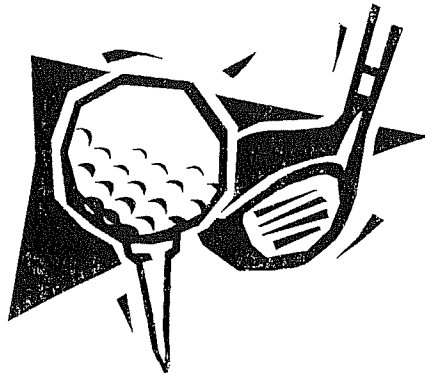


TRU - TURF EQUIPMENT

WITH UB50

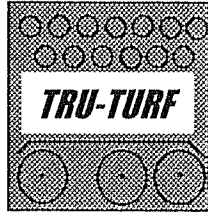
GOLF GREEN ROLLER



MODEL GR39

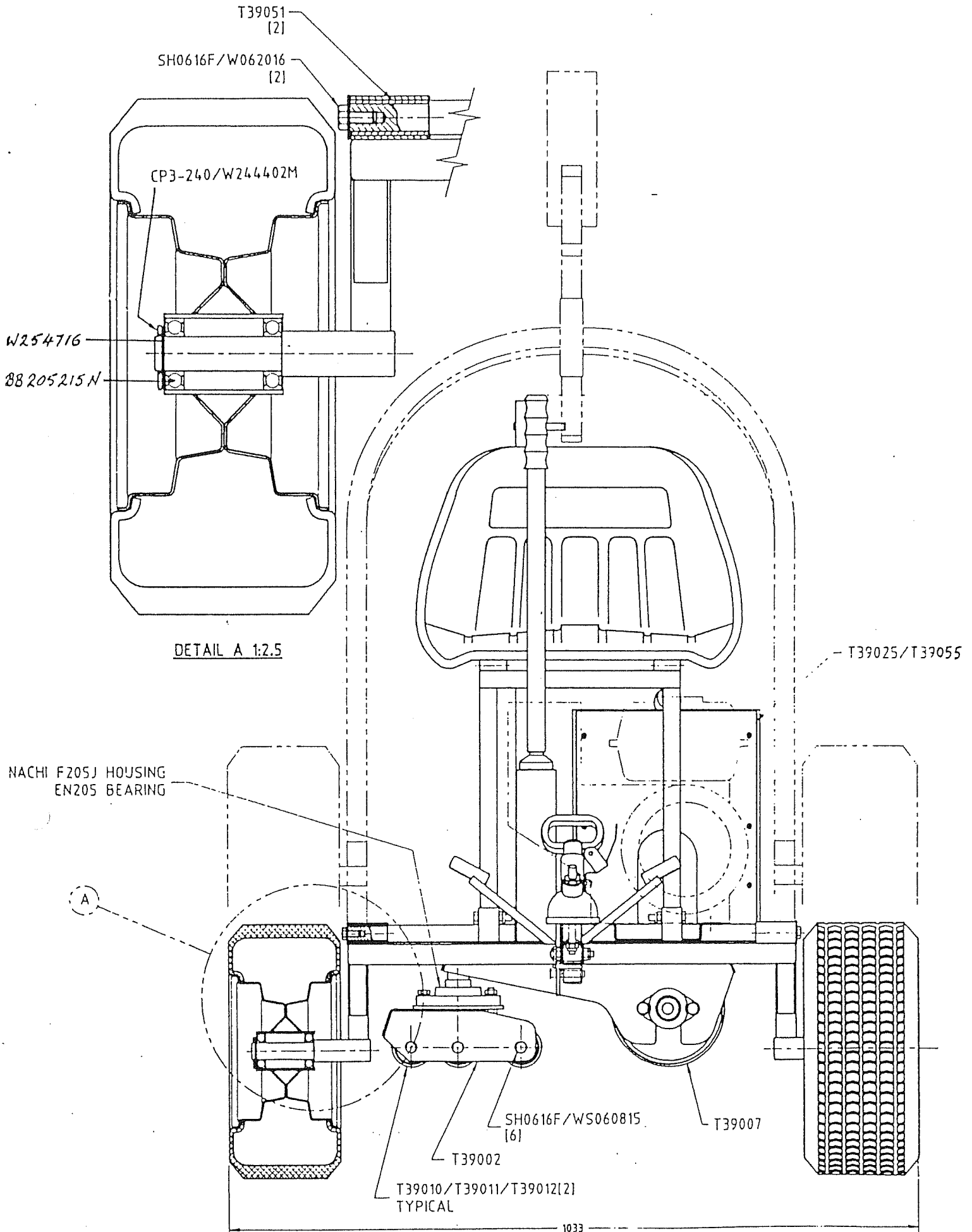
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1. ASSEMBLY DRAWINGS.
2. PART NUMBERS.
3. IMPORTANT INSTRUCTIONS.
4. TRU-TURF NEWS
5. RESEARCH DATA.
6. SOME REASONS TO ROLL.
7. WARRANTY.



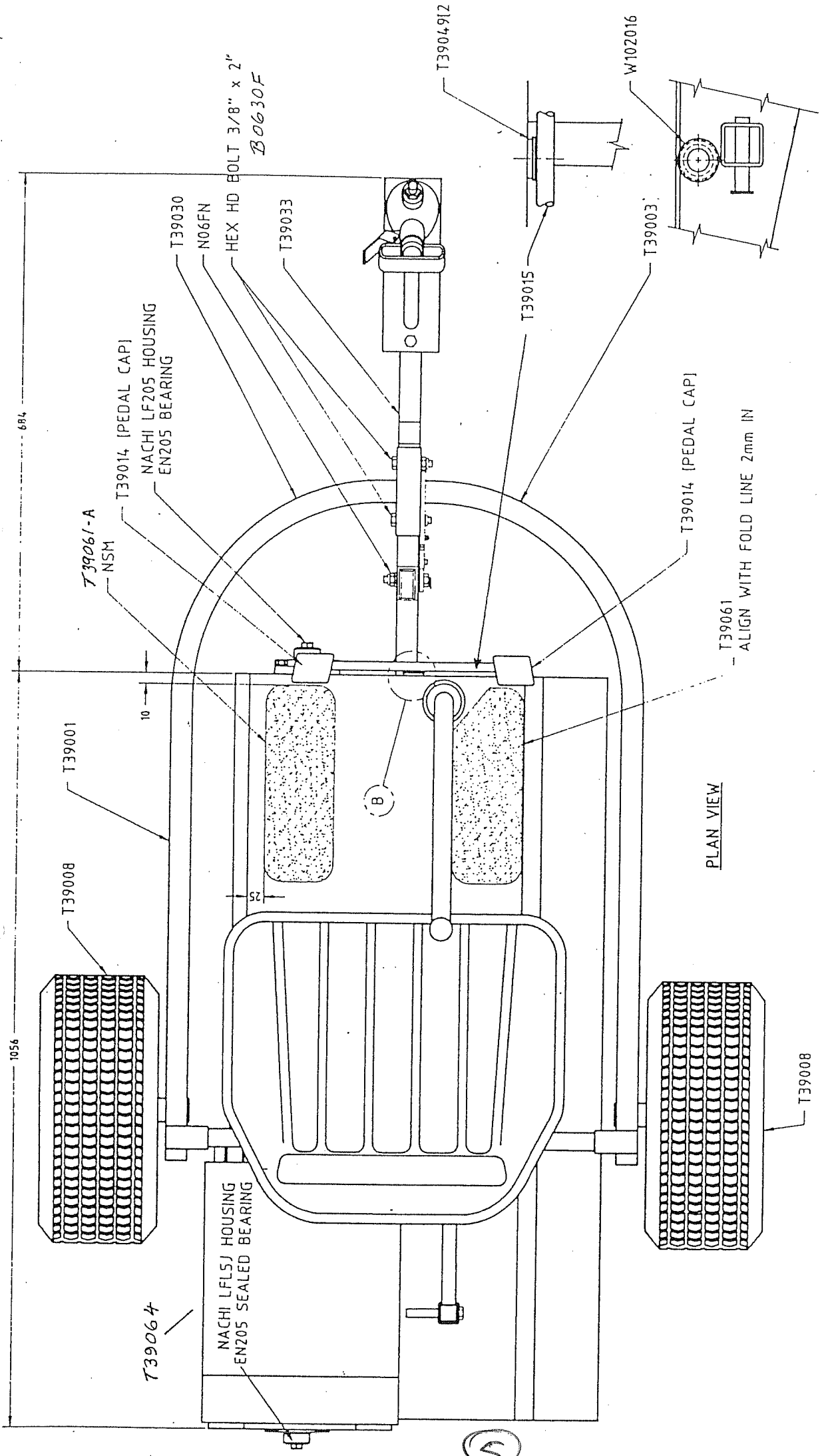
TRU - TURF EQUIPMENT

1. ASSEMBLY DRAWINGS.

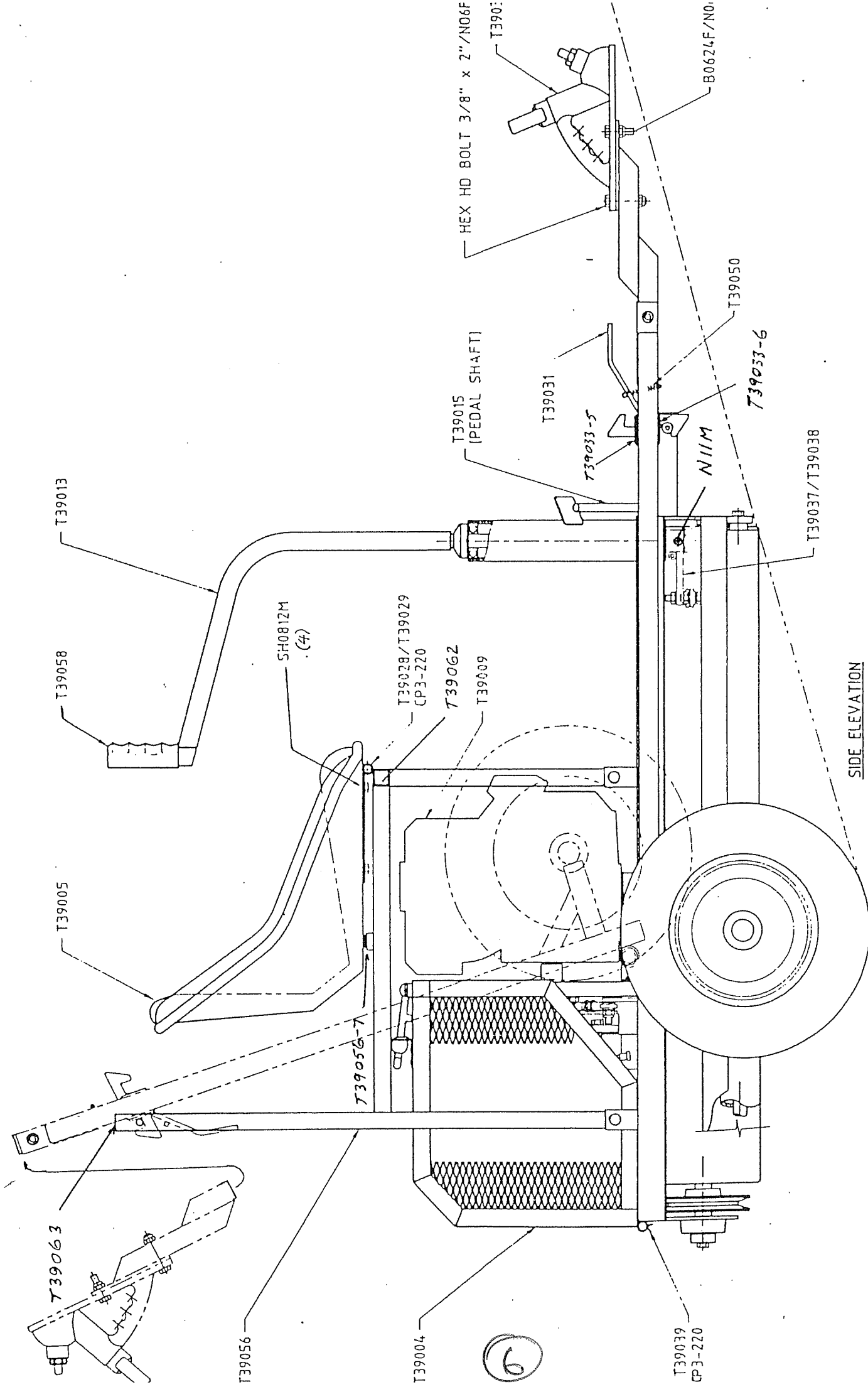


FRONT ELEVATION





DETAIL B 1:2.5



T39063

T39005

T39058

T39013

T39056

T39056-7

T39028/T39029
CP3-220

T39062

T39009

T39015
(PEDAL SHAFT)

T39031

T39033-5

T39039
CP3-220

T39004

N11M

T39050

T39033-6

T39037/T39038

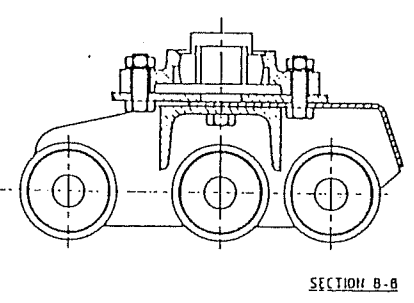
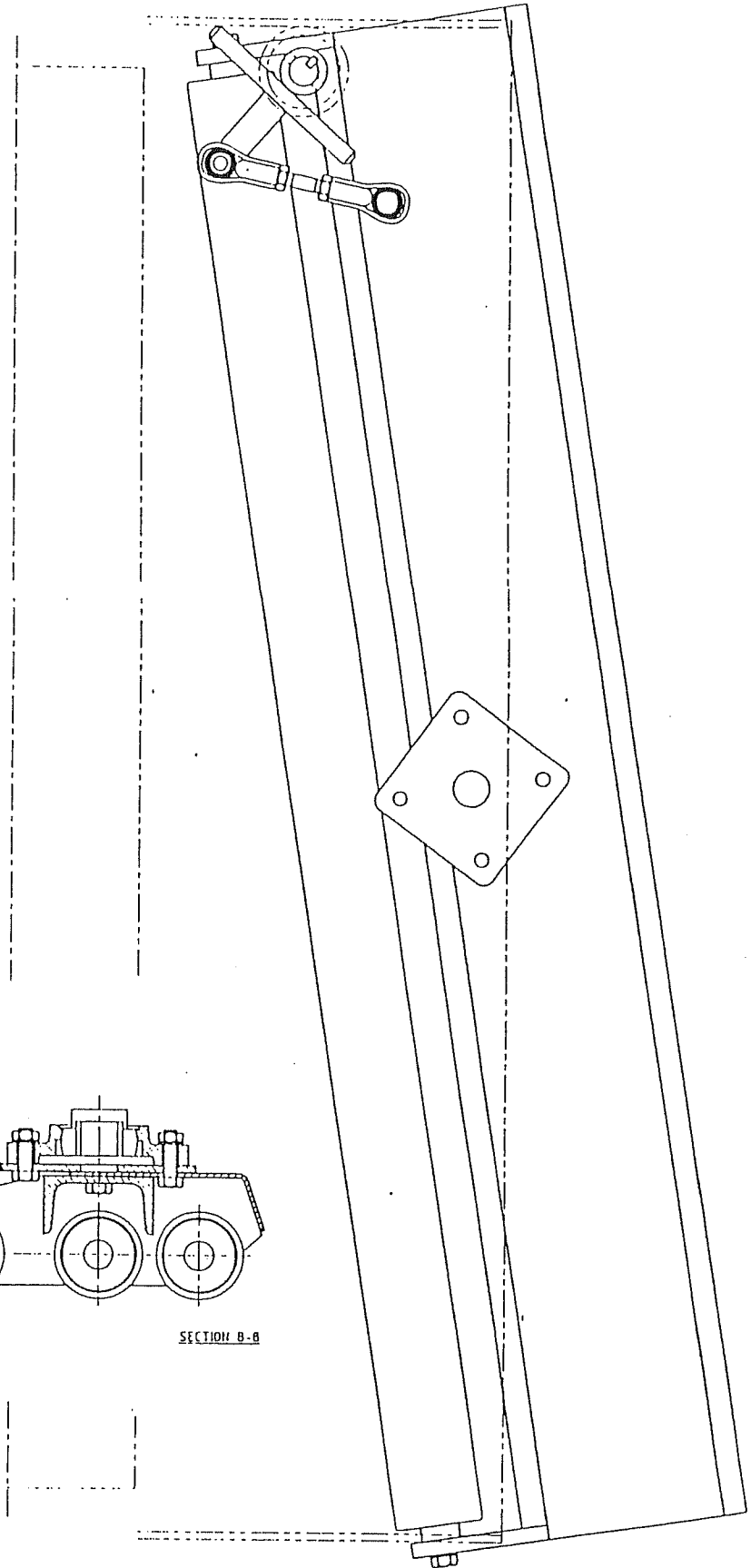
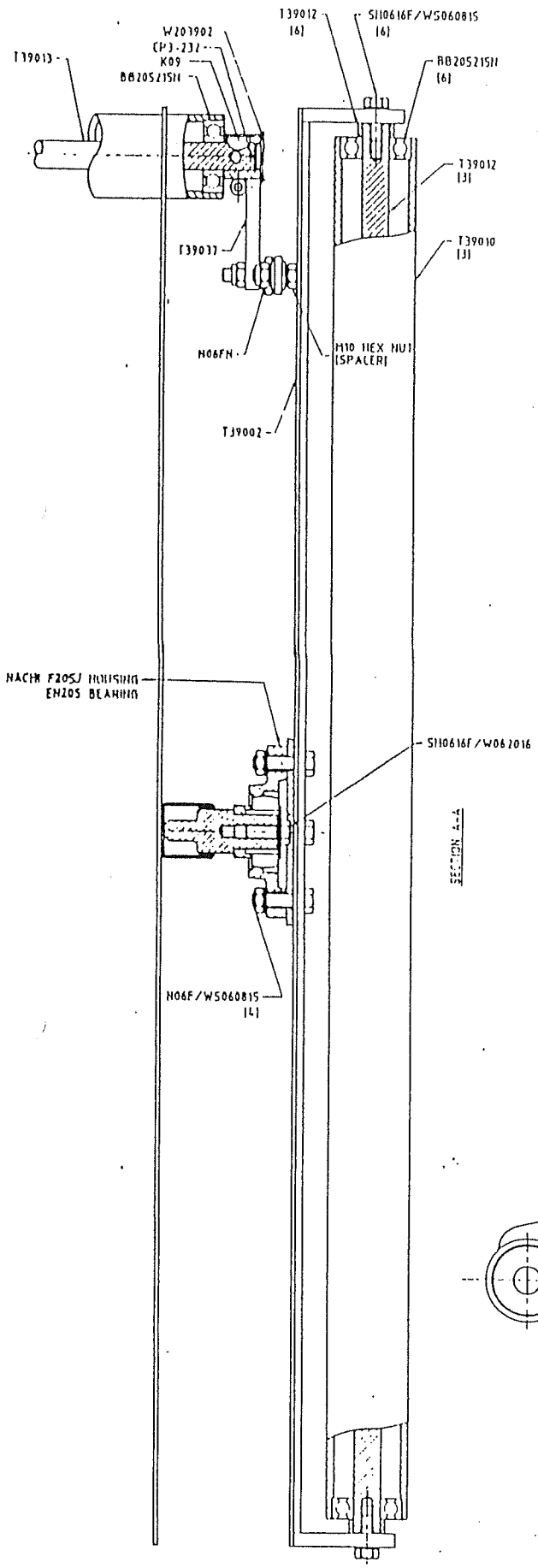
HEX HD BOLT 3/8" x 2"/N06F

T390:

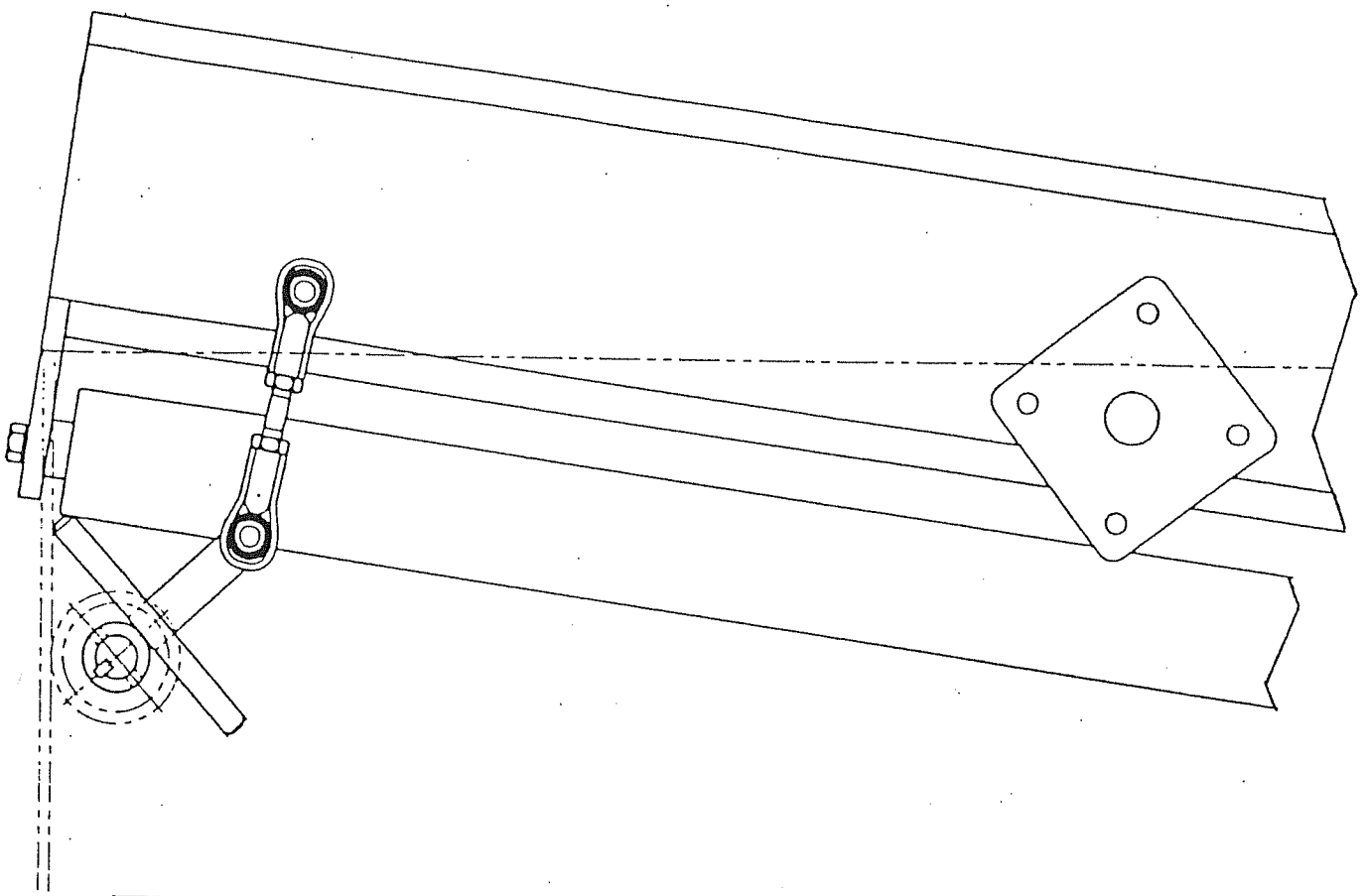
B0624F/N0:

SIDE ELEVATION

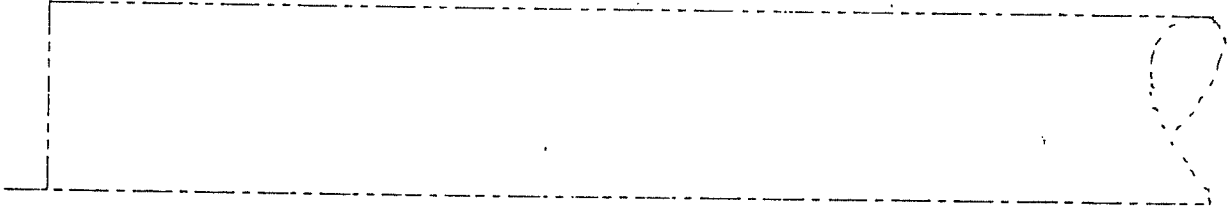
6



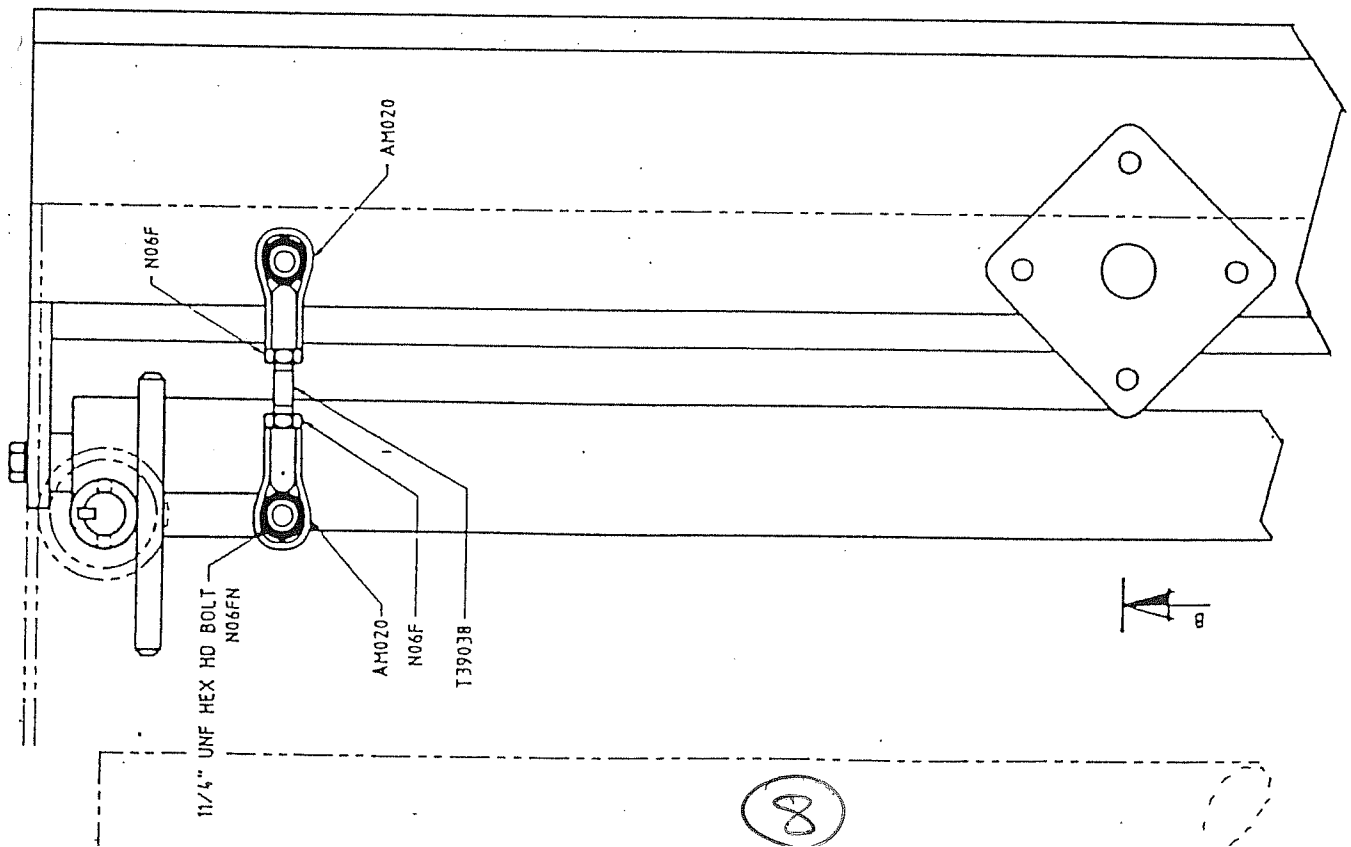
PLAN VIEW SMOOTHING ROLLER HEAD FULL RETRACTED



PLAN VIEW SMOOTHING ROLLER HEAD FULLY EXTENDED

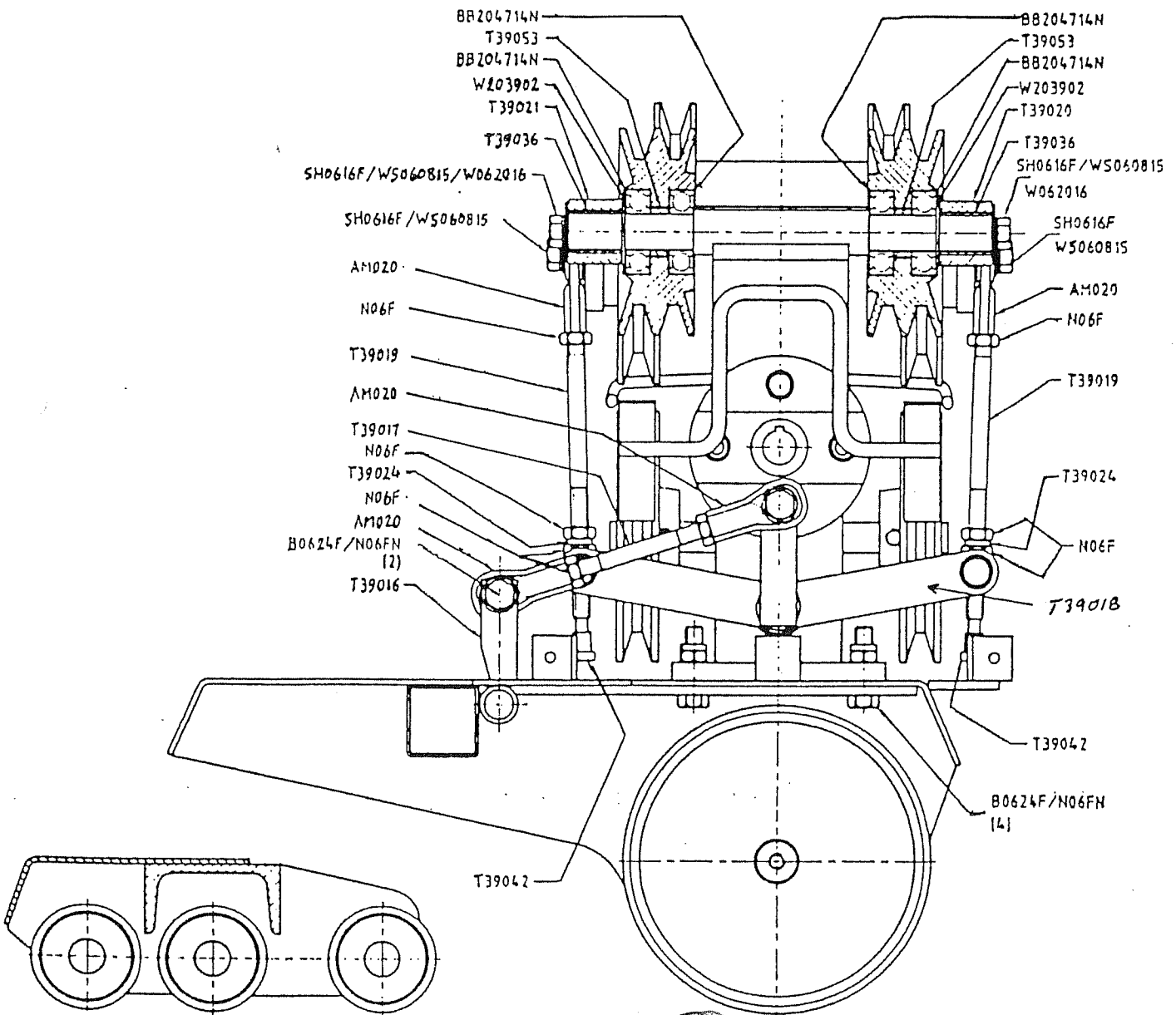
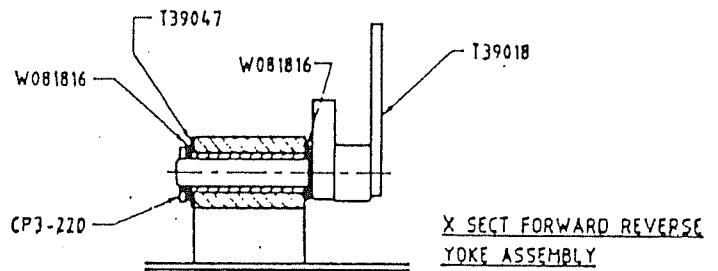
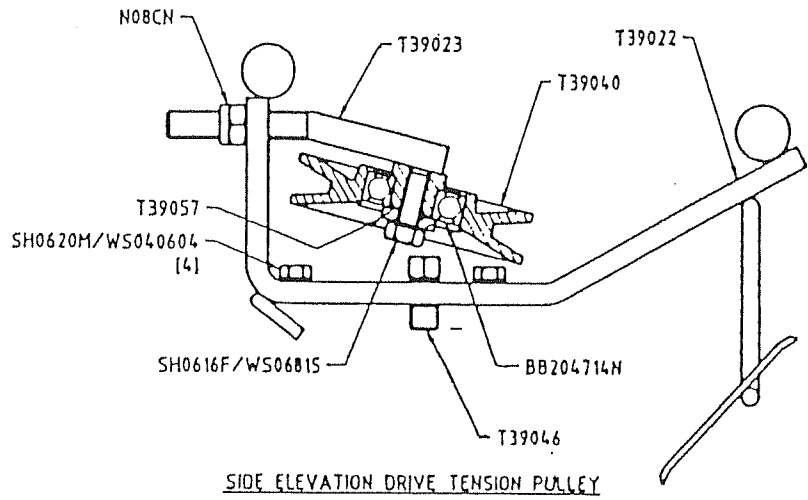


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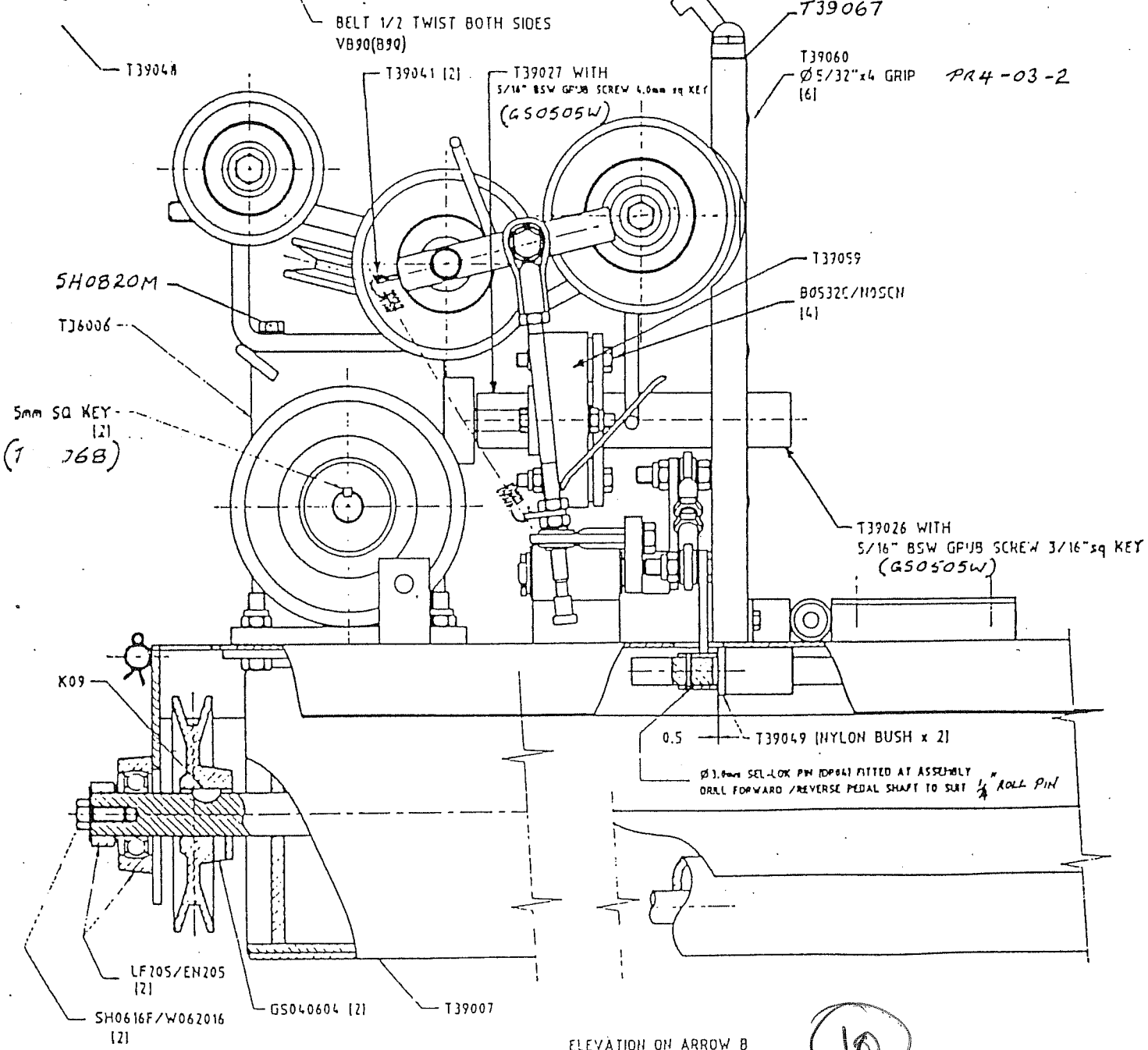
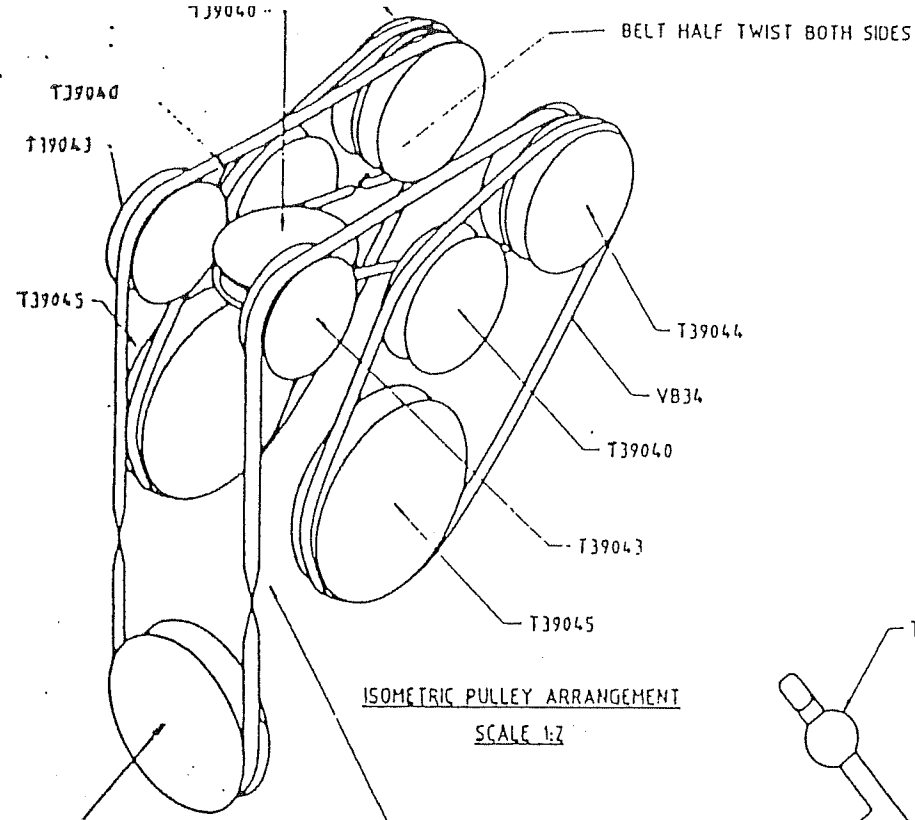


8

GEARBOX ASSEMBLY

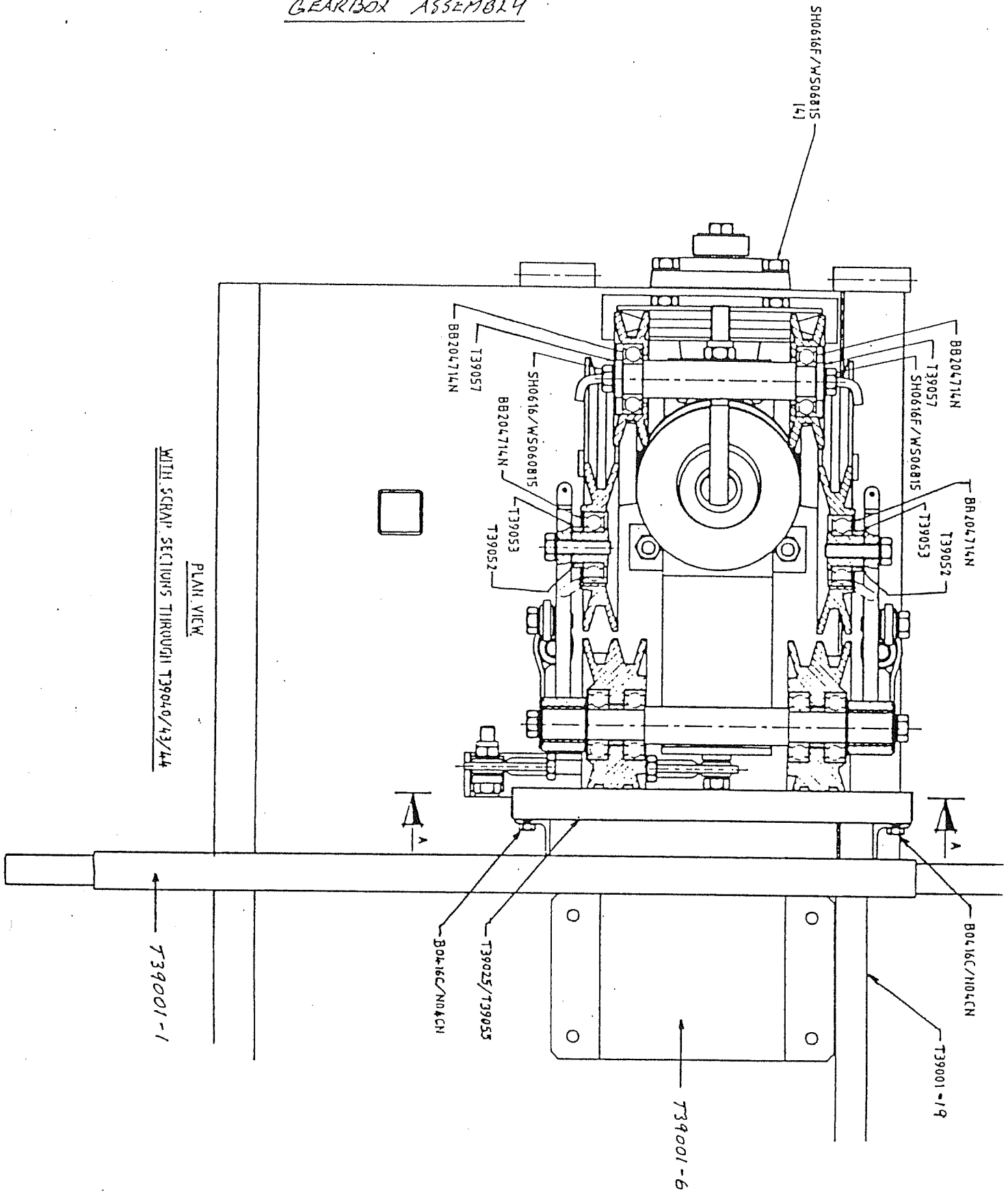


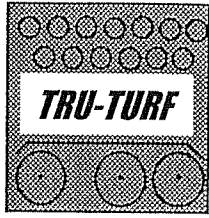
GEARBOX ASSEMBLY



PR4-03-2

GEARBOX ASSEMBLY





TRU-TURF EQUIPMENT

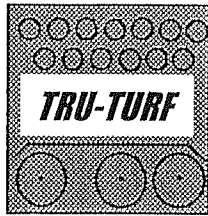
2. PART NUMBERS.

T39001	TRAILER ASSEMBLY R.H.
T39001-1	TRAILER AND PIVOT SHAFT
T39001-19	CHASSIS BODY
T39001-6	CHASSIS MOTOR MOUNT BRACKET
T39002	SMOOTHING ROLLER HEAD ASSEMBLY
T39003	TRAILER ASSEMBLY L.H.
T39004	DRIVE COVER ASSEMBLY COMPLETE SET
T39005	SEAT
T39006	GEARBOX UB50
T39007	DRIVE ROLLER RUBBER COATED
T39008	WHEEL ASSEMBLY
T39009	ENGINE HONDA GX QX 160
T39010	SMOOTHING ROLLER
T39011	SMOOTHING ROLLER SHAFT
T39012	SMOOTHING ROLLER SHAFT SPACER
T39013	TILLER HANDLE ASSEMBLY
T39014	RUBBER PEDAL CAP
T39015	FORWARD/REVERSE SHAFT ASSEMBLY
T39016	FORWARD/REVERSE SHAFT LEVER ASSEMBLY
T39017	LEVER TO YOKE ADJUSTING ROD
T39018	FORWARD/REVERSE PIVOT YOKE ASSEMBLY
T39019	YOKE TO ENGAGEMENT ARM ADJ. ROD
T39020	R.H. SIDE ENGAGEMENT ARM
T39021	L.H. SIDE ENGAGEMENT ARM
T39021-1	ENGAGEMENT ARM BUSH
T39022	PULLEY MOUNT FRAME ASSEMBLY
T39023	DRIVE BELT ADJUSTER ROD ASSEMBLY
T39024	SPRING MOUNTING LUG
T39025	DRIVE COVER FRONT
T39026	DRIVE COUPLING (ENGINE) ASSEMBLY
T39027	DRIVE COUPLING (GEARBOX) ASSEMBLY
T39028	SEAT MOUNT BRACKET ASSEMBLY
T39029	SEAT MOUNT PIVOT SHAFT ASSEMBLY
T39030	TRAILER ASSEMBLY R.H.
T39031	TRAILER LOCK HANDLE
T39033	TRAILER SUPPORT VERTICAL
T39034	TRANSMISSION COVER CATCH
T39035	COUPLING 50MM
T39036	ENGAGEMENT ARM BRONZE BUSH
T39037	STEERING AUCTUATING BRACKET
T39039	DRIVE COVER PIVOT PIN
T39040	DRIVE TENSION PULLEY
T39041	DRIVE TENSION SPRING
T39042	RUBBER CAP

T39043	REAR IDLER PULLEY
T39044	FRONT IDLER PULLEY
T39045	GEARBOX DRIVE PULLEY
T39046	GEARBOX FILLER CAP
T39047	NYLON BUSH PIVOT YOKE
T39048	DRIVE ROLLER PULLEY
T39049	FORWARD/REVERSE SHAFT PIVOT BUSH
T39050	TRAILER LOCKING CATCH SPRING
T39051	TRAILER ARM PIVOT BUSH
T39052	DRIVE TENSION PULLEY BUSH
T39053	DRIVE PULLEY TENSION BUSH SPACER
T39055	DRIVE COVER FRONT SUPPORT ASSEMBLY
T39056	SEAT FRAME ASSEMBLY
T39056-7	SEAT FRAME RUBBER PAD
T39057	THICK WASHER
T39058	PLASTIC HAND GRIP
T39059	RUBBER COUPLING (DRIVE)
T39060	3/8" X 1 1/4" UNF LONG HEX HEAD SCREW
T39061	R.H. RUBBER PAD
T39062	L.H. RUBBER PAD
T39063	25mm PLASTIC PLUG
T39063	30mm PLASTIC PLUG
T39064	STICKER
T39065	LAWN GREEN POWDER COAT TOUCH UP
T39066	GOLDEN YELLOW POWDER COAT TOUCH UP
T39068	5mm SQUARE KEY

PARTS BREAKDOWN FOR GOLF GREEN ROLLER MODEL GR39

<u>PART NUMBER</u>	<u>DESCRIPTION</u>
AMO20	ROD END
BO416C	1/4" X 1" UNC LONG BOLT
BO524C	5/16" X 1 1/2" UNC LONG BOLT
BO532C	5/16" X 2" UNC HEX HEAD BOLT
BO620F	3/8" X 1 1/4" UNF HEX HEAD BOLT
BO624F	3/8" X 1 1/2" UNF HEX HEAD BOLT
BO630F	3/8" X 2" UNF HEX HEAD BOLT
B33	BELT
B90	BELT
BB204714N	6204 BEARING
BB205215N	6304 BEARING
CP3-220	3.2 X 20 COTTER PIN
CP3-232	3.2 X 32 COTTER PIN
CP3-240	3.2 X 40 COTTER PIN
D004-1	1/4" DIA. SEL-LOK PIN (Replaces DP04)
EN205	BEARING
F205J	BEARING HOUSING
GSO40604	3/8" X 1/2" WW GRUB SCREW
GS0505W	5/16" UNC GRUB SCREW
KO9	WOODRUFF KEY
LF205	BEARING HOUSING
N04CN	1/4" UNC NYLOC NUT
N05CN	5/16" UNC NYLOC NUT
N06F	3/8" UNF NUT
N06FN	3/8" UNF NYLOC NUT
N08CN	1/2" BSW LOCK NUT
N10M	M10 HEX NUT
N11M	1/4" ROLL PIN
PR4-03-2	5/32" X 4" GRIP POP RIVET
SHO616F	3/8" X 1" UNF HEX HEAD SCREW
SHO624F	3/8" X 1 1/2" UNF HEX HEAD SCREW
SHO812M	M8 X 12 HEX HEAD SCREW
SHO820M	M8 X 20 HEX HEAD SCREW
WO51216	5/16" X 3/4" X 16 GAUGE FLAT WASHER
WO81816	1/2" X 1 1/8" X 16 GAUGE FLAT WASHER
W102016	5/8" X 1 1/4" X 16 GAUGE FLAT WASHER
W203902	20 X 39 X 2 FLAT WASHER
W254716	25 X 47 X 16 GAUGE FLAT WASHER
WS060815	3/8" X 1/2" X 3/32" SPRING WASHER



TRU - TURF EQUIPMENT

3. IMPORTANT INSTRUCTIONS.

IMPORTANT INSTRUCTIONS

IMPORTANT the main drive belt connecting the drive pulley to the rubber coated drive roller will stretch after a period of operation, this is normal for “V” belts. It is **IMPERATIVE** that the belt is re-tensioned tightly at number 5 adjusting nut, as per the diagram. This ensures proper and positive belt tracking on the drive pulley number 3 through to the pulley fitted to the drive roller.

FAILURE to keep this belt properly tensioned will cause premature wear on the pulleys.

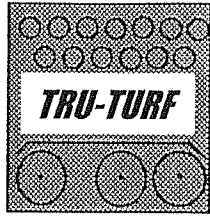
If this is proven to be the case the pulleys will not be covered under warranty.

ROLLING

This should be carried out following the contours, not across them. When rolling, always push the steering or smoothing rollers up the slope of the green, this gives positive traction on the drive roller and makes for easier rolling.

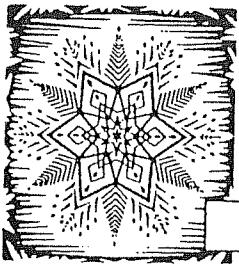
* Please note, that the end of the rubber drive roller has been tapered off, this will help eliminate the creasing effect that sometimes appears on those difficult contoured greens.

Remember, healthy greens, healthy membership.

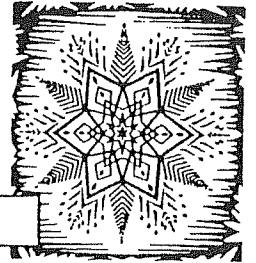


TRU - TURF EQUIPMENT

4. TRU - TURF NEWS.



TRU-TURF NEWS



SERVICE BULLETIN

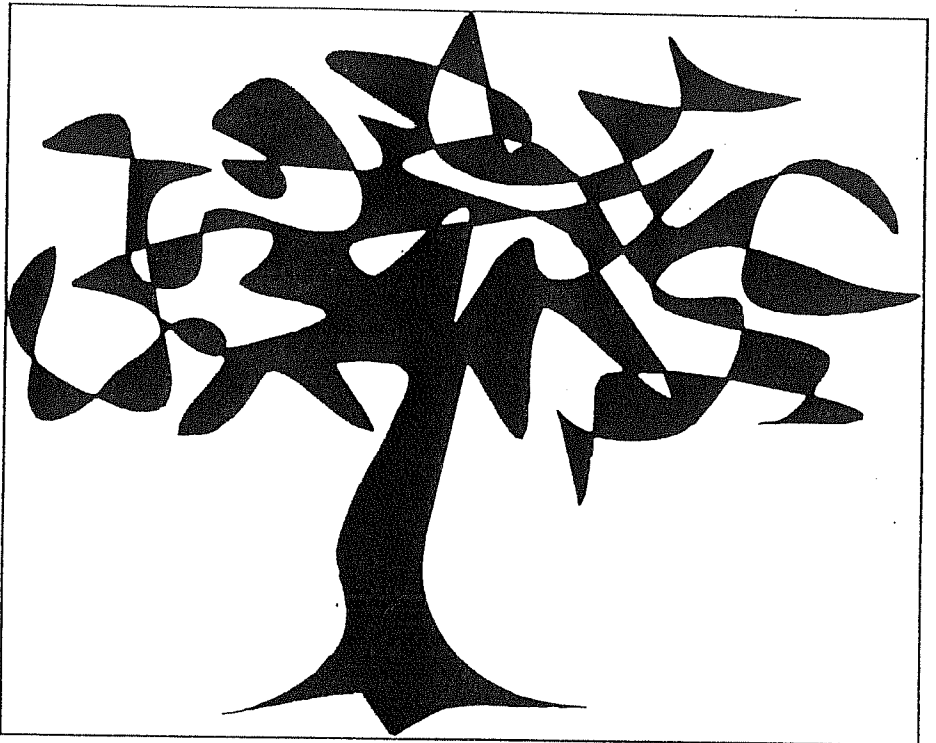
To the service manager.

It has become apparent that users of the Tru-Putt Roller are overlooking the service manual maintenance procedures.

Your attention is drawn to the tightening of the main drive belt. This belt is to be kept tight at all times. This is done simply by tightening the adjusting nut situated on the top, rear of the gearbox which is attached to the tensioning pulley.

New belts will stretch and if this belt is not kept tight slipping will occur on the 2B drive pulley, thus there is no drive and excessive wear on this 2B pulley.

Replacement of this part under warranty cannot be guaranteed if the above procedures are not adhered to.



*Remember:
Healthy greens,
Healthy membership.*

HEALTHY GREENS ARE ROLLED.

Are you aware that rolling of greens combined with adjusting the cut height of the grass produces healthier greens. Look at it this way: it's winter, slow grass growth, perhaps you are mowing 2-6 times per week depending upon location and at an average height of 4mm.

Lets say the weekly average mowing is 4 times.

We drop out 1 mowing per week, raise the cutting height to 5mm for the other 3 mowings and substitute rolling for the fourth day. We now have 25%

maintenance savings, less a little for the roller. We have 25% more grass on the greens, cutting at 5mm instead of 4mm, This puts the grass under a lot less stress which inturn creates a healthier top through a healthier root system.

By substituting a mowing with the roller we produce a surface that is true and faster, but a similar ball speed is maintained through a healthier greens surface.

Ball speed is a combination of cutting height and rolling.

TRU-TURF NEWS 2

Bibliography: James B Beard, Ph.D. International Sports Turf Institute, College Station, Texas.

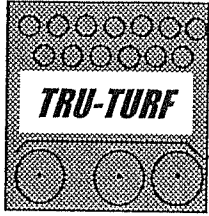
The potential benefits of rolling greens reentered the cultural picture due to (a) the substantial use of high-sand root zones in putting greens thereby greatly reducing the potential for soil compaction problems from turf rolling and (b) the preference of golfers for fast ball roll speeds which have been achieved principally through very close mowing heights that also results in further shortening of the root system, reduced turfgrass health and canopy density, and a resultant increase in moss and algae problems. This situation leads to the question of whether the increased ball roll distance achieved by turf rolling can substitute for the ball roll distance accomplished by extremely close mowing heights. The result would provide the opportunity to raise the cutting height, thereby achieving better overall turf health, rooting and canopy density, plan an associated reduction in moss and algae.

Investigations conducted over the past two years on well drained high sand root zones and were composed of mature bentgrass turf with minimal thatch.

The ball roll distance as measured by the stimpmeter technique prior to initiation of the individual turf rolling studies ranged from 9.5 to 10.5 feet. The finds from these studies can be summarised as follows:

1. A single mowing in early morning consistently increased distance of ball roll by 10 percent at the morning reading.
2. One, two, three, or four consecutive turf rollings each morning increased the distance of ball roll from 10 to 20 percent.
3. Differential effects of rolling 2 to 4 times dissipated after 1.2 to 3.3 days. However, multiple rollings still sustained an 8 to 10 percent greater distance of ball roll when compared to adjacent non-rolled areas when there were no longer any differential effects.
4. There was no increase in the distance of ball roll when the rolling pressure was increased from 4.8 to 11.9 pounds per lateral inch.
5. The distances of ball roll were similar when the turf was rolled with the direction of mowing in comparison to when the turf was rolled against the direction of mowing.
6. Operating speed did not influence the distance of ball roll.
7. There was a decided visual improvement in surface smoothness as a result of turf rolling.

These studies conducted over two years at two locations indicate that turf rolling has the potential of being used as a component in turfgrass cultural systems for high-sand, bentgrass putting greens where the goal is to achieve high ball roll speeds, while sustaining the best possible turfgrass health.



TRU - TURF EQUIPMENT

5. RESEARCH DATA.

PRODUCT RESEARCH & DATA

As you are aware, we here in Australia rely somewhat on America for certain information regarding the equipment we use, particularly for our Golf Courses.

Recently we attended the G.C.S.A. Annual Tradeshow in San Fransisco; the previous year in Dallas, Texas, the home of the Texas University where they are undergoing and have been for some years the effect of rolling the Greens with various pieces of equipment.

After I attended certain lectures it was interesting to discover that Dr James Beard (Soil Scientist), who also recommends rolling up to 3 times a week, revealed the following:

If we roll our Greens with one single roller the % increase in ball roll would increase by 10%.

Twin Rollers by 11%
Three Rollers by 17%
Four Rollers by 20%

The above tests were carried out using a Stimp Meter.

As we use a four roller configuration with our machine and particularly with the unevenly spaced triple roller smoothing head, we not only achieve a faster surface but also a truer surface with a minimum amount of compaction, which is achieved by distributing the machine and operator weight across the four rollers.

This also allows us to cut the greens longer thus giving a healthier green with a deeper root system, which reduces running and maintenance costs on the machinery,

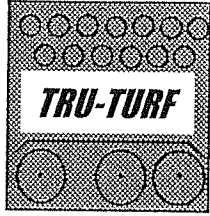
As a comparison the weight and rolling factor is:

Combined Weight of Roller and Operator (kg)

Length of Roller (cm) x Sum of the total number of rollers. Diameter in cm.

$$\begin{array}{l} \text{TRU-PUTT} \\ \text{GOLF ROLLER} \end{array} \quad \frac{265}{100 \times 36} = 0.074 \text{ kg/cm sq.}$$

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TRU - TURF EQUIPMENT

6. SOME REASONS TO ROLL.

TRU-TURF EQUIPMENT 6175 947199

Here are some of the reasons why you need a **Golf Green Roller**.

The **Tru-Putt Golf Green Roller** gives you:

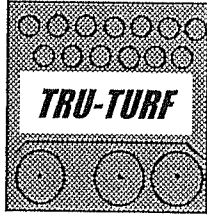
- A smooth and true putting surface.
- Very little soil compaction, less than golfers walking on the greens.
- Removes surface irregularities.
- Smooths ball pitch marks.
- Provides extra putting speed without lowering the grass cut height.
- Greens that are less stressed.
- Rapidly smooths the surface following minor or major renovations.
- Allows you to raise the cutting height by up to 25% and maintain a similar putting speed.
- Allows for a healthier root system, which in turn gives healthier greens.
- Reduces the number of mowings per week.
- Reduces maintenance costs.
- **Saves your club money.**

Golfers are demanding and do enjoy smoother and more accurate putting surfaces, this is achievable by using a TRU-PUTT golf green roller.

It is our aim at **TRU-TURF EQUIPMENT** to help you create the best greens possible with the use of our **TRU-PUTT** roller.

Did you know that rolling of greens originated in Australia and that our organisation originally invented the current style of Golf Roller being used today, back in 1978 by Mr Ron Kaye from Victoria. Ron, although now retired, remains very active within our company.

Try rolling and notice the difference, join the elite.



TRU - TURF EQUIPMENT

7. WARRANTY.

TRU-TURF EQUIPMENT WARRANTY

Engine warranty is separate to the Tru-Turf Equipment warranty policy. Refer to engine owners manual for details.

Tru-Turf Equipment warrants in respect of **Tru-Turf** products sold, that for a period of one year from the date of purchase, **Tru-Turf Equipment** or authorised dealers will repair or replace free of any charge any parts on their equipment found to be defective in materials or workmanship under normal use and operating conditions provided that:

1. The equipment has been properly and reasonably used, operated and maintained and regularly serviced according to the service schedule.
2. The repair or replacement is carried out by an authorised **Tru-Turf Equipment** distributor/dealer.

What is not covered by a warranty.

1. The labour, parts or lubricant costs of maintenance work.
2. The replacement of normal maintenance parts, bolts and nuts, vee belts, chains and sprockets, made in connection with normal maintenance service as opposed to manufacturing defects.
3. Telephone, Facsimile expenses or other related communication expenses.
4. Loss of revenue resulting from failure.
5. Loss of damage to property.
6. Transportation and Insurance charges during transportation of failed unit.
7. Any defect caused by work carried out by an unauthorised dealer.
8. Any defect caused by fitment of a non genuine part or attachment not approved by **Tru-Turf Equipment.**
9. Any defect caused by misuse, negligence, accidents or failure to carry out proper maintenance service.
10. Damage caused by continued operation of the machine after it is known to be defective.
11. Damage caused by racing and similar activities or by overloading.
12. All defective parts replaced under this warranty become the property of **Tru-Turf Equipment.**