16" Combination wrench*
 3/4" Combination wrench
 1/8" Allen wrench-lock collars

1. Read these instructions carefully and familiarize yourself with the parts and assembly drawings before starting.
2. Remove hydraulic motors from cutting units.
3. Detach single point ball coupler and slide units out from under the machine and set aside.
4. Unpack new rollers.
5. Install lift hook (7090) to each one by removing one nut from each side of the U-bolt and sliding the U-bolt through the protection plate, then through the two ½" holes in the top of the roller.
6. Replace the nuts on the bottom and tighten. ***NOTE: Tighten evenly so that lift hook is perpendicular when secured. This hook is also height adjustable by moving the nuts up or down on the hook to adapt to your needs.***
7. Set the rollers under the machine in their respective positions as marked, as if you were in the operator's seat, facing forward. Castor wheels (7571) will be forward when installed.
8. Pass the lift arm through the lift hook (7090) on the roller.
9. Connect the ball couplers of the machine to the ball studs (7126) on the rollers.
10. Remove the flanged nuts from the motor mounting studs and twist the motors into place.
11. Install the nuts and tighten.
12. Repeat for the other two rollers.
13. Check operation of rollers.

ADAPTION KIT 7506

TORO 3250



KIT INCLUDES THE FOLLOWING:

- 6 - 1101 Bolt
- 12 - 1026 Serrated Flange Nuts
- 6 - 1139 Motor Studs (not shown)
- * prior to S/N UR21771
- 6 - 1183 Smooth Flanged Nut (not shown)
- 6 - 1402 Motor Studs (shown above)
- * after S/N UR21771
- 6 - 3179 Nylon Locknuts
- 12 - 7029 Bolts
- 3 - 7090 Lift Hooks
- 3 - 7126-1 Ball Stud Assemblies
- Assembly Includes:*
- 6 - 7126 Ball Studs
- 6 - 3179 Nylon Locknuts
- 12 - 1008 Flat Washers
- 6 - 7325-2 Ball Stud Extensions
- 3 - 7802 Hood Protection Plates
- 3 - 7CWR Counterweights

ADAPTATIONS FROM TORO 3250 TO...

TORO GM 3-3100: Uses Adaptation Kit 7500 (see page 18).

The unit which fits the right front unit will require drive end reversal on page 68. All three units will then be alike. Drive Shaft snap ring placement does not change on this model. See page 33-34 for motor mounting procedures. Refer next to page 16 for unit mounting instructions and illustrations for final attachments and hook-up. Do not reattach the tow bar or counterweight assemblies as these are not needed on this model.

JACOBSEN GK III & IV: Uses Adaptation Kit 7504 (see page 39).

Use the current "CENTER" unit and reverse the drive end on this unit, referring to page 84 for instructions. This will then fit the center unit on the GK III & IV. Drive shaft snap ring placement and alignment can be found on page 41. Refer to page 43 for motor mounting procedures, and then to page 36 for unit mounting instructions and illustrations for final attachment and hook-up. Do not reattach the tow bar or counterweight assemblies as these are not needed on this model.

JACOBSEN GK V & VI: Uses Adaptation Kit 7503 (see page 48).

The current left and center units will require drive-end reversal found on page 84. Drive shaft placement and adjustment is on page 51. Use page 52 for motor mounting procedures. Then refer to page 45 for unit mounting instructions and illustration for final attachments and hook-up. Reattach the counterweight assemblies. Do not reattach the tow bar assemblies as they are not needed on this model.

JOHN DEERE 2243: Uses Adaptation Kit 7507 (see page 65).

One of the three units requires Drive-End Reversal found on page 84. This unit will then fit the center location on the JD 2243 mower. Refer to page 68 for motor mounting procedures, and to page 67 for drive shaft placement and adjustment. Finally, refer to unit mounting instructions and illustrations for final attachments and hook-up, page 62. Do not reattach the tow bar assemblies as they are not needed on this model.

JOHN DEERE 2500: Uses Adaptation Kit 7502 (see page 57).

No drive end reversal is necessary. Refer then to page 59 for drive shaft snap ring placement and then to page 60 for motor mount placement. Illustrations for final attachments and hook-up are on page 54. Remove the four belt guard mounting bolts and install one counter weight to each unit with the new 5/16" x 3-1/4" bolts provided and tighten. Do not reattach the tow bar assemblies as they are not needed on this model.

JOHN DEERE 2500E: Uses Adaptation Kit 7502 plus Kit 7001-3MS (see page 57 & 61)

Use all the same procedures as for the Standard John Deere 2500 except for drive shaft placement. Refer to page 61 for shaft placement and spline installation instructions.

RANSOMES: Uses Adaptation Kit 7505 (see page 75).

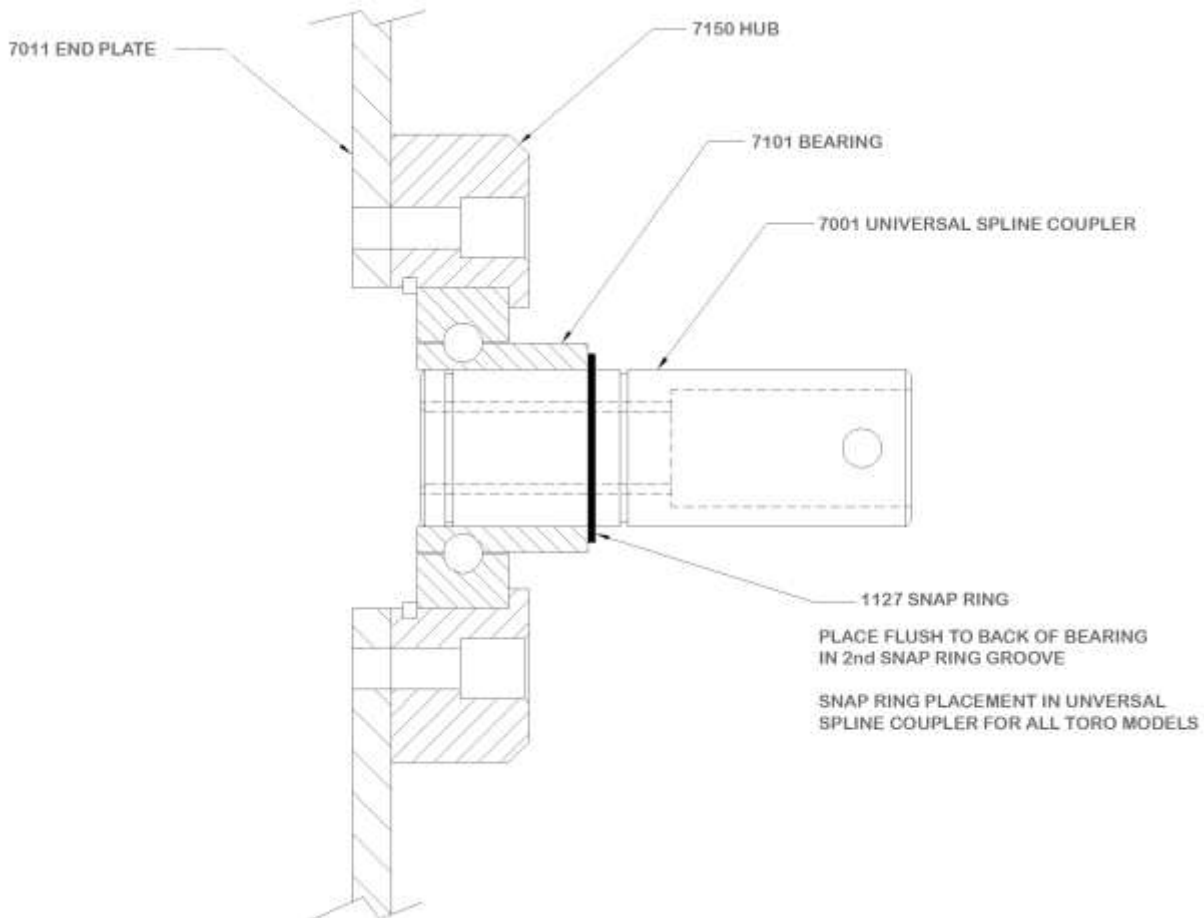
The right unit will need drive end reversal procedure found on page 84. Drive shaft snap ring placement and adjustment is found on page 79. Now refer to page 80-81 for motor mounting procedure and finally, page 72 for unit mounting instructions and illustrations for final attachments and hook-up. Do not reinstall tow bar assemblies on new unit as they are not needed.

SNAP RING INSTALLATION INSTRUCTIONS

ALL TORO UNITS

(See Base Unit Schematic for parts reference)

1. Select the required shaft position that corresponds to your triplex machine.
2. Remove shaft by turning roller upside down.
3. Remove belt guard (7002) and belt (7121).
4. Loosen set screw on pulley (7100) and bearing (7101).
5. Loosen set screw and lock collar on bearing (7102).
6. Tap shaft with rubber mallet to allow positioning of snap ring.
7. Install snap ring in its appropriate place and tap shaft into position indicated.
8. Retighten bearings.
9. Lock collar on bearing (7102) needs to be lock by rotating the direction at which the shaft will be turning. With a punch, give one rap with a mallet to lock it into place and tighten set screw.
10. Align pulleys and tighten set screw on pulley (7100).
11. Replace belt (7121) and belt guard (7002).

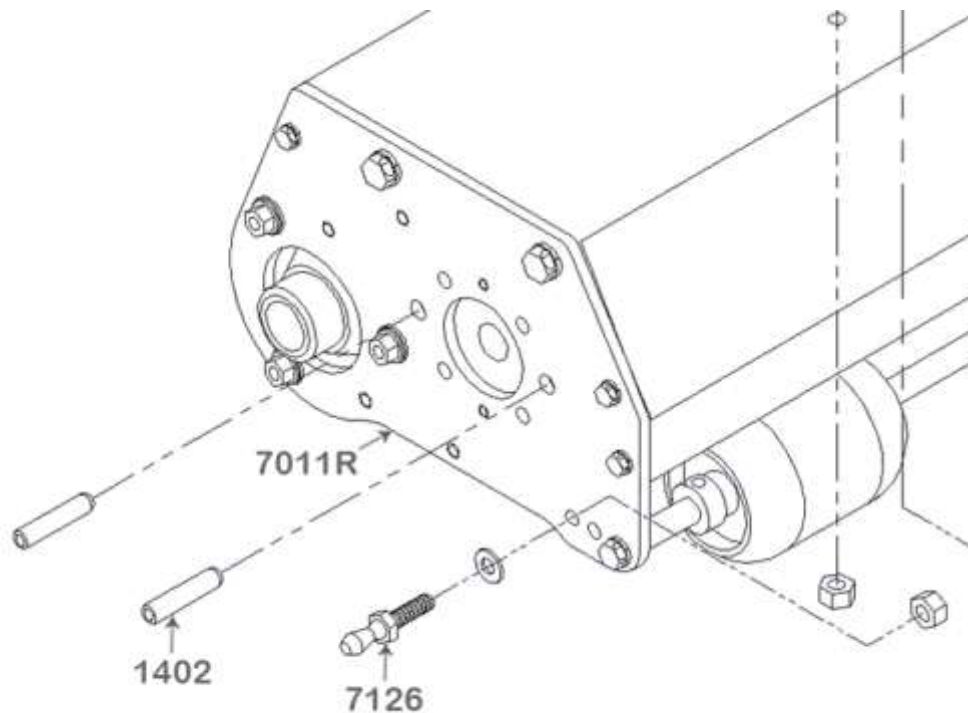


UNIVERSAL ROLLER HYDRAULIC MOTOR MOUNTING CONFIGURATIONS

**2-BOLT
TORO – ALL
RANSOME – NEWER & G-PLEX II
JACOBSEN – SOME GK IV**

AFTER S/N UR21771

With all other mounting hardware removed, the two 3/8" Motor Studs (1402) are threaded through Endplate (7011) into the aluminum housing (7150) and are tightened to provide threaded studs on the outside of endplate (7011) to attach hydraulic motors.

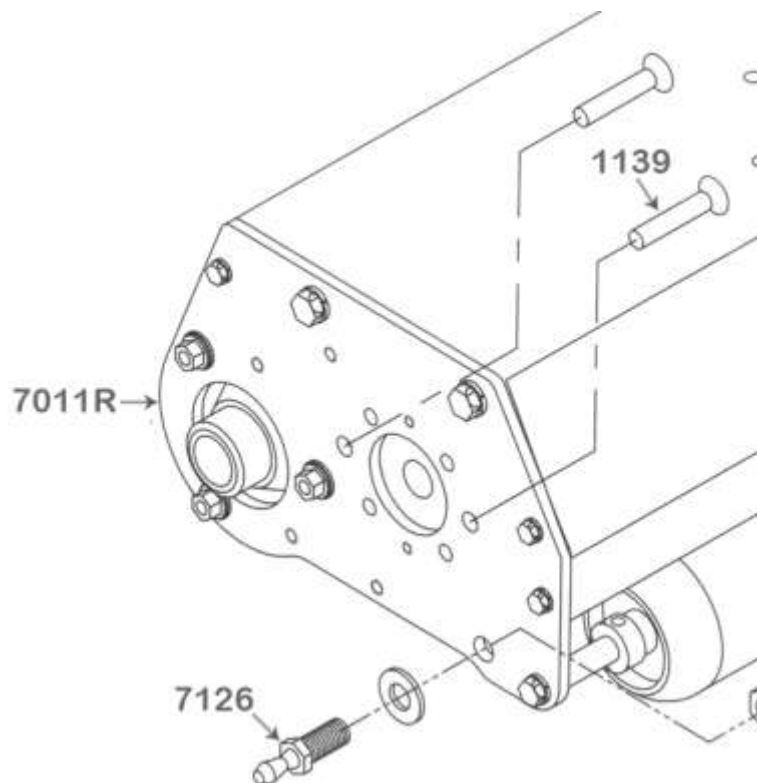


UNIVERSAL ROLLER HYDRAULIC MOTOR MOUNTING CONFIGURATIONS

2-BOLT
TORO – ALL
RANSOME – NEWER & G-PLEX II
JACOBSEN – SOME GK IV

PRIOR TO S/N UR21771

With all other mounting hardware removed, the two 3/8" Motor Studs (1139) are threaded through the aluminum housing (7150) and are tightened to provide threaded studs on the outside of endplate (7011) to attach hydraulic motors. **NOTE: Due to clearance, it may be necessary to remove endplate to install or remove these screws.**

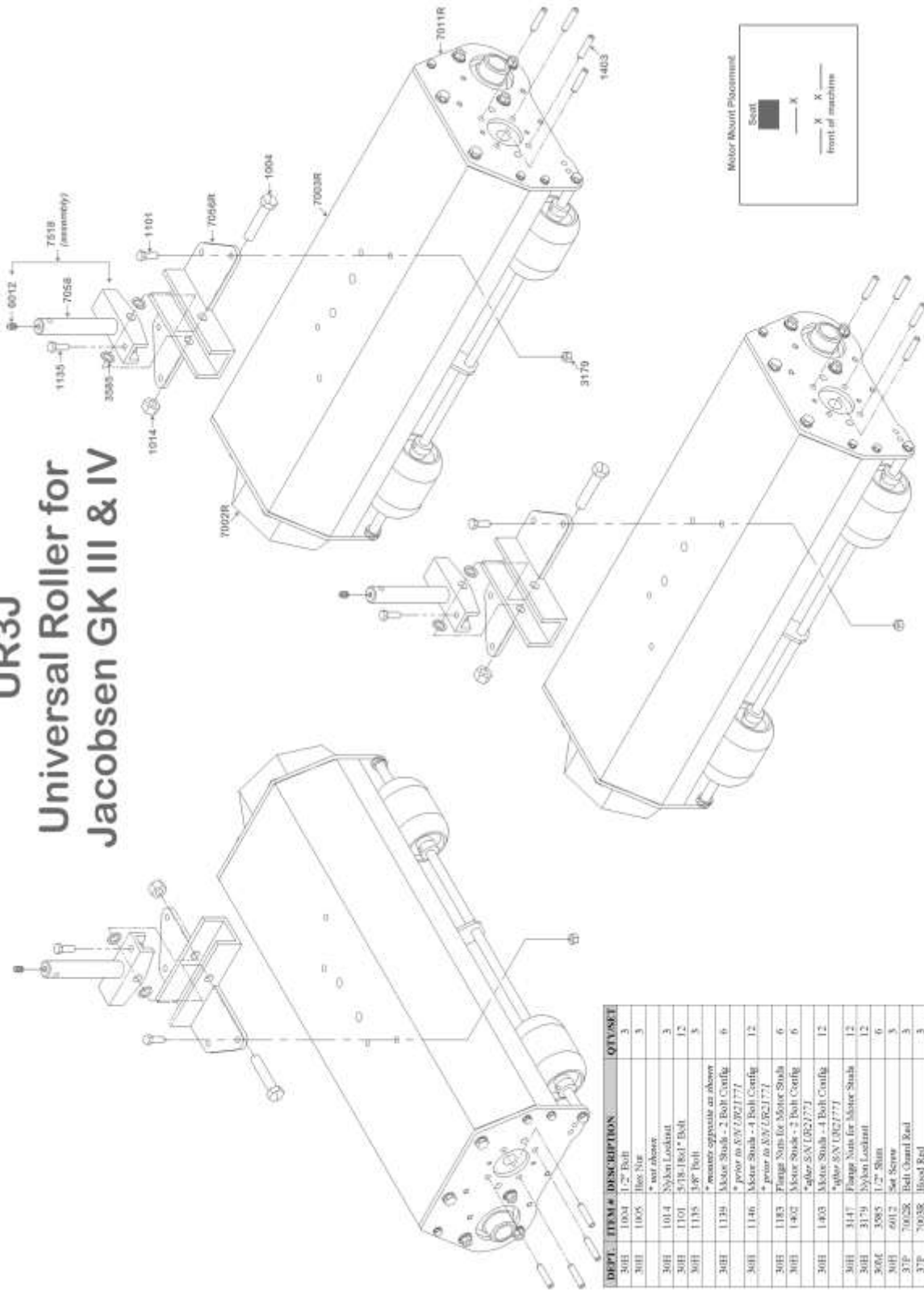




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UR3J Universal Roller for Jacobsen GK III & IV



DEPT.	ITEM #	DESCRIPTION	QTY/SET
30H	1004	1/2" Bolt	3
30H	1005	Hex Nut	3
		* use where	
30H	1014	Nylon Locknut	3
30H	1101	5/16-18x1" Bolt	12
30H	1119	1/8" Bolt	5
		* measure opposite as shown	
30H	1139	Motor Stud - 2 Bolt Config	6
		* prior to S/N U021771	
30H	1146	Motor Stud - 4 Bolt Config	12
		* prior to S/N U021771	
30H	1183	Flange Nuts for Motor Studs	6
30H	1402	Motor Studs - 2 Bolt Config	6
		* after S/N U021771	
30H	1403	Motor Studs - 4 Bolt Config	12
		* after S/N U021771	
30H	3147	Flange Nuts for Motor Studs	12
30H	3179	Nylon Locknut	12
30H	3585	1/2" Shim	6
30H	6012	Set Screw	5
37P	7002R	Belt Guard Roll	3
37P	7003R	Blood Roll	3
37P	7013R	Flange Plate Roll	6
37P	7050R	Left Bracket Roll	3
30A	7058	Left Pin	3

* order assembly 37P-7518

* NOTE EACH QTY IS FOR A FULL SET OF ROLLERS (3 UNITS)

INSTALLATION OF UNIVERSAL ROLLER JACOBSEN GK III & GK IV

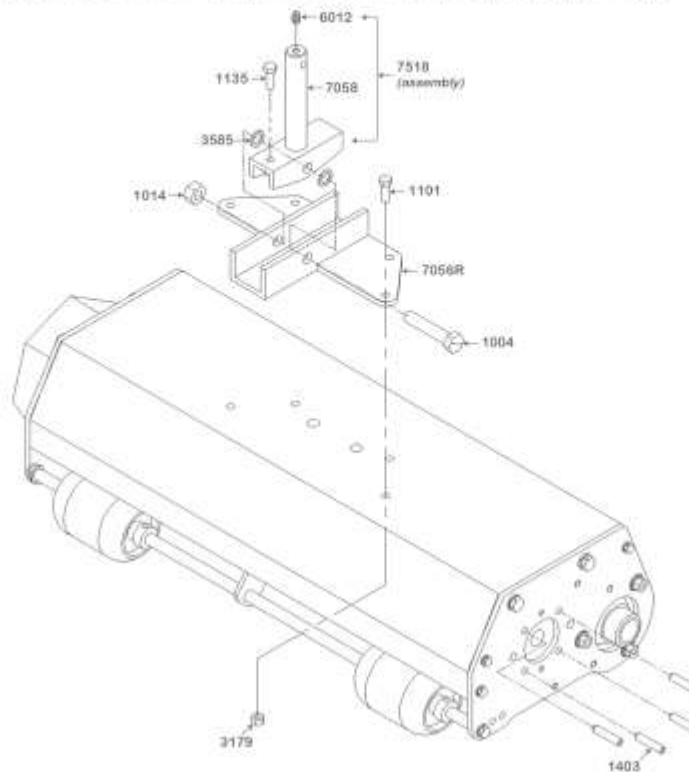
Tools required: *1/2" Combination wrench and socket*
 2-3/4" Combination wrenches
 5/32" Allen wrench
 Pliers

1. Read these instructions carefully and familiarize yourself with the parts and assembly drawings before starting.
2. Remove hydraulic motors from the cutting units, keeping the nuts with the cutting units. These are not needed for the rollers.
3. Remove the 5/16" retainer pin from the main attaching pin at the end of the lift arm and raise the lift arm off of the cutting units and set them aside.
4. After unpacking the rollers, remove the four loose 5/16" bolts from the lifting/towing bracket, and set the bracket on top of the roller unit.
5. Align all four holes and install the bolts and nuts and tighten securely.
6. Remove the 1/2" bolt from the tow bracket and set the lift pin into the channel. Install one spacer on either side of the lift pin and replace the bolt and nut.
7. Tighten the bolt until some resistance is felt when pivoting the lift pin. ***NOTE: It needs to remain moveable.***
8. Repeat for the other rollers. This is a once only procedure.
9. ***NOTE: There is an adjuster bolt on the front of the lift pin assembly that controls the forward and backward tilt of the rollers. You will need to adjust this to fit your needs, i.e., undulations on your greens, ground clearance while in transport, etc.***
10. Set the rollers in their respective positions as marked right left & center as if you were in the operators seat facing forward.
11. Raise the lift arm, set the roller in position and lower the tube end of the lift arm over the lift pin.
12. Reinstall the 5/16" retainer pin.

INSTALLATION OF UNIVERSAL ROLLER JACOBSEN GK III & GK IV (CONT.)

13. Remove the hydraulic motor retainer nuts from the mounting studs.
14. Install the hydraulic motor and nuts. Some wiggling may be necessary to align the splines.
15. Tighten the nuts.
16. Repeat for the other rollers.
17. Check operation of the rollers.

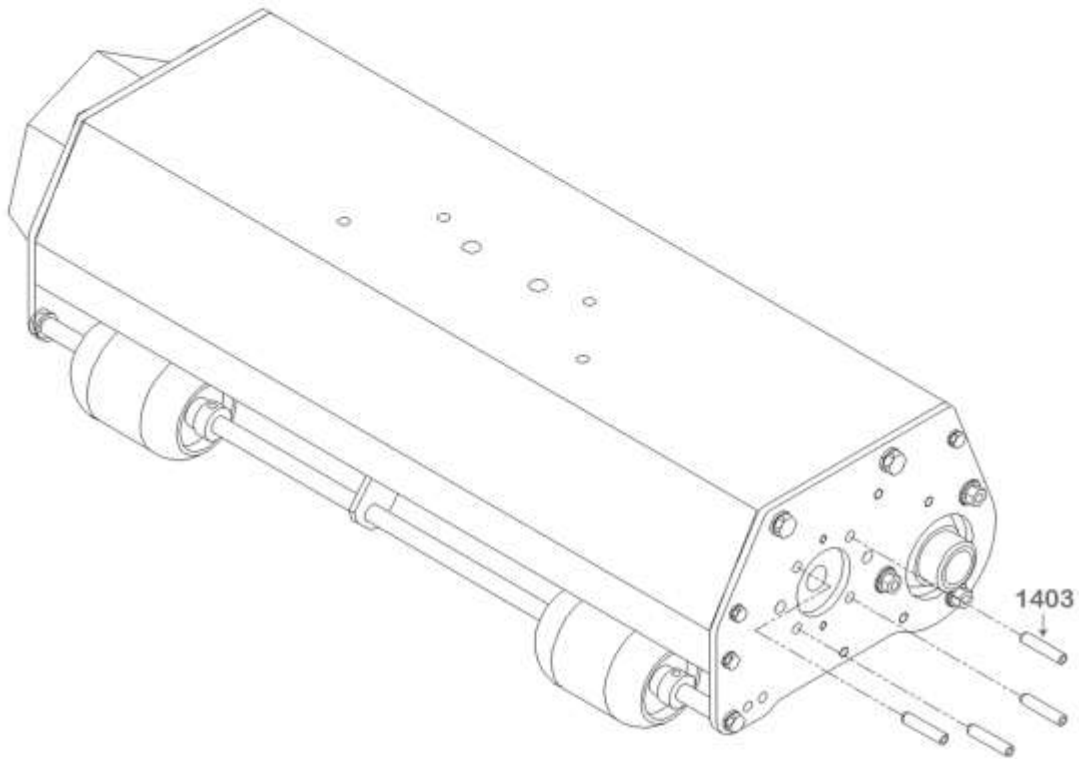
ADAPTION KIT 7504 JACOBSEN GREENSKING III & IV



KIT INCLUDES THE FOLLOWING:

- 6 - 1139 Motor Studs 2-Bolt (not shown)
* prior to S/N UR21771
- 12 - 1146 Motor Studs 4-Bolt (not shown)
* prior to S/N UR21771
- 6 - 1183 Smooth Flange Nut (not shown)
- 6 - 1402 Motor Studs 2-Bolt (not shown)
* after S/N UR21771
- 12 - 1403 Motor Studs 4-Bolt (shown above)
* after S/N UR21771
- 12 - 3147 Flanged Nuts (not shown)
- 3 - 7518 Lift Pin Assembly
Assembly Includes:
 - 1 - 1005 Hex Nut
 - 1 - 1135 Bolt
 - 1 - 6012 Set Screw
 - 1 - 7058 Lift Pin
- 3 - 7519 Lift Plate Assembly
Assembly Includes:
 - 1 - 1004 Bolt
 - 1 - 1014 Nut
 - 4 - 1101 Bolt
 - 4 - 3179 Nut
 - 2 - 3585 Shim
 - 1 - 7056R Lift Bracket Assembly

ADAPTION KIT 7504A JACOBSEN GREENSKING III & IV



KIT INCLUDES THE FOLLOWING:

- 6 - 1183 Flange Nuts (not shown)
- 6 - 1402 Motor Studs 2-Bolt (not shown)
- 12 - 1403 Motor Studs 4-Bolt
- 12 - 3147 Flanged Nuts (not shown)

ADAPTATION FROM JACOBSEN GK III & IV TO...

TORO GM 3- 3100: Uses Adaptation Kit 7500 (see page 18).

Using page 84, reverse the drive ends on the Right and Center units. Refer to page 32 for drive shaft snap ring placement and adjustment, page 33-34 for motor mounting procedures, and page 16 for unit mounting instructions and illustrations for attaching hardware and machine hook-up.

TORO GM 3200 A: Uses Adaptation Kit 7551 (see page 22).

Reverse the drive end of the Center unit using the procedures on page 84. Then use page 32 for drive shaft snap ring placement and adjustment. Next will be page 33-34 for motor mounting procedure and then page 20 for unit mounting instructions and illustrations for final attachments and hook-up. Remove the four belt guard mounting bolts and install one counter weight to each unit with the new 5/16" x 3-1/4" bolts provided and tighten.

TORO GM 3200 B: Uses Adaptation Kit 7552 (see page 26).

Use the same procedure as for the Toro 3200A except for the motor mounting procedure. See page 33-34 for motor mounting procedure and then page 23 for unit mounting instructions and illustrations for final attachments and hook-up.

TORO GM 3250: Uses Adaptation Kit 7506 (see page 30).

Reverse the drive end of the Center unit using the procedures on page 84. Then use page 32 for drive shaft snap ring placement and adjustment. Next will be page 33-34 for motor mounting procedure and then page 28 for unit mounting instructions and illustrations for final attachments and hook-up. Remove the four belt guard mounting bolts and install one counter weight to each unit with the new 5/16" x 3-1/4" bolts provided and tighten.

JOHN DEERE 2243: Uses Adaptation Kit 7507 (see page 65).

No motor mount reversals required. Refer to page 68-69 for motor mounting procedures, and to page 67 for drive shaft placement and adjustment. Finally, refer to unit mounting instructions and illustrations for final attachments and hook-up (see page 62).

JOHN DEERE 2500: Uses Adaptation Kit 7502 (see page 57).

Reverse the drive end of the Center unit using the procedures on page 84. Then use page 59 for drive shaft placement and adjustment. Next, use page 60 for motor mounting procedures, and then page 54 for unit mounting instructions and illustrations for final attachments and hook-up. Remove the four belt guard mounting bolts and install one counter weight to each unit with the new 5/16" x 3-1/4" bolts provided and tighten.

JOHN DEERE 2500E: Uses Adaptation Kit 7502 plus Kit 7001-3MS (see page 57 & 61)

Use all the same procedures as for the Standard John Deere 2500 except for drive shaft placement. Refer to page 61 for shaft placement and spline installation instructions.

JACOBSEN GK V & VI: Uses Adaptation Kit 7503A (see page 39).

Reverse the drive end of the left unit using the procedures on page 84. Then use page 51 for drive shaft snap ring placement and adjustment. Next, use page 52 for motor mounting procedures, and then page 45 for unit mounting instructions and illustrations for final attachments and hook-up. Remove the four belt guard mounting bolts and install one counter weight to each unit with the new 5/16" x 3-1/4" bolts provided and tighten.

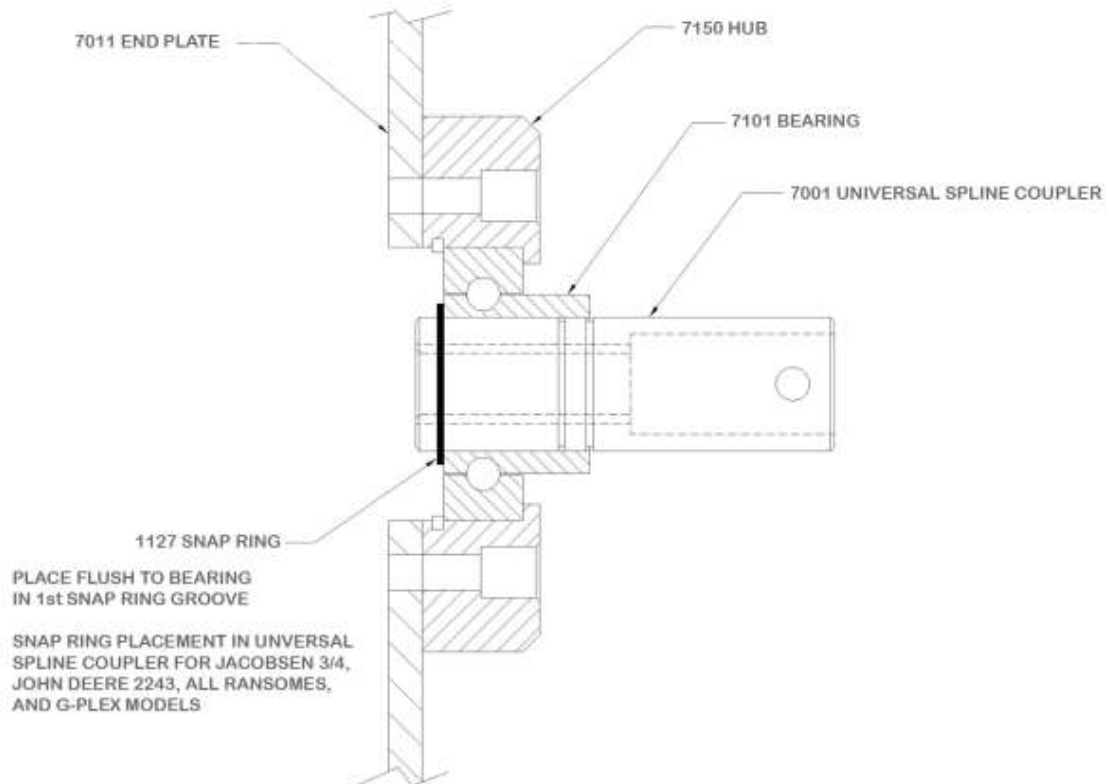
RANSOMES: Uses Adaptation Kit 7505 (see page 75).

Reverse the drive end of the Right and Center units using the procedures on page 84. Then use page 79 for drive shaft snap ring placement and adjustment. Next, use page 80-81 for motor mounting procedures, and then page 72 for unit mounting instructions and illustrations for final attachments and hook-up. Remove the four belt guard mounting bolts and install one counter weight to each unit with the new 5/16" x 3-1/4" bolts provided and tighten.

SNAP RING INSTALLATION INSTRUCTIONS FOR JACOBSEN III & IV

(See Base Unit Schematic for parts reference)

1. Select the required shaft position that corresponds to your triplex machine.
2. Remove belt guard (7002) and belt (7121).
3. Loosen set screw on pulley (7100) and bearing (7101).
4. Loosen set screw and lock collar on bearing (7102).
5. Tap shaft with rubber mallet to allow positioning of snap ring.
6. Install snap ring in its appropriate place and tap shaft into position indicated.
7. Retighten bearings.
8. Lock collar on bearing (7102) needs to be locked by rotating in the direction at which the shaft will be turning. With a punch, give one rap in the predrilled hole in lock collar in the same direction with a mallet to lock it into place and tighten set screw.
9. Align pulleys and tighten set screw on pulley (7100).
10. Replace belt (7121) and belt guard (7002).



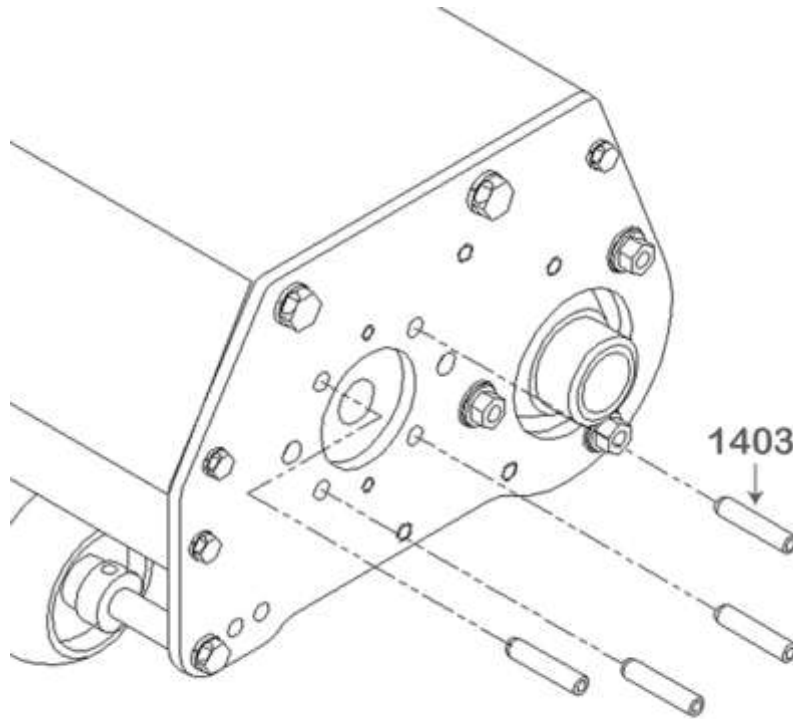
UNIVERSAL ROLLER HYDRAULIC MOTOR MOUNTING CONFIGURATIONS

**4-BOLT / 2-BOLT
JACOBSEN GK III & IV
RANSOMES (early models)
JOHN DEERE 2243**

AFTER S/N UR21771

With all other mounting hardware removed, the four (1403) 5/16 Motor Studs thread from the outside of the unit to the inside into the aluminum housing (7150) and are tightened. The threaded portion outside the end-plate is to secure the hydraulic motor.

NOTE: Same procedure applies for the installation of the 2 (1402) 3/8 Motor Studs in a 2-Bolt configuration.



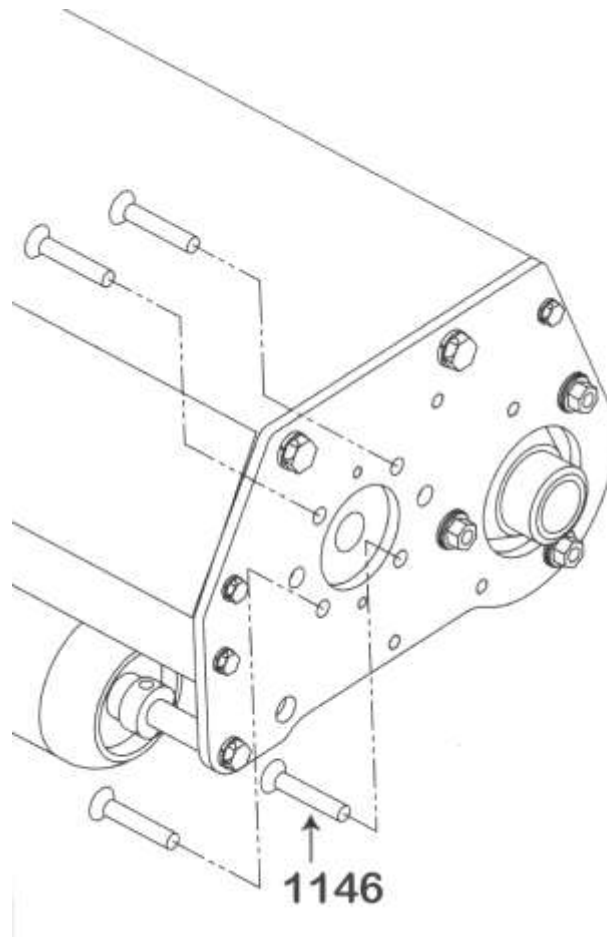
UNIVERSAL ROLLER HYDRAULIC MOTOR MOUNTING CONFIGURATIONS

**4-BOLT / 2-BOLT
JACOBSEN GK III & IV
RANSOMES (early models)
JOHN DEERE 2243**

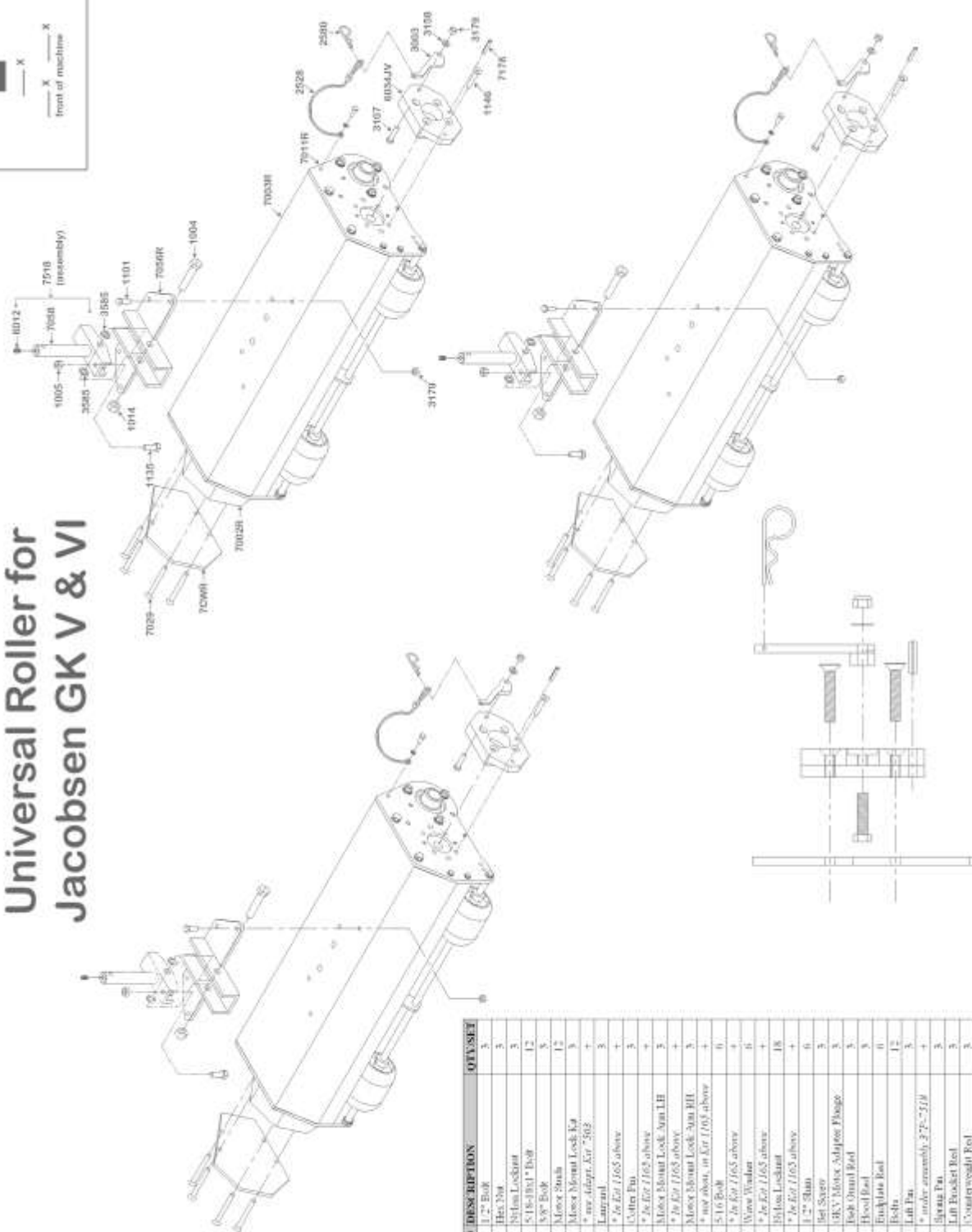
PRIOR TO S/N UR21771

With all other mounting hardware removed, the four (1146) 5/16 x 1-3/4 Motor Studs (Flathead Screws) thread from the inside of the unit to the outside through the aluminum housing (7150) and are tightened. The threaded portion outside the end-plate is to secure the hydraulic motor.

NOTE: Same procedure applies for the installation of the 2 (1139) 3/8 Motor Studs in a 2-Bolt configuration except that the Endplate may need to be removed for clearance.



Motor Mount Placement:



DEVE	ITEM #	DESCRIPTION	QTY/SET
34H	1003	1/2" Bolt	3
34H	1005	1/2" Nut	3
34H	1014	Stilton Locknut	3
34H	1101	5/16-18x1" Bolt	12
34H	1135	5/8" Bolt	12
34H	1146	Minor Smith	12
37P	1165	Minor Mount Lock Kit	3
+	+	minor adapt. Kit #363	+
30M1	2538	Lugnut	3
+	+	* for ECU 1665 above	+
34H	2580	3/8x1" Pin	3
+	+	* for ECU 1665 above	+
30A	3002	Minor Mount Lock Nut 1/16	3
+	+	* for ECU 1665 above	+
30A	3005	Minor Mount Lock Nut 1/16	3
+	+	* not shown, in Kit 1665 above	+
34H	3107	5/16 Bolt	0
+	+	* for ECU 1665 above	+
34H	3136	Wash Washer	6
+	+	* for ECU 1665 above	+
34H	3170	1/2" Locknut	18
+	+	* for ECU 1665 above	+
30M1	3585	1/2" Nut	0
34H	6012	Set Screws	3
37P	6013A	3/8" x 3/4" Machine Flange	3
37P	7029	Lock Mount Rod	3
37P	7030	Head Rod	3
37P	7031	Bracket Rod	3
34H	7029	Brkt	12
30M1	7058	1/4" Pin	3
+	+	* made assembly 27P-7516	+
37P	7178	1/8" Pin	3
37P	7058	1/4" Bracket Rod	3
37P	7032	Counterweight Rod	3

379	380	381	382	383	384	385	386	387	388	389	390	391	392	393	394	395	396	397	398	399	400	401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419	420	421	422	423	424	425	426	427	428	429	430	431	432	433	434	435	436	437	438	439	440	441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457	458	459	460	461	462	463	464	465	466	467	468	469	470	471	472	473	474	475	476	477	478	479	480	481	482	483	484	485	486	487	488	489	490	491	492	493	494	495	496	497	498	499	500	501	502	503	504	505	506	507	508	509	510	511	512	513	514	515	516	517	518	519	520	521	522	523	524	525	526	527	528	529	530	531	532	533	534	535	536	537	538	539	540	541	542	543	544	545	546	547	548	549	550	551	552	553	554	555	556	557	558	559	560	561	562	563	564	565	566	567	568	569	570	571	572	573	574	575	576	577	578	579	580	581	582	583	584	585	586	587	588	589	590	591	592	593	594	595	596	597	598	599	600	601	602	603	604	605	606	607	608	609	610	611	612	613	614	615	616	617	618	619	620	621	622	623	624	625	626	627	628	629	630	631	632	633	634	635	636	637	638	639	640	641	642	643	644	645	646	647	648	649	650	651	652	653	654	655	656	657	658	659	660	661	662	663	664	665	666	667	668	669	670	671	672	673	674	675	676	677	678	679	680	681	682	683	684	685	686	687	688	689	690	691	692	693	694	695	696	697	698	699	700	701	702	703	704	705	706	707	708	709	710	711	712	713	714	715	716	717	718	719	720	721	722	723	724	725	726	727	728	729	730	731	732	733	734	735	736	737	738	739	740	741	742	743	744	745	746	747	748	749	750	751	752	753	754	755	756	757	758	759	760	761	762	763	764	765	766	767	768	769	770	771	772	773	774	775	776	777	778	779	780	781	782	783	784	785	786	787	788	789	790	791	792	793	794	795	796	797	798	799	800	801	802	803	804	805	806	807	808	809	810	811	812	813	814	815	816	817	818	819	820	821	822	823	824	825	826	827	828	829	830	831	832
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INSTALLATION OF UNIVERSAL ROLLER JACOBSEN GK V & VI

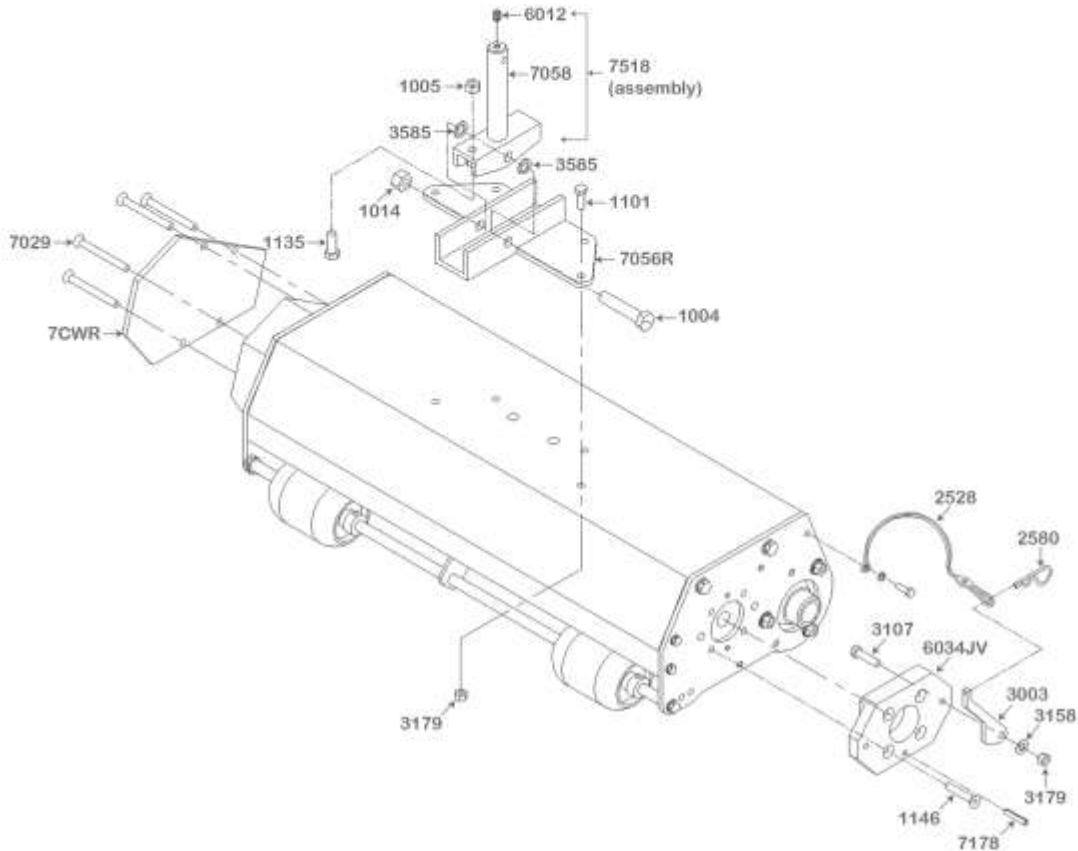
Tools required: *1/2" Combination wrench and socket*
 2-3/4" Combination wrenches
 5/32" Allen wrench
 Pliers

1. Read these instructions carefully and familiarize yourself with the parts and assembly drawings before starting.
2. Remove hydraulic motors from the cutting units. Take care not to lose the splined couplers. These are not needed for the rollers.
3. Remove the 5/16" retaining pin from the main attaching pin at the end of the lift arms, and raise the lift arms off of the cutting units and set them aside.
4. After unpacking the rollers, remove the four loose 5/16" bolts from the lifting/towing bracket, and set the bracket on top of the roller unit.
5. Align all four holes and install the bolts and nuts and tighten securely.
6. Remove the 1/2" bolt from the tow bracket and set the lift pin into the channel. Adjuster bolt is positioned to the front of the units.
7. Install one spacer on either side of the lift pin and replace the bolt and nut.
8. Tighten the bolt until some resistance is felt when pivoting the lift pin. ***NOTE: It needs to remain moveable.***
9. Repeat for the other rollers. This is a one time procedure.
10. ***NOTE: There is an adjuster bolt on the front of the lift pin assembly that controls the forward and backward tilt of the rollers. Adjust it to suit your needs, i.e.: undulations on greens; ground clearance while in transport, etc.***
11. Set the rollers under the machine. (The small caster wheels of the roller unit will be to the front of the machine).
12. Raise the lift arm, set the roller in position and lower the tube end of the lift arm over the lift pin and reinstall the 5/16" retainer pin.

INSTALLATION OF UNIVERSAL ROLLER JACOBSEN GK V & VI (CONT.)

13. Remove the hairpin cotter from the motor clamps.
14. Open the clamp arms, twist and push the motor into position and close the clamps and replace the hairpin cotter.
15. Repeat #10 thru # 12 for the other rollers.
16. Check operation of the rollers.

ADAPTION KIT 7503 JACOBSEN GREENSKING V & VI



KIT INCLUDES THE FOLLOWING:

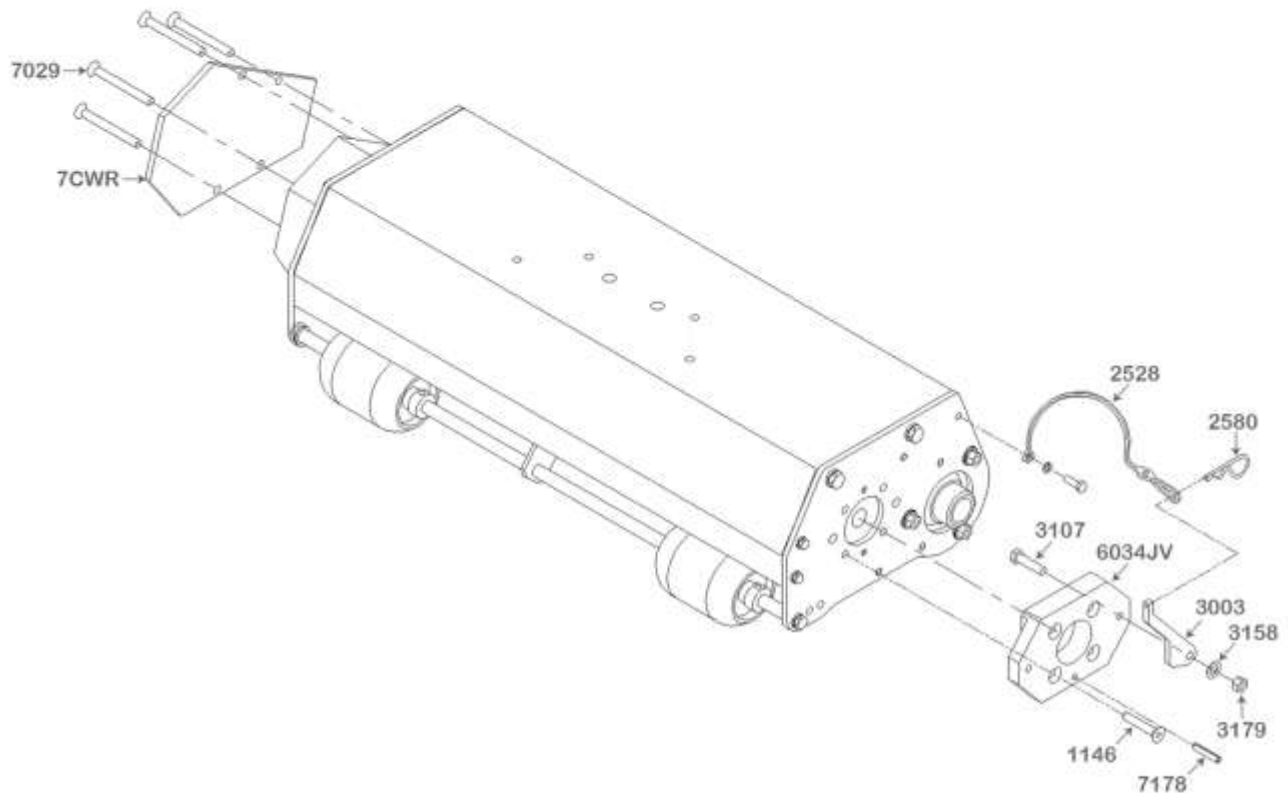
- 12 - 1146 Motor Mount Bolts
- 3 - 1165 Motor Mount Lock Assembly
- Each Assembly Includes:*
 - 1 - 2528 Lanyard
 - 1 - 2580 Cotter Pin
 - 1 - 3002 Lock Arm LH (not shown)
 - 1 - 3003 Lock Arm RH
 - 2 - 3107 Bolts
 - 2 - 3158 Wavy Washers
 - 2 - 3179 Locknut
- 3 - 6034JV Motor Adaptor Flange
- 12 - 7029 Bolt
- 3 - 7178 Spring Pin
- 3 - 7CWR Counterweight

- 3 - 7518 Lift Pin Assembly
- Each Assembly Includes:*
 - 1 - 1005 Nut
 - 1 - 1135 Bolt
 - 1 - 6012 Set Screw
 - 1 - 7058 Lift Pin
- 3 - 7519 Lift Bracket Assembly
- Each Assembly Includes:*
 - 1 - 1004 Bolt
 - 1 - 1014 Nut
 - 4 - 1101 Bolts
 - 4 - 3179 Nuts
 - 2 - 3585 Washers
 - 1 - 7056R Lift Bracket

ADAPTION KIT 7503A

JACOBSEN GREENSKING V & VI

USE WHEN UPGRADING FROM GREENSKING 3/4 to 5/6



KIT INCLUDES THE FOLLOWING:

- 12 - 1146 Motor Mount Screws
- 3 - 1165 Motor Mount Lock Assembly
- Each Assembly Includes:*
 - 1 - 2528 Lanyard
 - 1 - 2580 Cotter Pin
 - 1 - 3002 Lock Arm LH (not shown)
 - 1 - 3003 Lock Arm RH
 - 2 - 3107 Bolts
 - 2 - 3158 Wavy Washers
 - 2 - 3179 Locknut
- 3 - 6034JV Motor Mount Spacer Plate
- 12 - 7029 Bolt
- 3 - 7178 Spring Pin
- 3 - 7CWR Counterweight

ADAPTATIONS FROM JACOBSEN GK V & VI TO...

TORO GM 3-3100: Uses Adaptation Kit 7500 (see page 18).

All three units require drive-end reversal, this procedure is found on page 84. Next, refer to page 32 for drive shaft snap ring placement and adjustment. Then use page 33-34 for motor mounting procedures. For final mounting hardware, attachment instructions and illustrations refer to page 16. Do not reinstall counter weight onto new unit as it is not needed.

TORO 3200 A: Uses Adaptation Kit 7551 (see page 22).

Two of the units will require drive-end reversal; this procedure is on page 84. The unit not reversed will be designated as the Right side. Refer to page 32 for drive shaft placement and adjustment. Page 33-34 will show motor mounting procedures, and page 20, will include unit mounting instruction and illustrations for final attachments and hook-up.

TORO 3200 B: Uses Adaptation Kit 7552 (see page 26).

Two of the units will require drive-end reversal; this procedure is on page 84. The unit not reversed will be designated as the Right unit. Refer to page 32 for drive shaft snap ring placement and adjustment. Page 33-34 will show motor mounting procedures, and page 23 will include unit mounting instruction and illustrations for final attachments and hook-up.

TORO 3250: Uses Adaptation Kit 7506 (see page 30).

Two of the units will require drive-end reversal; this procedure is on page 84. The unit not reversed will be designated as the Right unit. Refer to page 32 for drive shaft placement and adjustment. Page 33-34 will show motor mounting procedures, and page 28, will include unit mounting instruction and illustrations for final attachments and hook-up.

JACOBSEN GK III & IV: Uses Adaptation Kit 7504A (see page 40).

One unit will require drive-end reversal, instructions on page 84. This will be the left unit on GK III & IV. Use page 42 to determine drive shaft snap ring placement and adjustment. Page 43-44 shows motor mounting and procedures. Page 36 contains instructions and illustrations for final attachments and hook-up. Do not reinstall counter weight onto new unit as it is not needed.

JOHN DEERE 2243: Uses Adaptation Kit 7507 (see page 65) .

One of the three units require Drive-End Reversal found on page 84. This unit will then fit the left front location on the JD 2243 mower. Refer to page 68-69 for motor mounting procedures, and to page 67 for drive shaft placement and adjustment. Finally, refer to unit mounting instructions and illustrations for final attachments and hook-up (see page 62).

JOHN DEERE 2500: Uses Adaptation Kit 7502 (see page 57).

Two of the units will need drive-end reversal; this procedure is on page 84. These units will then fit the left and center position on the JD 2500. Drive shaft placement will remain the same. Refer to page 60 for motor mounting procedures, then to page 54 for unit mounting instructions and illustrations for final attachments and hook-up.

JOHN DEERE 2500E: Uses Adaptation Kit 7502 plus Kit 7001-3MS (see page 57 & 61)

Use all the same procedures as for the Standard John Deere 2500 except for drive shaft placement. Refer to page 61 for shaft placement and spline installation instructions

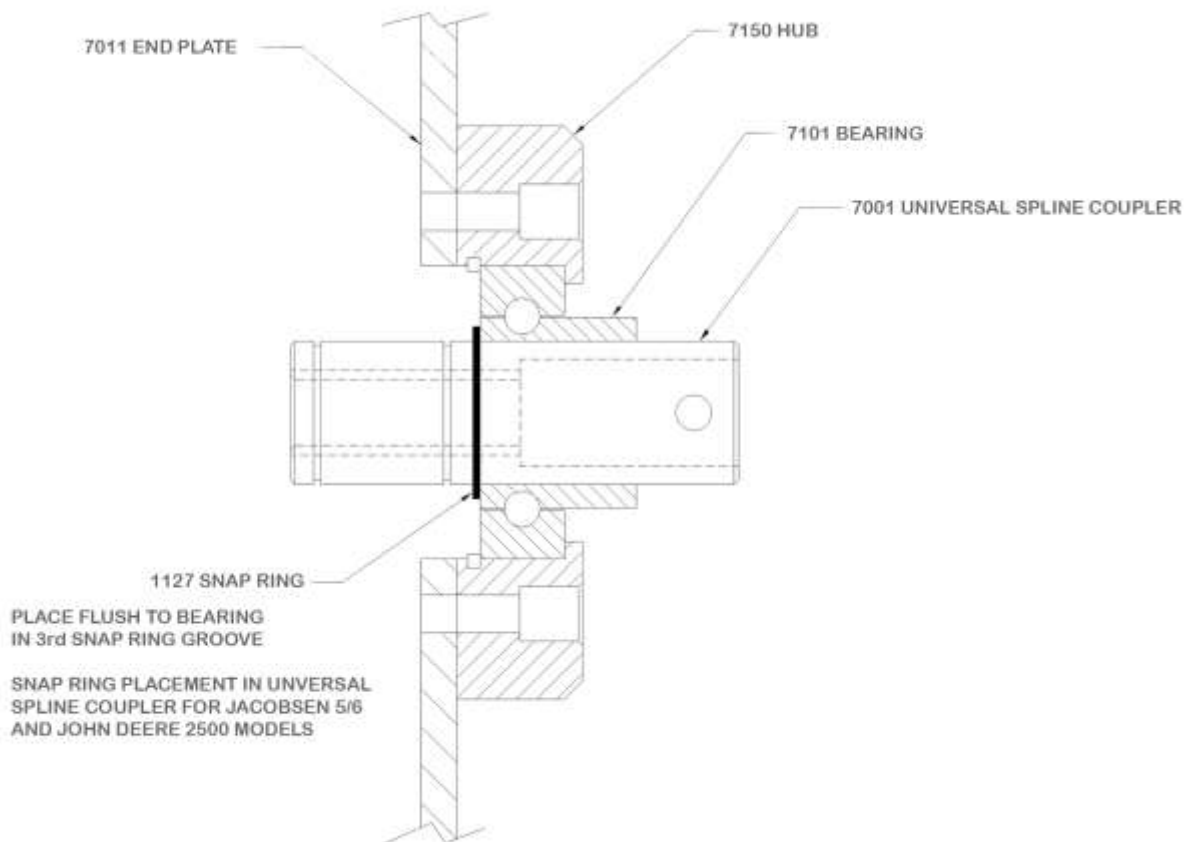
RANSOMES: Uses Adaptation Kit 7505 (see page 75).

All three units will require the drive-end reversal procedure on page 84. Drive shaft snap ring placement and adjustment is found on page 79. Next, refer to page 80-81 for motor mounting procedures, and then to page 72 for unit mounting instructions and illustrations for final attachments and hook-up.

SNAP RING INSTALLATION INSTRUCTIONS FOR JACOBSEN V & VI

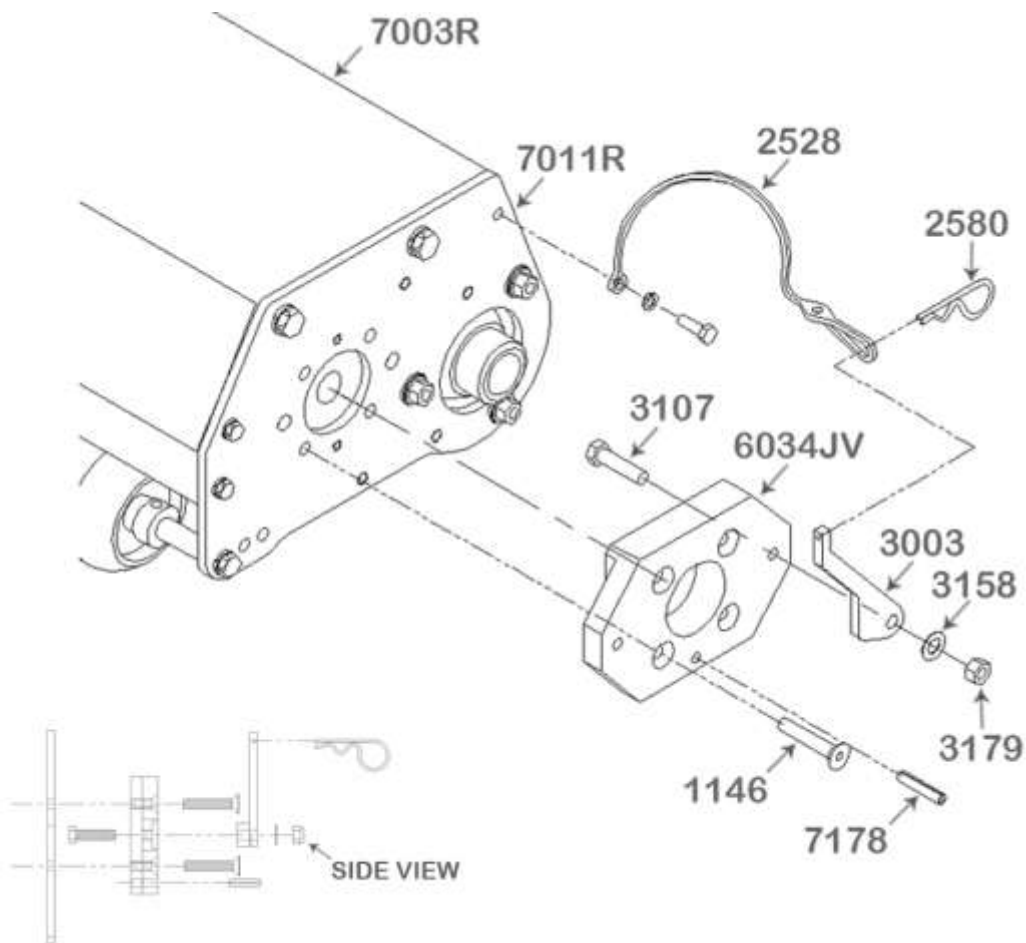
(See Base Unit Schematic for parts reference)

1. Select the required shaft position that corresponds to your triplex machine.
2. Remove shaft by turning roller upside down.
3. Remove belt guard (7002) and belt (7121).
4. Loosen set screw on pulley (7100) and bearing (7101).
5. Loosen set screw and lock collar on bearing (7102).
6. Tap shaft with rubber mallet to allow positioning of snap ring.
7. Install snap ring in its appropriate place and tap shaft into position indicated.
8. Retighten bearings.
9. Lock collar on bearing (7102) needs to be lock by rotating the direction at which the shaft will be turning. With a punch, give one rap with a mallet to lock it into place and tighten set screw.
10. Align pulleys and tighten set screw on pulley (7100).
11. Replace belt (7121) and belt guard (7002).



UNIVERSAL ROLLER HYDRAULIC MOTOR MOUNTING CONFIGURATIONS JACBOSEN GK V & VI *"Flash Attach"*

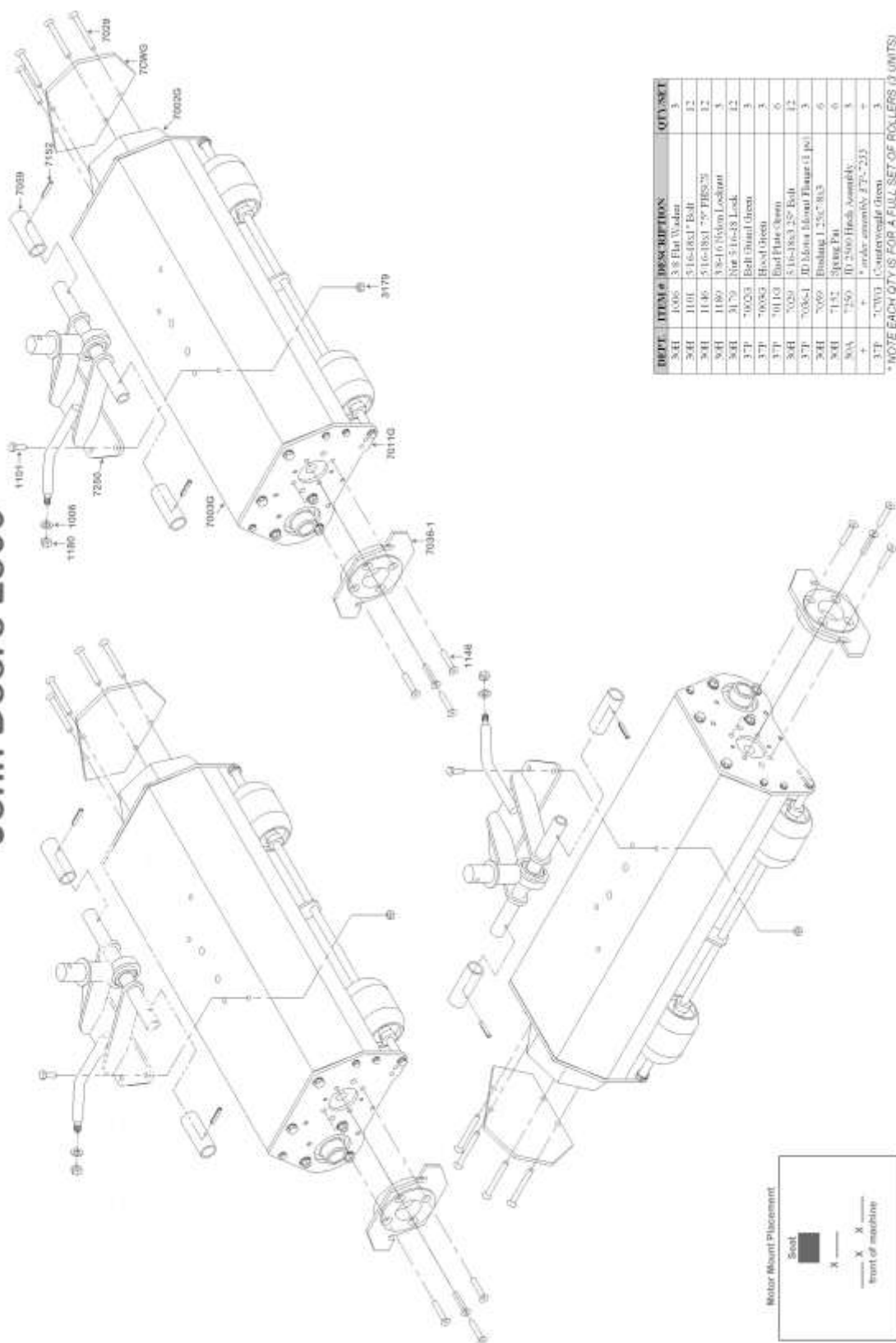
With all other mounting hardware removed this motor mount adapter (6034JV) is mounted directly to the endplate with four 5/16 x 1-3/4" flathead screws and tightened. Be sure to check motor fit as it may be necessary to loosen and retighten to center mounting plate with splined shaft. The lanyard (2528) is attached to the endplate (7011) on one end and then to the motor mount lock kit arms (3002 and 3003) with the cotter pin (2580) on the other end.



JOHN DEERE MODELS



UR3JD25 Universal Roller for John Deere 2500



INSTALLATION OF UNIVERSAL ROLLER

JOHN DEERE 2500

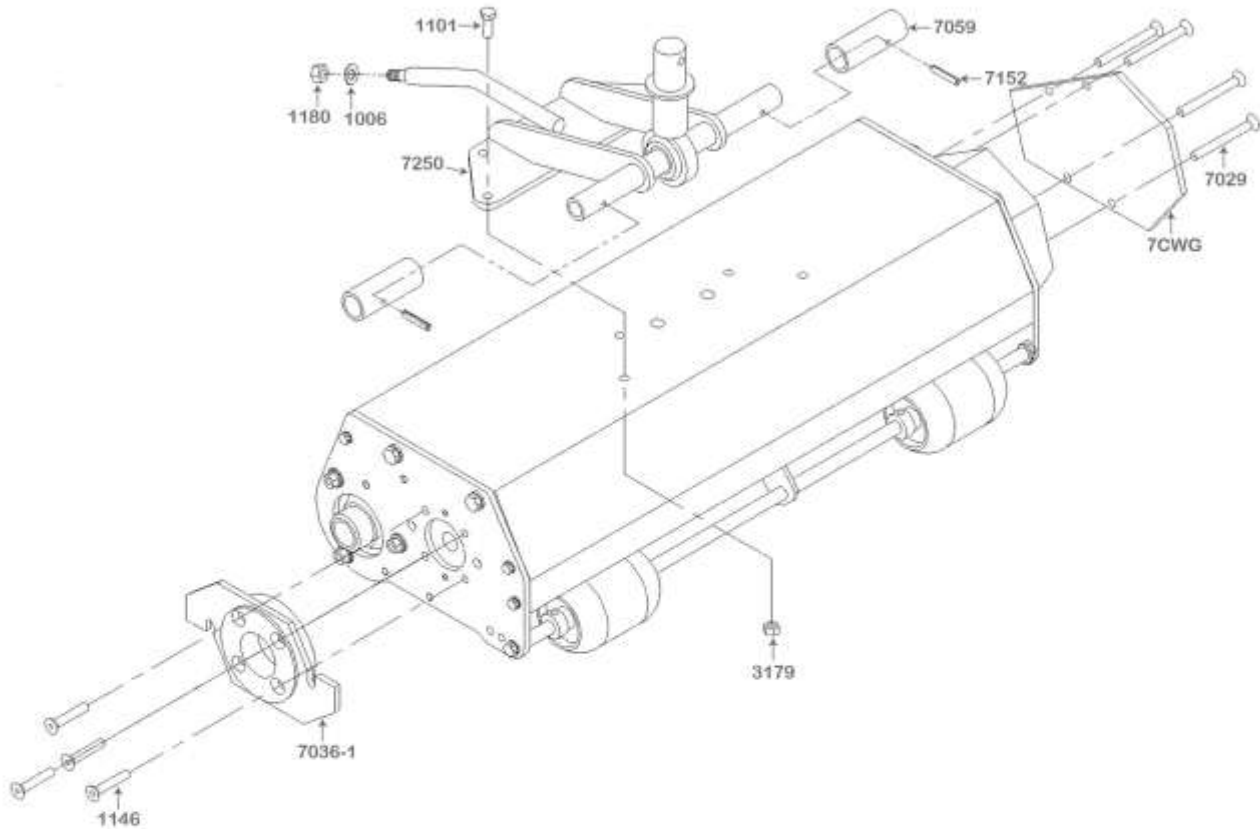
Tools needed: *15mm Combination wrench*
 9/16" Combination wrench
 1/2" Combination wrench
 7/16" Combination wrench
 Pliers

1. Read these instructions carefully and familiarize yourself with the parts and assembly drawings before starting.
2. Remove cutting units by removing the 5/16 diameter wire loop pins at the tip of each lift arm.
3. Remove cotter pin and chain from cutting unit only! Leave attached to lift arm.
4. Roll cutting unit forward until ball mounting tube is clear of lift arm.
5. Loosen the two hydraulic motor mount bolts using the 15mm wrench.
6. Twist and pull the hydraulic motor free from cutting unit. ***Be careful not to lose the splined hub in cutting unit. (This is not needed for the roller)***
7. Remove the rollers from the box and lay them in their respective positions: Left, Right, Center, as if you are seated in the driver's position facing forward.
8. Remove the four loose 5/16" bolts from the lifting/towing bracket and set the bracket on top of the roller unit. (The large ball socket will be forward and up. The 5/8" diameter rod will slide between the roller and the frame and point to the rear of the machine).
9. Align all four of the holes and install the bolts and nuts and tighten securely.
10. Repeat for the remaining rollers. This is a one-time only procedure.
11. Slide the roller into position and guide the 1 1/8" pin into the end of the lift arm.
12. Reinstall the wire loop pin.
13. Remove the 3/8" locknut and washer from the lift chain attachment.
14. Attach the chain and install the washer and nut.

INSTALLATION OF UNIVERSAL ROLLER JOHN DEERE 2500 (CONT.)

15. *NOTE: Lift height will be determined by this chain. Your terrain and needs will determine its position.*
16. Install the Hydraulic motor by inserting retaining bolts into the cutouts.
17. Wiggle until the shaft splines line up.
18. Twist the motor into place and tighten the mounting bolts.
19. Repeat this procedure for the other rollers.
20. Check operation of rollers

ADAPTION KIT 7502 JOHN DEERE 2500



KIT INCLUDES THE FOLLOWING:

12 - 1146 Flathead Socket Bolt

12 - 7029 Bolt

3 - 7036-1 Motor Flange

6 - 7059 Bushing

6 - 7152 Spring Pin

3 - 7255 Hitch Assemblies

Each Assembly Includes:

4 - 1101 Bolt

4 - 3179 Nut

1 - 1180 Nut

1 - 1006 Washer

1 - 7250 Hitch

1 - 7301 Motor Flange Alignment Tool (not shown)

3 - 7CWG Counterweight Green

ADAPTATIONS FROM JOHN DEERE 2500 TO...

TORO GM 3-3100: Uses Adaptation Kit 7500 (see page 18).

The right unit will require a drive-end reversal; this procedure is on page 84. Next, refer to page 32 for drive shaft snap ring placement and adjustment. Then use page 33-34 for motor mounting procedures. For final mounting hardware and attachment instructions and illustrations, refer to page 16. Do not reinstall counter weight onto new unit as it is not needed.

TORO 3200 A: Uses Adaptation Kit 7551 (see page 22).

Drive ends are the same from the 2500 to these Toro models, no reversal required. Use page 32 for drive shaft snap ring placement and adjustment. Refer next to page 33-34 for motor mounting procedures. Finally, refer to page 20 for instructions and illustrations on final hardware attachment and unit hook-up.

TORO 3200 B: Uses Adaptation Kit 7552 (see page 26).

Drive ends are the same from the 2500 to these Toro models, no reversal required. Use page 32 for drive shaft snap ring placement and adjustment. Refer next to page 33-34 for motor mounting procedures. Finally, refer to page 23 for instructions and illustrations on final hardware attachment and unit hook-up.

TORO 3250: Uses Adaptation Kit 7506 (see page 30).

Drive ends are the same from the 2500 to these Toro models, no reversal required. Use page 32 for drive shaft snap ring placement and adjustment. Refer next to page 33-34 for motor mounting procedures. Finally, refer to page 28 for instructions and illustrations on final hardware attachment and unit hook-up.

JACOBSEN GK III & IV: Uses Adaptation Kit 7504 (see page 39).

The center unit will require drive end reversal page 84. When completed, refer then to page 42 for drive shaft snap ring placement and adjustment. Now see page 43-44 for motor mounting procedures, and finally, for unit mounting hardware instructions and illustrations, refer to page 36. Do not reinstall counterweight on new unit as it is not needed.

JACOBSEN GK V & VI: Uses Adaptation Kit 7503 (see page 48).

Left and Center units will require drive end reversal procedures found on page 84. Next will be shaft placement and adjustment on page 51. Refer then to page 52 for motor mounting procedures. Then page 45 for unit instructions and illustrations for final attachments and hook-up.

JOHN DEERE 2243: Uses Adaptation Kit 7507 (see page 65).

One of the three units requires Drive-End Reversal found on page 84. This unit will then fit the center location on the JD 2273 mower. Refer to page 68-69 for motor mounting procedures, and to page 67 for drive shaft placement and adjustment. Finally, refer to unit mounting instructions and illustrations for final attachments and hook-up (see page 62).

JOHN DEERE 2500E: Add Kit 7001-3MS (see page 61)

Use all the same procedures as for the Standard John Deere 2500 except for drive shaft placement. Refer to page 61 for shaft placement and spline installation instructions.

RANSOMES: Uses Adaptation Kit 7505 (see page 75).

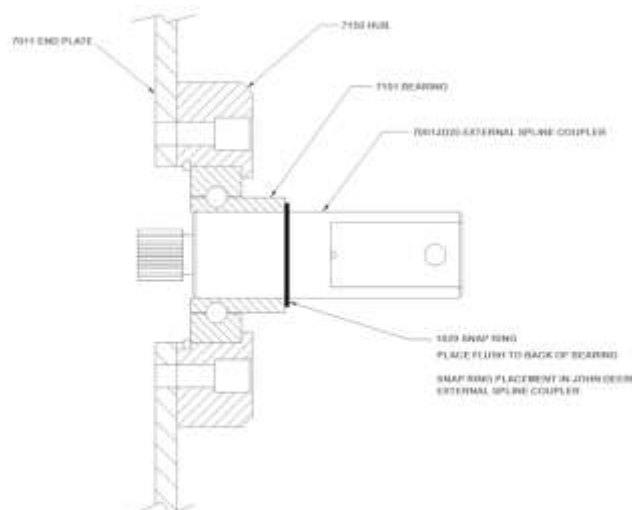
The right unit will need drive end reversal procedure found on page 84. Drive shaft snap ring placement and adjustment is found on page 79. Now refer to page 80-81 for motor mounting procedure and finally, page 72 for unit mounting instructions and illustrations for final attachments and hook-up.

SNAP RING INSTALLATION INSTRUCTIONS FOR JOHN DEERE 2500

(See Base Unit Schematic for parts reference)

The following instructions apply to coupler replacement, or conversion from a different type of machine to the John Deere 2500.

1. Turn roller unit upside down.
2. Remove belt guard (7002) and Belt (7121).
3. Loosen set on 5" pulley (7100) and remove pulley.
4. Loosen both set screws on bearing (7101) and lock collar on bearing (7102).
5. Insert a punch into hole in lock collar and tap it in the opposite direction that in would be rotating to loosen the eccentric grip on the shaft, and slide it free of the bearing.
6. If snap ring on bearing is on the outside of the unit, use a rubber mallet to tap the shaft towards the motor end until the snap ring can be removed. Then tap back in the opposite direction until it is free of the (7101) bearing. In other cases, a socket, or tube slightly under 1 inch diameter can be used to tap shaft towards the belt side till it is free of the (7101) bearing.
7. Lift the coupler end of the shaft (7102 bearing will pivot within flange) until it can be pulled from (7102) bearing.
8. Use a 1/4" punch and drive out roll pin joining coupler and shaft, and remove coupler. NOTE: on internal spline couplers, a punch can be used inside the spline to tap the shaft free, on external splines it may be necessary to heat the coupler slightly to aid in removal.
9. Install new coupler to shaft, light oil or anti-seize may be used, make sure holes will align, and tap together, and install new roll pin.
10. Install snap ring (1127) into coupler groove and slide shaft back into bearing (7102). Push shaft back down and align with the center of bearing (7101) and insert into bearing.
11. Slide shaft into bearing (7101) until snap ring is tight against bearing and tighten the bearing set screws. (See below)
12. Slide lock collar up to bearing (7102) be sure that recess of lock collar fits over and engages hub on bearing, and turn in the direction that the shaft will be rotating until it is snug. Then using punch and hammer, give lock collar one good tap in that same direction to lock bearing, collar and shaft together, and tighten set screw.
13. Install pulley (7100) and belt (7121) align belt, and tighten set screw.
14. Replace belt guard and tighten.
15. Install internal spline coupler adaptor.
16. Align motor splines, slide and twist motor into place, and tighten mounting bolts

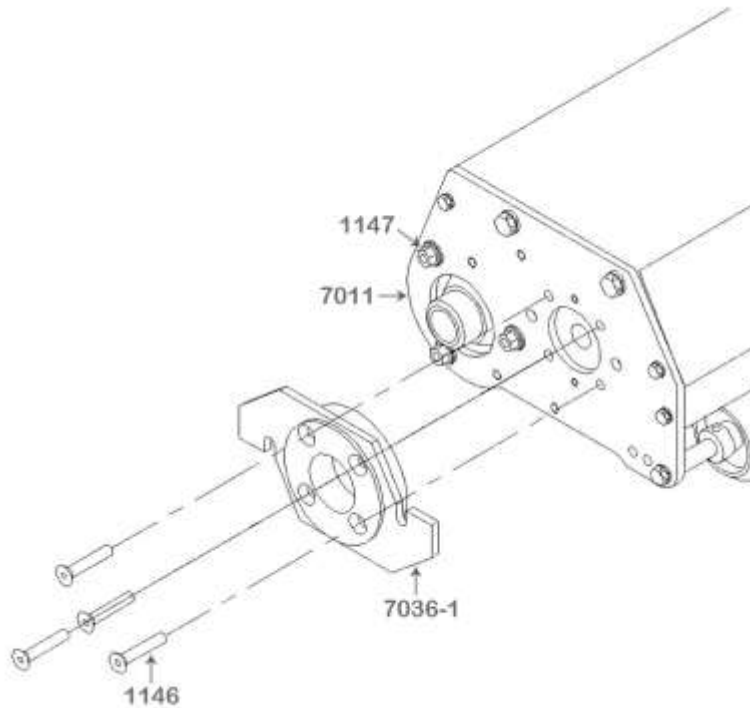


UNIVERSAL ROLLER HYDRAULIC MOTOR MOUNTING CONFIGURATIONS

JOHN DEERE 2500 ONLY

Remove any other mounting hardware. Install the motor mount adapter (7036-1) and secure with 4 (1146) 5/16x1.75 flathead screws.

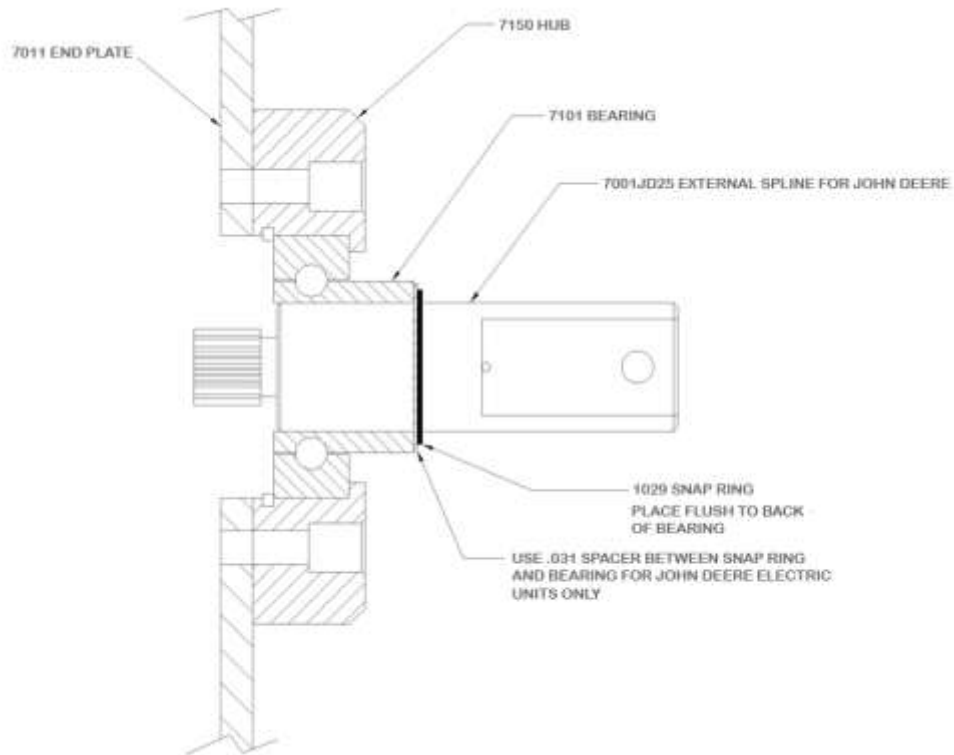
NOTE: Use the John Deere Alignment Tool (7301) by slipping it over the spline coupler and then fitting the flange over it. When bolts are tightened, the tool can be easily removed by hand. This will ensure concentricity between the coupler and the flange.



SNAP RING AND COUPLER PLACEMENT INSTRUCTIONS FOR JOHN DEERE 2500E

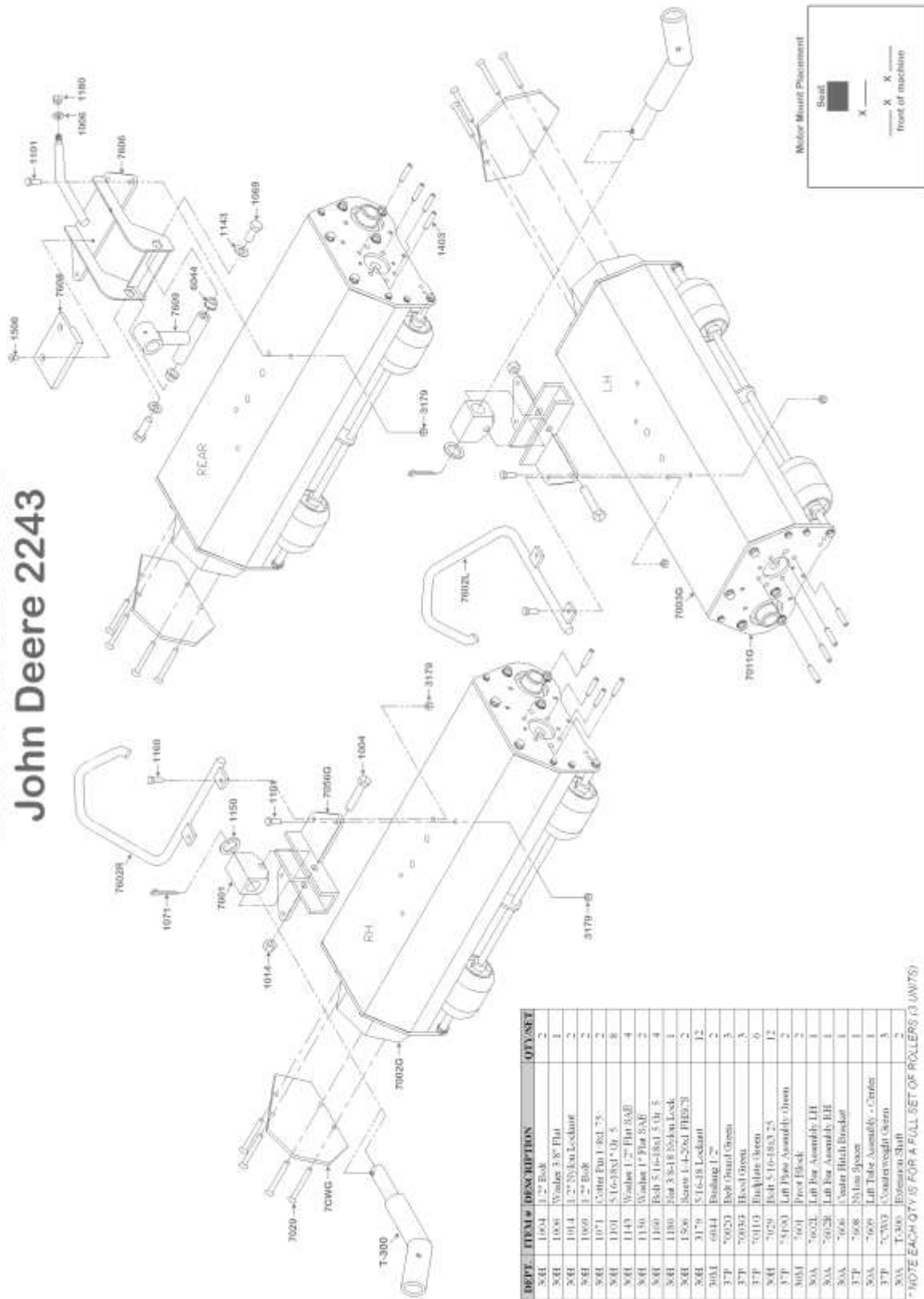
(See Base Unit Schematic for parts reference)

The John Deere Electric Unit is very similar to the 2500 hydraulic unit. Yet when installing or setting the coupler for the electric unit, at instruction line 10 on page 59, install one (JD2500E-SHIM) onto the coupler after the snap ring and then insert into bearing (7101) and push up tight as shown below. Finish installation by following the rest of the procedures on page 59.



UR3JD22

Universal Roller for John Deere 2243



DEPT.	ITEM #	DESCRIPTION	QTY/SET
341	1004	1" x 2" Bolt	2
341	1006	Washer 3/8" Flat	1
341	1014	1" x 2" 55/64 Locknut	2
341	1009	1" x 2" Bolt	2
341	1071	5/16" Flat 1.861" Lx .75"	2
341	1001	5/16" 18x1" Dr. S.	8
341	1143	Washer 1" Flat 5/8"	4
341	1130	Washer 1" Flat 5/8"	2
341	1160	5/8" 5.16-18x1.5 Dr. S.	4
341	1180	5/8" 3.8-18 55/64 Lock	1
341	1506	Scam 1.4-20x1 FH57/8	2
341	3179	5/16-18 Locknut	12
303	6044	Endplate 1" x 2"	2
37P	70023	End Plate Green	3
37P	70024	End Plate Green	3
37P	70113	Endplate Green	6
341	7029	5/8" 5.16-18x1.5 Dr. S.	12
37P	70153	End Plate Assembly Green	2
303	7001	Front Block	2
303	7002L	Left Bar Assembly LH	1
303	7002R	Right Bar Assembly RH	1
303	7006	Washer 1/2" Flat 5/8"	1
37P	7008	Roller Spring	1
303	7009	Left Tube Assembly - Center	1
37P	7003	Counterweight Green	3
303	T-300	Extension Shaft	2

* NOTE EACH QTY IS FOR A FULL SET OF ROLLERS (3 UNITS)

INSTALLATION OF THE UNIVERSAL ROLLER

JOHN DEERE 2243

Please be sure to keep all hardware with its unit.

Each unit of this particular model is different from the other two.

Tools needed:

- 1/2" Combination wrench*
- 9/16" Combination wrench*
- 2-3/4" Combination Wrench*
- 1/2" Socket Ratchet & Extension*

- 1) Read these instructions carefully and familiarize yourself with the parts and assembly drawings before starting.
- 2) Remove all cutting units from the machine by removing the wire loop pin that retains the tow bar of the cutting unit to the lift arm of the machine.
- 3) Remove the nuts from the hydraulic motors and slip them out of place.
- 4) Pull the cutting units out from under the machine.
- 5) Starting with the Left Unit, remove the four bolts (1101) from the Universal Lift Bracket (7519G) and set the bracket into place on top of the roller unit.
- 6) Install the one inch bolts (1101) into the forward holes of the bracket.
- 7) Install the longer (1160) bolts into the tabs of the Lift Bar Assembly (7602R or 7602L) and into the rear holes of the Lift Bracket (7519G). Make sure the Lift Bar Assembly hook is open to the motor mount side of the unit.
- 8) Tighten all four bolts.
- 9) Install the Extension Pin (T300) into the Pivot Block (7601).
- 10) Remove the bolt (1004) from the Lift Bracket (7519G) and set the Pivot Block/Extension Pin combo down into the Lift Bracket. The Extension Pin (T300) will be facing forward.
- 11) Reinstall bolt (1004) into the Lift Bracket and through the Pivot Block (7601).
- 12) Replace nut and tighten. ***DO NOT OVER TIGHTEN THE BOLT. THE PIVOT BLOCK NEEDS TO REMAIN MOVABLE.***
- 13) Repeat steps 1-11 with the right unit.

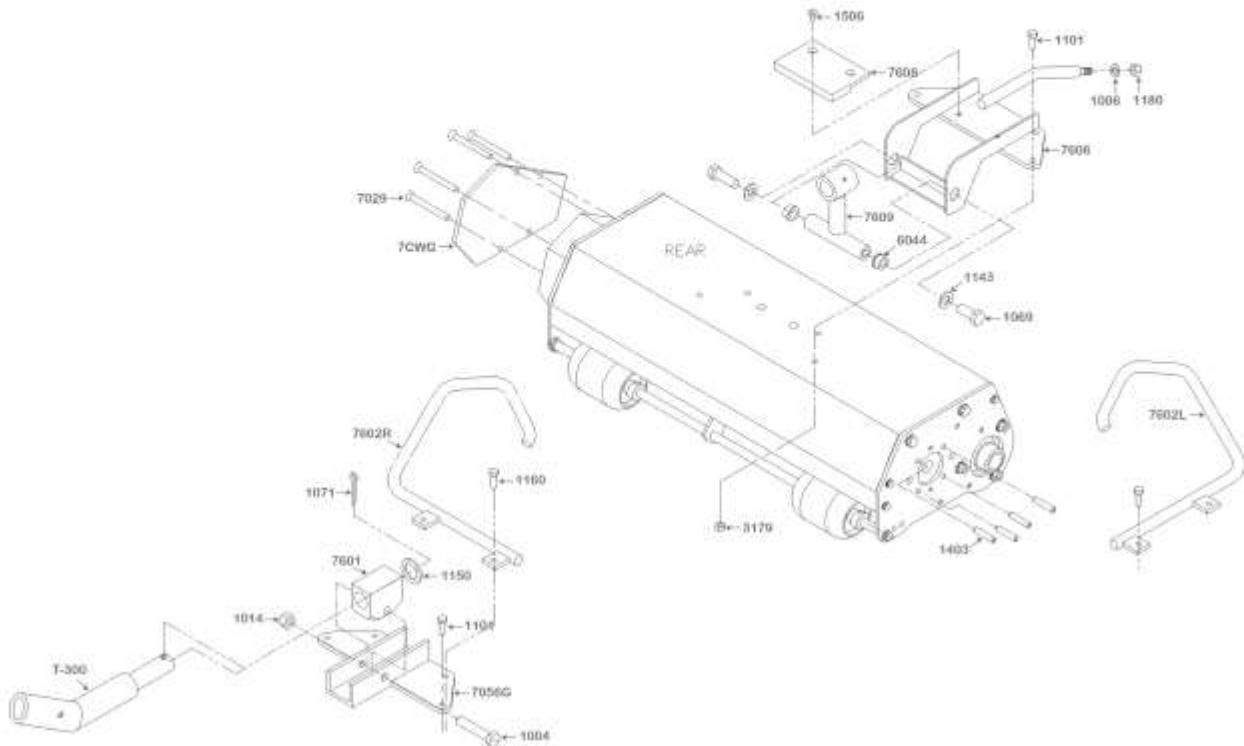
INSTALLATION OF THE UNIVERSAL ROLLER JOHN DEERE 2243 (CONT.)

- 14) Slide the left and right units into position under the machine, allowing the lift bars (7602 L and R) to pass over the guide roller on the lift arm of the greensmower.
- 15) Slide the downward angled lift arm pin of the greensmower into the tube end of the Extension Pin (T300) and replace the wire loop pin.
- 16) Attach the hydraulic motors, securing with the four (1146) bolts. It may be necessary to rotate the splined shaft to align the splines to allow the motor to fit.
- 17) Remove the four (1101) bolts from the Lifting Bracket-Center Unit (7606).
- 18) Set it into position on the center unit roller.
- 19) Replace bolts and nuts and tighten.
- 20) Slide roller into position under the mower.
- 21) Slide the lift arm pin from the mower through the Lift Bar Assembly tube (7609) on the lifting bracket and replace the retaining pin.
- 22) Remove (1180) locknut and (1006) washer from the back of this bracket and attach the lifting chain from the mower.
- 23) Replace locknut and washer. Chain length will have to be determined so the roller is level in the raised position with enough slack to allow roller to follow the contour of turf when lowered.
- 24) Attach the hydraulic motors as in step 16.
- 25) Check operation of rollers.

NOTE: Once installed, it is only necessary to remove loop pins and hydraulic motors to switch from rolling to cutting units.

ADAPTION KIT 7507

JOHN DEERE 2243



KIT INCLUDES THE FOLLOWING:

- | | |
|--|---|
| <ul style="list-style-type: none"> 12 - 1146 Motor Studs (not shown)
* prior to S/N UR21771 12 - 1147 Flanged Nut (not shown) 12 - 1403 Motor Studs (shown above)
* after S/N UR21771 12 - 7029 Bolt 2 - 7519G Lift Plate Assembly
Each Assembly Includes:
1 - 1004 Hex Bolt
1 - 1014 Nut
2 - 1101 Hex Bolt
2 - 1160 Bolt
4 - 3179 Nut
1 - 7056G Lift Plate 2 - JD300B Extension Shaft Assembly
Each Assembly Includes:
1 - 1071 Cotter Pin
1 - 1150 Washer
1 - 1681 Wire Loop Pin
1 - T-300 Extension Tube 1 - 7602L Lift Bar - Left Unit 1 - 7602R Lift Bar - Right Unit | <ul style="list-style-type: none"> 1 - 7686 Center Hitch Bracket Assembly
Each Assembly Includes:
1 - 1006 Flatwasher
4 - 1101 Hex Bolts
1 - 1180 Nylon Locknut
2 - 1579 Flathead Socket Screw
4 - 3179 Nylon Locknut
1 - 7608 Nylon Spacer
1 - 7606 Hitch Bracket 1 - 7609 Lift Bar Assembly - Center Unit
Each Assembly Includes:
2 - 1069 Hex Bolt
2 - 1143 Flatwasher
2 - 6044 Nylon Bushing
1 - 1681 Grease Zert 3 - 7CWG Counterweight Green |
|--|---|

ADAPTATIONS FROM JOHN DEERE 2243 TO...

TORO GM 3-3100: Uses Adaptation Kit 7500 (see page 18).

Two of the units will require drive-end reversals. See procedures on page 84. These will become the right and center units of the mower. Refer to page 32 for drive shaft placement and adjustment. Then use page 33-34 for motor mounting procedures. Refer next to page 17 for unit mounting instructions and illustrations for final attachments and hook-up.

TORO 3200 A: Uses Adaptation Kit 7551 (see page 22).

One unit will require drive-end reversal, procedures on page 84. This unit will then be designated as the center unit. Drive Shaft placement and adjustment is on page 32. Next use page 33-34 for motor mounting procedures. Then refer to page 20 for unit mounting instructions and illustrations for final attachments. Remove the four belt guard mounting bolts and install one counter weight to each unit with the new 5/31" x 3-1/4" bolts provided and tighten.

TORO 3200 B: Uses Adaptation Kit 7552 (see page 26).

Follow same procedures as for Toro 3200B above, except to refer to page 23 for unit mounting instructions and illustrations for final attachments.

TORO 3250: Uses Adaptation Kit 7506 (see page 30).

One unit will require drive-end reversal, procedures on page 84. This unit will then be designated as the center unit. Drive Shaft placement and adjustment is on page 32. Next use page 33-34 for motor mounting procedures. Then refer to page 28 for unit mounting instructions and illustrations for final attachments. Remove the four belt guard mounting bolts and install one counter weight to each unit with the new 5/31" x 3-1/4" bolts provided and tighten.

JACOBSEN GK III & IV: Uses Adaptation Kit 7504 (see page 39).

No drive-end or motor mount changes need to be made. Drive shaft placement will remain the same, so refer to page 43-44 for motor mounting procedures, and then to page 36 for unit mounting instructions and illustrations for final attachment and hook-up.

JACOBSEN GK V & VI: Uses Adaptation Kit 7503 (see page 48).

One unit will require drive-end reversal, procedures on page 84. This unit will then be designated as the left unit. Drive shaft placement and adjustment is on page 51. Use page 52 for motor mounting procedures. Then refer to page 45 for unit mounting instructions and illustration for final attachments and hook-up. Remove the four belt guard mounting bolts and install one counter weight to each unit with the new 5/31" x 3-1/4" bolts provided and tighten.

JOHN DEERE 2500: Uses Adaptation Kit 7502 (see page 57).

One unit will require drive-end reversal, procedures on page 84. This unit will then be designated as the center unit. Refer then to page 59 for drive shaft placement and page 60 for motor mounting instructions. See page 54 for final attachments and hook-up. Remove the four belt guard mounting bolts and install one counter weight to each unit with the new 5/31" x 3-1/4" bolts provided and tighten.

JOHN DEERE 2500E: Uses Adaptation Kit 7502 plus Kit 7001-3MS (see page 57 & 61)

Use all the same procedures as for the Standard John Deere 2500 except for drive shaft placement. Refer to page 61 for shaft placement and spline installation instructions.

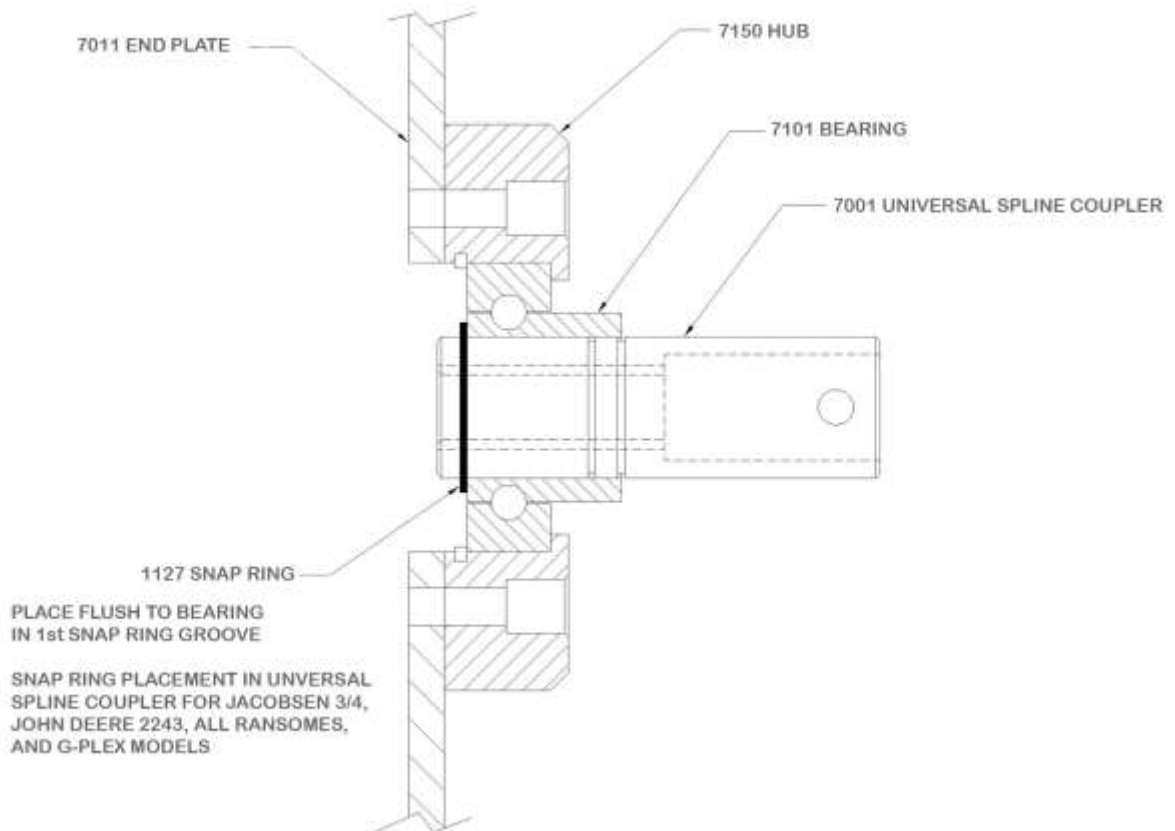
RANSOMES: Uses Adaptation Kit 7505 (see page 75).

One unit will require drive-end reversal, procedures on page 84. This unit will then be designated as the center unit. Drive shaft snap ring placement and adjustment is found on page 79. Now refer to page 80-81 for motor mounting procedure and finally, page 72 for unit mounting instructions and illustrations for final attachments and hook-up.

SNAP RING INSTALLATION INSTRUCTIONS FOR JOHN DEERE 2243

(See Base Unit Schematic for parts reference)

1. Select the required shaft position that corresponds to your triplex machine.
2. Remove belt guard (7002) and belt (7121).
3. Loosen set screw on pulley (7100) and bearing (7101).
4. Loosen set screw and lock collar on bearing (7102).
5. Tap shaft with rubber mallet to allow positioning of snap ring.
6. Install snap ring in its appropriate place and tap shaft into position indicated.
7. Retighten bearings.
8. Lock collar on bearing (7102) needs to be locked by rotating in the direction at which the shaft will be turning. With a punch, give one rap in the predrilled hole in lock collar in the same direction with a mallet to lock it into place and tighten set screw.
9. Align pulleys and tighten set screw on pulley (7100).
10. Replace belt (7121) and belt guard (7002).



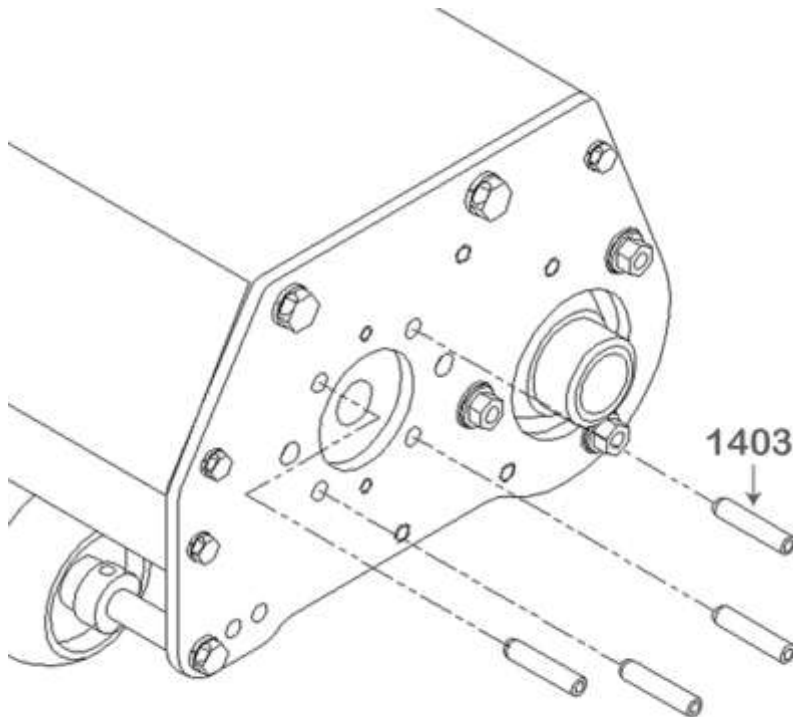
UNIVERSAL ROLLER HYDRAULIC MOTOR MOUNTING CONFIGURATIONS

**4-BOLT / 2-BOLT
JACOBSEN GK III & IV
RANSOMES (early models)
JOHN DEERE 2243**

AFTER S/N UR21771

With all other mounting hardware removed, the four (1403) 5/16 Motor Studs thread from the outside of the unit to the inside into the aluminum housing (7150) and are tightened. The threaded portion outside the end-plate is to secure the hydraulic motor.

NOTE: Same procedure applies for the installation of the 2 (1402) 3/8 Motor Studs in a 2-Bolt configuration.



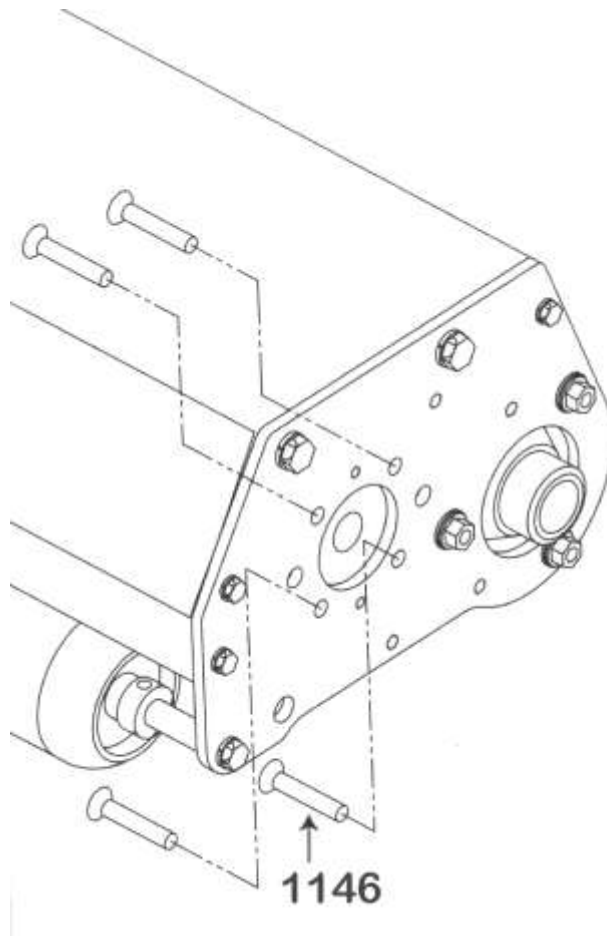
UNIVERSAL ROLLER HYDRAULIC MOTOR MOUNTING CONFIGURATIONS

**4-BOLT / 2-BOLT
JACOBSEN GK III & IV
RANSOMES (early models)
JOHN DEERE 2243**

PRIOR TO S/N UR21771

With all other mounting hardware removed, the four (1146) 5/16 x 1-3/4 Motor Studs (Flathead Screws) thread from the inside of the unit to the outside through the aluminum housing (7150) and are tightened. The threaded portion outside the end-plate is to secure the hydraulic motor.

NOTE: Same procedure applies for the installation of the 2 (1139) 3/8 Motor Studs in a 2-Bolt configuration except that the Endplate may need to be removed for clearance.



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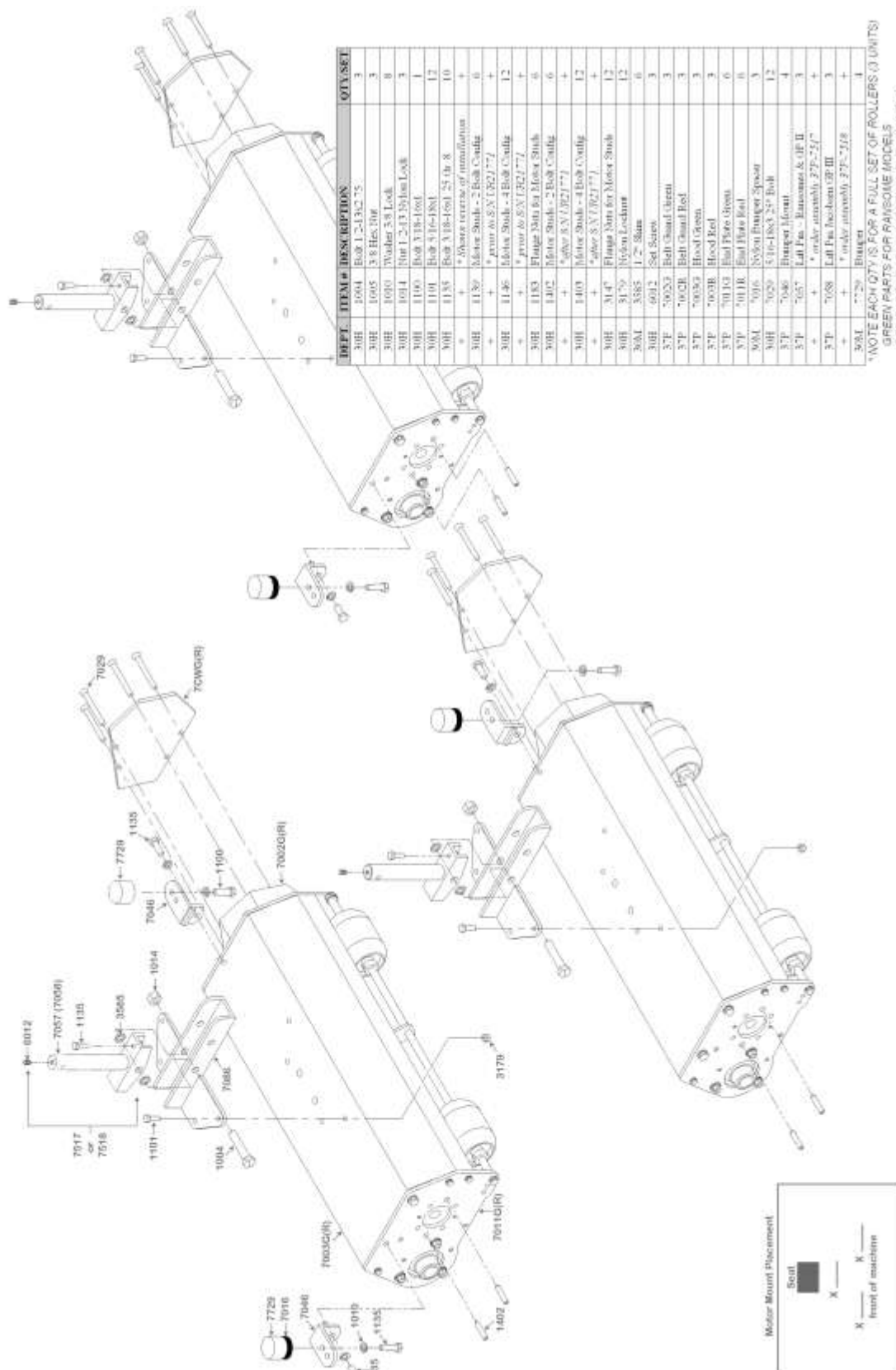
RANSOMES MODELS



UR3R

Universal Roller for

All Ransomes Models & Jacobsen G-Plex II & III



*NOTE EACH QTY IS FOR A FULL SET OF ROLLERS (3 UNITS)
GREEN PARTS FOR RANSOMES MODELS
RED PARTS FOR JACOBSEN G-PLEX MODELS

INSTALLATION OF UNIVERSAL ROLLER RANSOMES MODELS

Your new units come with the parts to fit all styles of Ransomes Triplex Mowers.

Tools required: $\frac{1}{2}$ " combination wrench and socket
 $\frac{9}{16}$ " combination wrench
 $2\text{-}\frac{3}{4}$ " combination wrenches
 $\frac{5}{32}$ " Allen wrench

1. Read these instructions carefully and familiarize yourself with the parts and assembly drawings before starting.
2. Loosen and/or remove the retaining nuts from the hydraulic motors on the cutting units and remove motors. (*Spline coupler and retaining nuts are not needed for the roller, so keep them with the cutting unit*).
3. Remove cover cap, and $\frac{3}{8}$ " retainer pin from the 1" vertical lift pin on cutting unit, raise lift arm off of cutting unit and slide cutting unit out of the way.
4. After unpacking all the rollers, and identifying all hardware, remove the $\frac{5}{16}$ " nuts from the four mounting bolts for lift plate (7086).
5. Install this plate as shown, replace bolts and nuts, and tighten securely.
6. Remove the $\frac{1}{2}$ " bolt from the lift plate.
7. Install lift pin (7517) as shown be sure that pivot limiter is forward.
8. Reinstall bolt, with one spacer on either side of lift pin, replace nut, and tighten until some resistance is noticed, yet does not restrict the pivot action of lift pin.
9. ***NOTE: Generally all Ransomes Models will require this pin to be mounted in the rear most hole of the lift plate, however; some early model Greens-Plex II models require the center unit mounted in the forward hole.***
10. On the belt guard side, remove the $\frac{3}{8}$ " bolt securing endplate to frame that is located directly above the roller. Install rubber mount (7046) as indicated on drawing.
11. On the opposite end of the roller, install Rubber Mount (7046). This is now the center unit.

INSTALLATION OF UNIVERSAL ROLLER RANSOMES MODELS (CONT.)

12. Install the remaining rubber mounts (7046), one per unit, on the other units. One will go above the belt guard on the Right Unit. One will go above the hydraulic motor location on the Left Unit.
13. Place rollers under machine in their respective positions; left, right, center.
14. Raise lift arm and tube and install over lift pin (7517).
15. Replace 3/8" retaining pin and cap.
16. Loosen and/or remove motor mount nuts, fit motor into place and replace nuts and tighten.
17. Check that all rubber stops contact their respective position and do not interfere with any of the mechanical working of the mower. Adjust if necessary.
18. Check operation of the rollers.

The pivot limiter on lift pin will need to be adjusted to fit your needs, i.e. undulations on your greens, ground clearance while in transport, etc.

Other hardware included:

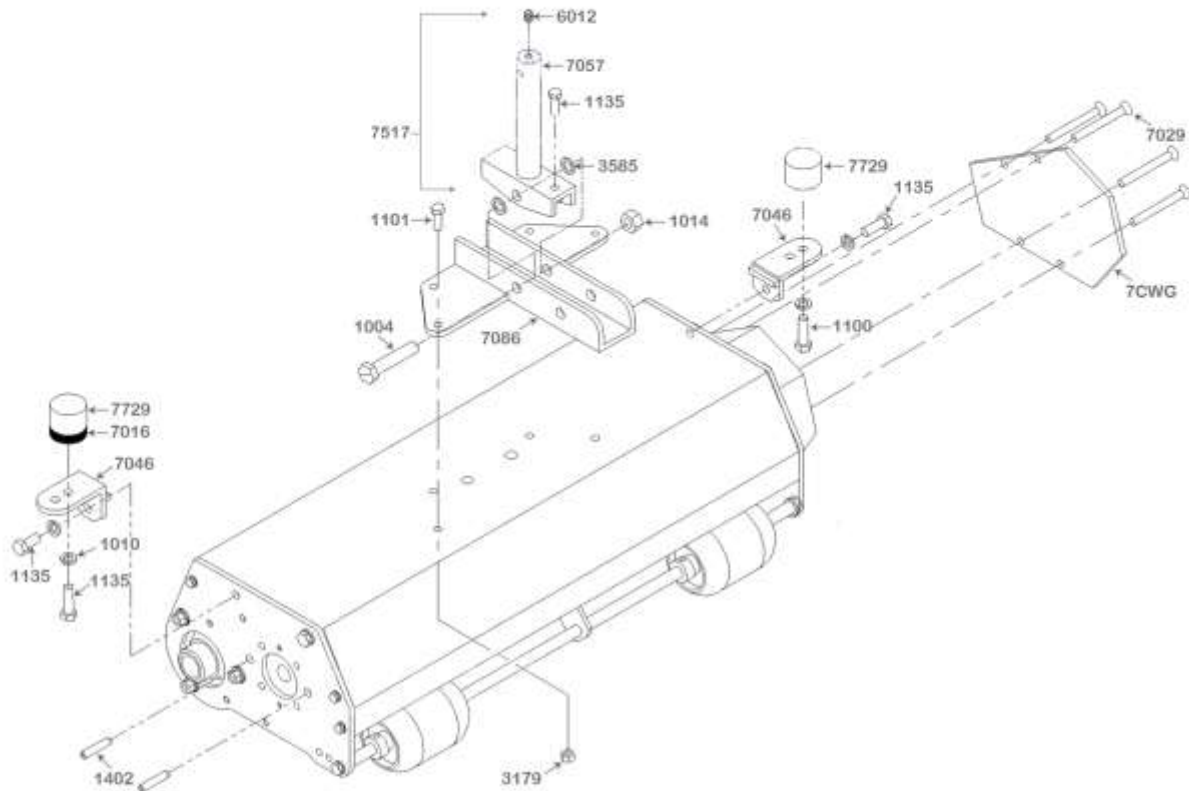
12-5/16" x 1-3/4" flathead screws with nuts are used for four bolt motor units. Remove the two 3/8" studs from the aluminum housing, and thread and tighten the four 5/16" screws into the pre-tapped holes per each roller and secure motor on the outside with the four units.

1" flat washers are needed in the event that your rollers twist, or travel at an angle. Install these washers on the lift pin (7057) and under the lift arm tube so that the 3/8" diameter retainer pin is as near the bottom of the V-groove in lift pin as possible. This will control the twisting of the roller on the green.

Hydraulic motor spacer (7730) may be required between the endplate and hydraulic motor due to the design of the motor on the new G-Plex II models. If there is a gap between the motor and endplate when installing the motor and contact between these two surfaces cannot be made by hand, then install one spacer to each roller.

DO NOT FORCE MOTOR INTO END PLATE WITH THE RETAINING UNITS.

ADAPTION KIT 7505 RANSOMES

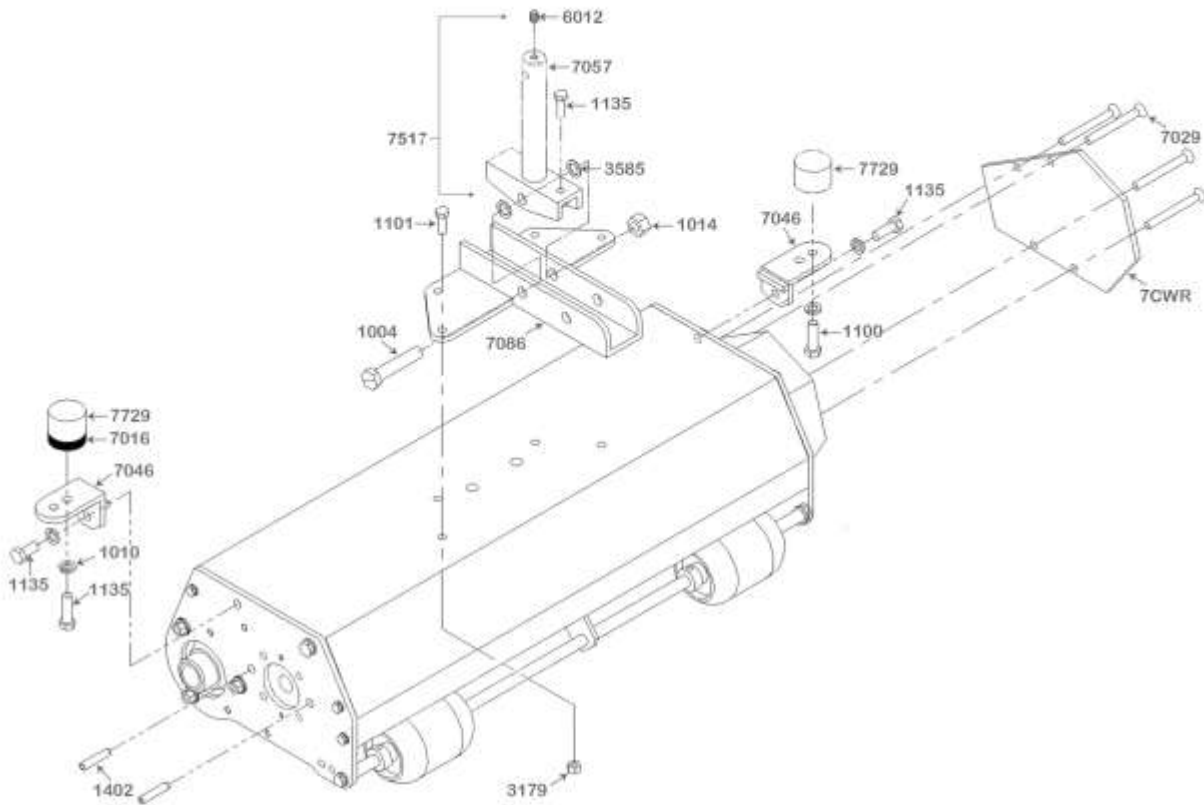


KIT INCLUDES THE FOLLOWING:

- 8 - 1010 Lockwasher
- 1 - 1100 Bolt
- 7 - 1135 Bolts
- 6 - 1139 Motor Studs 2-Bolt (not shown)
* prior to S/N UR21771
- 9 - 1150 Washers (not shown)
- 6 - 1183 Flanged Nuts (for 2 Bolt)
- 6 - 1402 Motor Studs 2-Bolt (shown above)
* after S/N UR21771
- 12 - 1403 Motor Studs 4-Bolt (not shown)
* after S/N UR21771
- 12 - 3147 Flanged Nuts (for 4 Bolt)
- 3 - 7016 Nylon Bumper Spacers
- 12 - 7029 Bolts
- 4 - 7046 Bumper Mounts

- 3 - 7586 Lift Bracket Assembly
Each Assembly Includes:
 - 1 - 1004 Bolt
 - 1 - 1014 Nut
 - 4 - 1101 Bolt
 - 4 - 3179 Nylon Lock Nut
 - 2 - 3585 Washers
 - 1 - 7086 Lift Plate Assembly
- 3 - 7517 Lift Pin Assembly
Each Assembly Includes:
 - 1 - 1005 Nut
 - 1 - 1135 Bolt
 - 1 - 6012 Set Screw
 - 1 - 7057 Lift Pin
- 4 - 7729 Rubber Mounts
- 3 - 7730 Hydraulic Spacers (not shown)
- 3 - 7CWG Counterweight Green

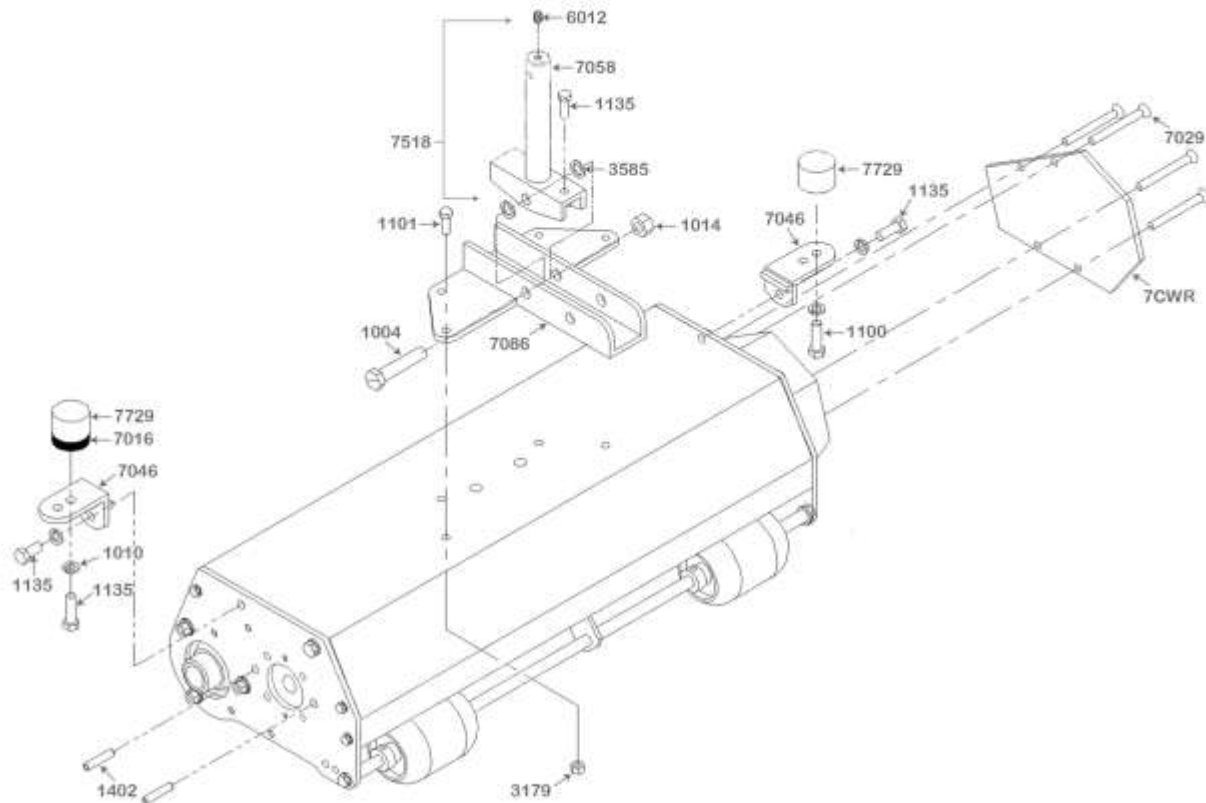
ADAPTION KIT 7508 JACOBSEN G-PLEX II



KIT INCLUDES THE FOLLOWING:

- | | |
|---|--|
| 8 - 1010 Lockwasher | 3 - 7586 Lift Bracket Assembly |
| 1 - 1100 Bolt | <i>Each Assembly Includes:</i> |
| 7 - 1135 Bolts | 1 - 1004 Bolt |
| 6 - 1139 Motor Studs 2-Bolt (not shown) | 1 - 1014 Nut |
| * prior to S/N UR21771 | 4 - 1101 Bolt |
| 12 - 1146 Motor Studs 4-Bolt (not shown) | 4 - 3179 Nylon Lock Nut |
| * prior to S/N UR21771 | 2 - 3585 Washers |
| 9 - 1150 Washers (not shown) | 1 - Lift Plate Assembly |
| 6 - 1183 Flanged Nuts (for 2 Bolt - not shown) | 3 - 7517 Lift Pin Assembly |
| 6 - 1402 Motor Studs 2-Bolt (shown above) | <i>Each Assembly Includes:</i> |
| * after S/N UR21771 | 1 - 1005 Nut (not shown) |
| 12 - 1403 Motor Studs 4-Bolt (not shown) | 1 - 1135 Bolt |
| * after S/N UR21771 | 1 - 6012 Set Screw |
| 12 - 3147 Flanged Nuts (for 4 Bolt - not shown) | 1 - 7057 Lift Pin |
| 3 - 7016 Nylon Bumper Spacers | 4 - 7729 Rubber Mounts |
| 12 - 7029 Bolts | 3 - 7730 Hydraulic Spacers (not shown) |
| 4 - 7046 Bumper Mounts | 3 - 7CWR Counterweight Red |

ADAPTION KIT 7509 JACOBSEN G-PLEX III



KIT INCLUDES THE FOLLOWING:

- | | |
|---|--|
| 8 - 1010 Lockwasher | 3 - 7586 Lift Bracket Assembly |
| 1 - 1100 Bolt | <i>Each Assembly Includes:</i> |
| 7 - 1135 Bolts | 1 - 1004 Bolt |
| 6 - 1139 Motor Studs 2-Bolt (not shown) | 1 - 1014 Nut |
| * prior to S/N UR21771 | 4 - 1101 Bolt |
| 12 - 1146 Motor Studs 4-Bolt (not shown) | 4 - 3179 Nylon Lock Nut |
| * prior to S/N UR21771 | 2 - 3585 Washers |
| 9 - 1150 Washers (not shown) | 1 - 7086 Lift Plate Assembly |
| 6 - 1183 Flanged Nuts (for 2 Bolt - not shown) | 3 - 7518 Lift Pin Assembly |
| 6 - 1402 Motor Studs 2-Bolt (shown above) | <i>Each Assembly Includes:</i> |
| * after S/N UR21771 | 1 - 1005 Nut (not shown) |
| 12 - 1403 Motor Studs 4-Bolt (not shown) | 1 - 1135 Bolt |
| * after S/N UR21771 | 1 - 6012 Set Screw |
| 12 - 3147 Flanged Nuts (for 4 Bolt - not shown) | 1 - 7058 Lift Pin |
| 3 - 7016 Nylon Bumper Spacers | 4 - 7729 Rubber Mounts |
| 12 - 7029 Bolts | 3 - 7730 Hydraulic Spacers (not shown) |
| 4 - 7046 Bumper Mounts | 3 - 7CWR Counterweight Red |

ADAPTATIONS FROM RANSOMES TO...

TORO GM 3-3100: Uses Adaptation Kit 7500 (see page 18).

Drive-ends of all rollers remain the same. Refer to page 32 for drive shaft placement and adjustment. Then use page 33-34 for motor mounting procedures. Refer next to page 16 for unit mounting instructions and illustrations for final attachments and hook-up.

TORO 3200 A: Uses Adaptation Kit 7551 (see page 22).

One unit will require drive-end reversal, procedures on page 84. This unit will then be designated as the right unit. Drive Shaft placement and adjustment is on page 30. Next use page 33-34 for motor mounting procedures. Then refer to page 20 for unit mounting instructions and illustrations for final attachments. Remove the four belt guard mounting bolts and install one counter weight to each unit with the new 5/16" x 3-1/4" bolts provided and tighten.

TORO 3200 B: Uses Adaptation Kit 7552 (see page 26).

Use the same procedure as for the Toro 3200A except for the motor mounting procedure. See page 33-34 for motor mounting procedure and then page 23 for unit mounting instructions and illustrations for final attachments and hook-up.

TORO 3250: Uses Adaptation Kit 7506 (see page 30).

One unit will require drive-end reversal, procedures on page 84. This unit will then be designated as the right unit. Drive Shaft placement and adjustment is on page 32. Next use page 32-34 for motor mounting procedures. Then refer to page 28 for unit mounting instructions and illustrations for final attachments. Remove the four belt guard mounting bolts and install one counter weight to each unit with the new 5/16" x 3-1/4" bolts provided and tighten.

JACOBSEN GK III & IV: Uses Adaptation Kit 7504 (see page 39).

Two of the units will require drive-end reversal procedures on page 84. These two units will then be designated for the Right and/or Center unit on the GK III & IV. Drive shaft placement will remain the same, so refer to page 43-44 for motor mounting procedures, and then to page 36 for unit mounting instructions and illustrations for final attachment and hook-up.

JACOBSEN GK V & VI: Uses Adaptation Kit 7503 (see page 48).

All three units require drive-end reversal found on page 84. Drive shaft placement and adjustment is on page 51. Use page 52 for motor mounting procedures. Then refer to page 45 for unit mounting instructions and illustration for final attachments and hook-up. Remove the four belt guard mounting bolts and install one counter weight to each unit with the new 5/16" x 3-1/4" bolts provided and tighten.

JOHN DEERE 2243: Uses Adaptation Kit 7507 (see page 65).

Two of the three units require Drive-End Reversal found on page 84. The remaining unit will then fit the left front location on the JD 2243 mower. Refer to page 68-69 for motor mounting procedures, and to page 67 for drive shaft placement and adjustment. Finally, refer to unit mounting instructions and illustrations for final attachments and hook-up (see page 62).

JOHN DEERE 2500: Uses Adaptation Kit 7502 (see page 57).

One unit will require drive-end reversal, procedures on page 84. This unit will then be designated as the Right unit on the JD 2500. Refer then to page 59 for drive shaft placement and on page 60 for motor mount configurations. Illustrations for final attachments and hook-up are on page 54. Remove the four belt guard mounting bolts and install one counter weight to each unit with the new 5/16" x 3-1/4" bolts provided and tighten.

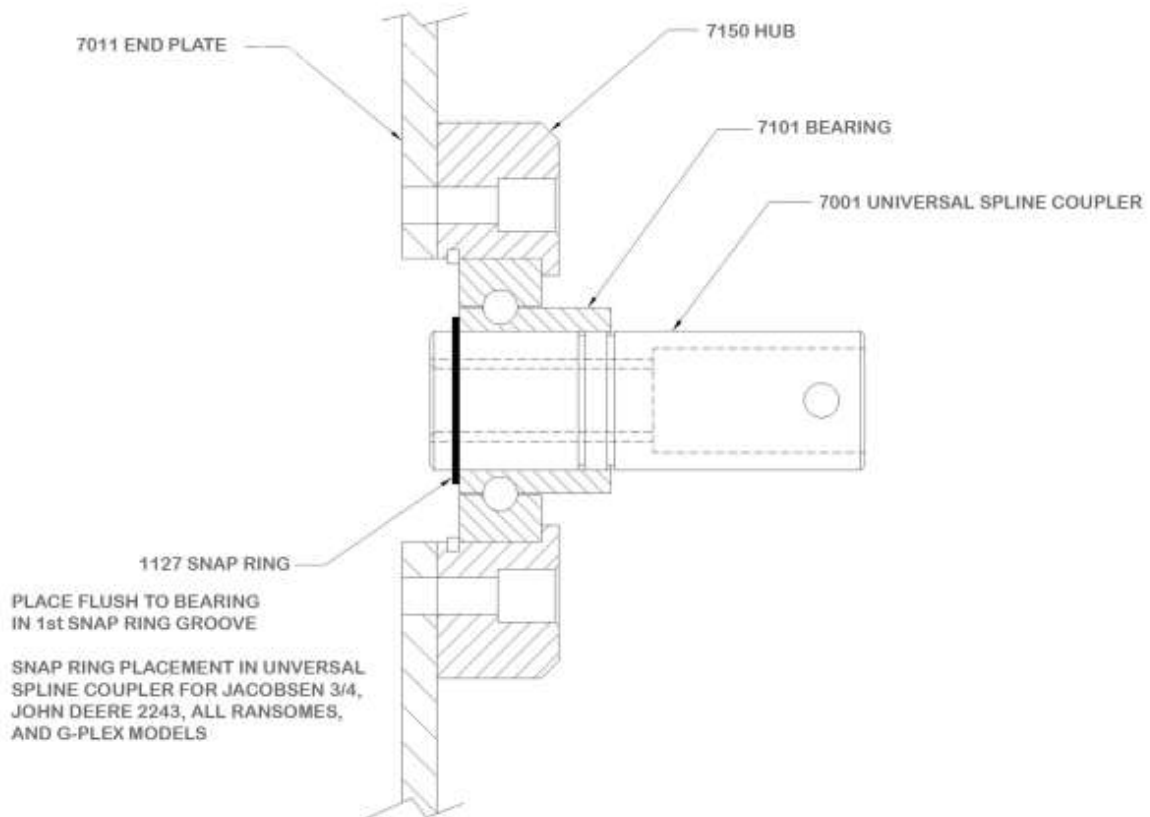
JOHN DEERE 2500E: Uses Adaptation Kit 7502 plus Kit 7001-3MS (see page 57 & 61)

Use all the same procedures as for the Standard John Deere 2500 except for drive shaft placement. Refer to page 61 for shaft placement and spline installation instructions

SNAP RING INSTALLATION INSTRUCTIONS FOR ALL MODEL RANSOMES & G-PLEX

(See Base Unit Schematic for parts reference)

1. Select the required shaft position that corresponds to your triplex machine.
2. Remove belt guard (7002) and belt (7121).
3. Loosen set screw on pulley (7100) and bearing (7101).
4. Loosen set screw and lock collar on bearing (7102).
5. Tap shaft with rubber mallet to allow positioning of snap ring.
6. Install snap ring in its appropriate place and tap shaft into position indicated.
7. Retighten bearings.
8. Lock collar on bearing (7102) needs to be locked by rotating in the direction at which the shaft will be turning. With a punch, give one rap in the predrilled hole in lock collar in the same direction with a mallet to lock it into place and tighten set screw.
9. Align pulleys and tighten set screw on pulley (7100).
10. Replace belt (7121) and belt guard (7002).



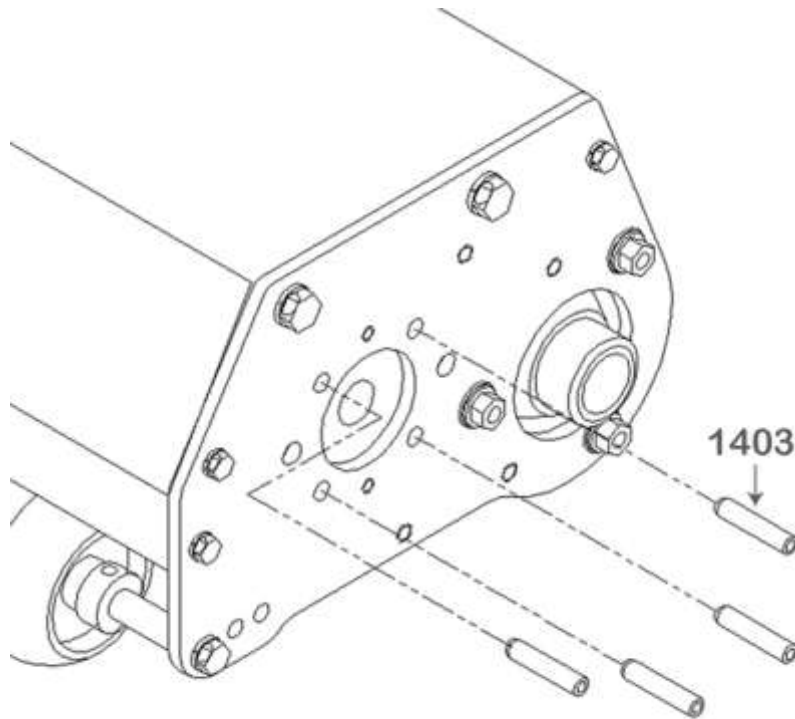
UNIVERSAL ROLLER HYDRAULIC MOTOR MOUNTING CONFIGURATIONS

**4-BOLT / 2-BOLT
JACOBSEN GK III & IV
RANSOMES (early models)
JOHN DEERE 2243**

AFTER S/N UR21771

With all other mounting hardware removed, the four (1403) 5/16 Motor Studs thread from the outside of the unit to the inside into the aluminum housing (7150 – not shown) and are tightened. The threaded portion outside the end-plate is to secure the hydraulic motor.

NOTE: Same procedure applies for the installation of the 2 (1402) 3/8 Motor Studs in a 2-Bolt configuration.



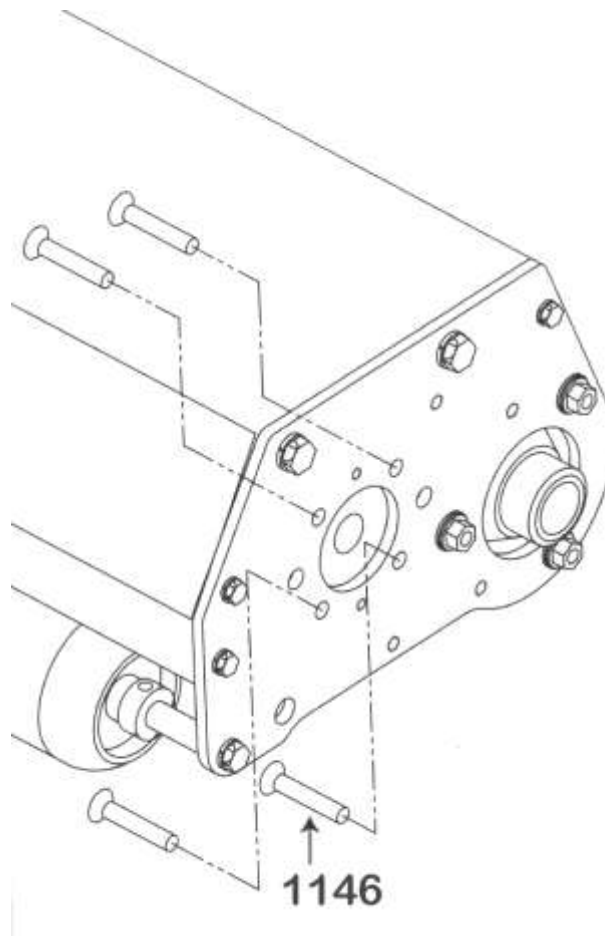
UNIVERSAL ROLLER HYDRAULIC MOTOR MOUNTING CONFIGURATIONS

**4-BOLT / 2-BOLT
JACOBSEN GK III & IV
RANSOMES (early models)
JOHN DEERE 2243**

PRIOR TO S/N UR21771

With all other mounting hardware removed, the four (1146) 5/16 x 1-3/4 Motor Studs (Flathead Screws) thread from the inside of the unit to the outside through the aluminum housing (7150 – not shown) and are tightened. The threaded portion outside the end-plate is to secure the hydraulic motor.

NOTE: Same procedure applies for the installation of the 2 (1139) 3/8 Motor Studs in a 2-Bolt configuration except that the Endplate may need to be removed for clearance.



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*The one and only
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Worldwide since 1991!*

"The True-Surface Vibratory Rollers are **unlike any other roller on the market**, results proven in consistency of greens. Great addition to our greens maintenance toolbox!"

~ Mike Miller, CGCS / Ballamore Golf Course

"Listed below is a summation of why I **prefer the True-Surface Vibratory Rollers** over the {sidewinder} :

- **Performance and surface preparation** of greens far out performs the {sidewinder} I owned.
- They are **3 times as efficient** in transportation!
- The Vibratory Rollers are the **most user friendly of the rollers made today.**"

~ Mike Harbin, CGCS / The Cliffs at Keowee Vineyards



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UNIVERSAL DESIGN FITS ALL GREENSMOWERS

Here's how you can use your True-Surface® system year-round:

- Maintain consistency in speed and trueness on all your greens within 2-4 inches
- Restore the surface after aeration and to prevent sand from bridging
- Use after topdressing to incorporate the sand into the turf canopy and prevent it from dulling your cutting reels
- Roll instead of mowing on the day after applying your pesticides to gain maximum benefits
- Roll instead of mowing to give your greens a break during stress periods
- Roll to achieve speed and consistency when mowing is not needed (ie, Spring, Fall)
- Seeding, sodding and dew removal



DRIVE END REVERSAL

1. Remove belt guard and belt from the unit.
2. Loosen set screws on 5" and 2" pulleys and remove the pulleys.
3. Remove the nuts from motor mount studs, or the motor adapter plates, depending on what model is being converted.
4. Remove the two 1/4" screws that secure aluminum bearing housing to the endplate.
5. Remove the two 5/16" bolts and nuts from the flanged mounted drive shaft bearing.
6. Remove the three hood bolts, one axle bolt, and the two endplate mount bolts front the endplate that hold the aluminum housing.
7. Slide this endplate away from the unit.
8. Slide roller out of the opposite endplate, and rotate end for end.
9. Slip back through endplate still mounted to frame.
10. Rotate drive shaft in the same manner and replace.
11. Replace endplate over roller hub and drive shaft.
12. Install the two 3/8" bolts into frame.
13. Replace the axle bolt and the three hood bolts.
14. Replace the flathead 1/4" screws into the aluminum housing.
15. Replace the 5/16" bolts and nuts into flange mounted bearing.
16. Replace the 5" and the 2" pulleys as they were on the opposite side.
17. Tighten set screws on both pulleys.
18. Install belt, check belt alignment, and adjust to 1/4" deflection.
19. Replace belt guard, and motor mounting or adapter components.
20. Follow mounting procedure in the owner's manual for the unit you are working with.

NOTE TO NEW TRUE-SURFACE UNIVERSAL STYLE VIBRATORY GREENS ROLLING SYSTEM OWNERS

Counterbalance concerns:

Due to the possibility of hydraulic hose and motor replacements and parts, and normal wear of the lift systems of greensmowers, it may be necessary to counterbalance one end of the roller.

If you notice any marking on the green due to premature roller drop on one side, please check your hoses and fittings for added torque on the rollers. If this torque forces the end of the roller down, then adjust the hose. If this doesn't solve the problem, call us and ask for a counterweight that will bolt to the belt guard. One or two weights per roller should be sufficient.

Service Bulletin: Pulley Removal

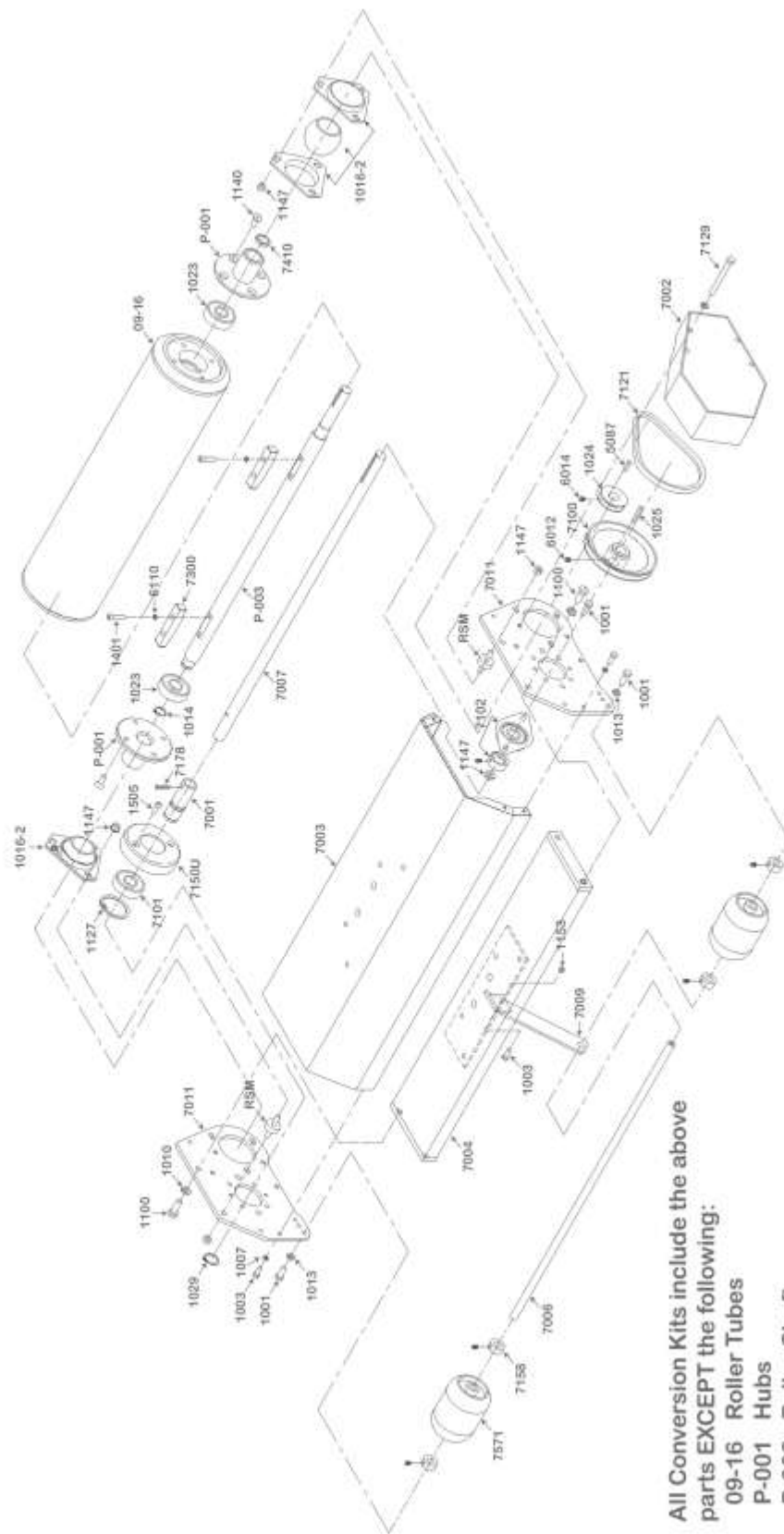
Whenever the need arises either for scheduled service or parts replacement, and the necessity arises to remove the 2" pulley (1024) from the roller shaft, care should be taken when removing, and reinstalling this part to prevent possible pre-load on the shaft bearings (1023) and premature bearing failure.

- When removing this or any pulley, make sure that the securing element (ie. Set screw, lock collar,...) is loosened or removed.
- Second, clean as much dirt or rust from the shaft as possible in the direction that you will be moving the pulley, and lubricate with some type of penetrating fluid to assist in the movement of the pulley.
- Third, if pulley will not move with sensible force, and/or a prying technique is used, use a gear puller of the proper size to remove the pulley. **ALWAYS DO YOU BEST TO AVOID BEATING OR HAMMERING TO REMOVE ANY PULLEY.**
- Fourth, as a last resort, heat applied to the pulley hub, close to the shaft, will expand the pulley slightly and make removal easier. **ALWAYS BE CAREFUL WHEN USING HEAT, WATCH FOR FLAMMABLE OBJECTS AND MATERIALS AND KEEP THEM CLEAR OF THE HEAT AREA.**

When reinstalling the pulley, clean the shaft where pulley will rest, drive key, key slots, inside of pulley, etc. Be sure to secure it with supplied set screw or lock collar.

Whenever the 2" pulley on the True-Surface roller is removed and replaced, the possibility of pre-loading the bearings is present should hammering of the pulley out of or into its position be used. This 'pre-loading' will lead to premature bearing failure, more cost, and additional down time. You can avoid this by following the above steps for pulley removal.

CONVERSION KIT BASE UNIT SCHEMATIC



All Conversion Kits include the above parts EXCEPT the following:
 09-16 Roller Tubes
 P-001 Hubs
 P-003 Roller Shaft

Conversion Kits also include the Adaption Kit specified to suit triplex model being fitted.

CONVERSION KIT INSTALLATION INSTRUCTIONS

1. Take old roller units and remove all hardware, frames, pulleys, etc. and set aside.
2. Open new kit boxes and find the bag of flathead/countersink screws (5/16" – 18 x 3/4") and one (1) countersink tool.
3. Remove the hubs (P-001) from both ends of the three rollers.
4. Using the countersink tool provided, countersink the four (4) holes in **ALL** hubs so that the flathead screws will be flush when installed.
5. Remove Shaft (P-003).
6. Remove old bearing (1023) and old eccentric weights (09-191 and 09-192) from shaft.
7. Locate new eccentric weights (7300), bolts and shaft bearings (1023) from conversion box.
8. Install new eccentric weights onto shaft.
9. Install new shaft bearing on end of roller.
10. Reinstall shaft, fitting it through the shaft bearing.
11. Reinstall hubs with the new flathead screws and tighten.
12. Take the new Universal Roller Conversion kit and remove the four (4) bolts from the belt guard.
13. Loosen set screw and remove the five-inch pulley (7100) from the Roller Drive Shaft (7007).
14. Remove the two (2) bolts from the 3/4" bearing flange (7102) and remove the one bolt from the end of the Axle Shaft (7006).
15. Remove the three (3) bolts that secure the hood and the two (2) bolts that secure the endplate to the frame.
16. Remove the drive-end endplate. **NOTE: IT IS ONLY NECESSARY TO REMOVE THIS ONE ENDPLATE ON EACH UNIT.**
17. With the new framework upside down, insert the hub on the non-drive end into the flanged bearing (7516) of the new Frame Assembly.
18. Reinstall the endplate so that the drive end of the roller passes through it's flanged bearing and the Roller Drive Shaft (7007) passes through the 2" hole, where it will receive the pulley.

CONVERSION KIT INSTALLATION INSTRUCTIONS (CONT.)

19. Reinstall the two (2) 3/8" bolts through the endplate and into the frame end and tighten.
20. Reinstall the two (2) 5/16" bolts and nuts that secure 3/4" bearing flange and tighten.
21. Using a 1/2" wrench, tighten the 6 serrated flange nuts (1027 - three on each side) on the roller flange bearings. Do this systematically so that the flange pulls evenly on the spherical bearing. Spin the roller periodically to ensure that it will roll freely when all nuts are secured.
22. Reinstall the 5" pulley into the Roller Drive Shaft (7007) so that the hub is facing the endplate. Slide on as far as possible, leaving enough room to access the set screw. Once positioned, tighten the set screw.
23. Install the 2" pulley (1024) and key to the Roller Shaft (P-003).
24. Align with the 5" pulley and tighten set screw.
25. Install the Drive Belt (7121), first onto the 2" pulley, and then on to the 5" pulley. Leave 1/4" deflection on the belt for proper adjustment. ***NOTE: Slotted holes are provided on the endplates to shift the RSM's if further adjustment is necessary to align the belt on the pulleys.***
26. Turn roller unit upright and reinstall the three (3) 1/4" bolts into the hood and tighten.
27. Replace the belt guard with four (4) bolts and tighten.
28. Refer to the Installation Instructions in your Universal Roller Owner's Manual for your model of triplex mower to finish the installation process and to mount to your machine.

Mechanic's Notes:

Thank you for purchasing the True-Surface[®] Vibratory Greens Rolling System!



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Moscow Mills, MO 63362**

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International Phone: +1-636-356-1210
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Email: info@true-surface.com**

www.true-surface.com

***Manual updated June 2006
Manual reprinted August 2010***